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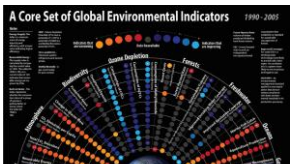

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CONTENTS

"Water Pollution and Protection of Geo Thermal Springs- A Case Study of Tansa River Basin (Thane District)"

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Abstract:

A hot spring is a spring that is produced by the emergence of geothermally heated groundwater from the Earth's crust. There are geothermal hot springs in many locations all over the crust of the earth. Amongst all these, there are 21 hot springs in the Basin of Tansa River. These springs are famous for its medicinal usage. The large numbers of visitors are bathing in these springs and the pollutants are going to increase day by day. This research paper is giving emphasis on the water pollution and its conservation of hot springs of Tansa River Basin which are located in Vasai tahsil of Thane district in Maharashtra state. The study area is a part of the Sahyadri hills at the entire of the districts plateau region created by volcanic formation.

Keywords:

Hot spring, pollution, solid waste, geology, sewage, parameter.

Introduction:

The hot water springs in the Basin of Tansa River are said to be rich in sulphur contents; which makes it ideal for medicinal usage. Hence people from many parts of India, visit this place to bath in this water springs. These hot water springs are believed of curing out all the skin ailments. The hot springs stretch out around 7 km finally into the river Tansa. The temperature of these hot water springs is around 43°C to 49° C. The peculiar, Kothawala baths have facility of complete exclusive bathing for people in private. There are provisions of even long tubs and showers here. According to our Report "Water" is essential part in life and so I took this hot spring subject for study. Basically geology is the function of science and the main mechanism of "hot water medicinal". Geomorphologic processes are generally complex and reflect interrelationship among the variable such as, climate, geology, soils, and vegetation. Occurrence and movement of ground water depends on many factors like physiographic, drainage, geology structure and hydrology. Basically the temperature of the rocks in the interiors of the earth increases with the increasing depth. The water that comes in contact with such rocks gets heated up and thus the water gets hot in the hot springs. The water of such hot springs are said to have medicinal properties. With additional mineral contents than the normal water these hot spring waters are held for therapeutic usage. According to the scientists, the water in the Vajreshwari hot water springs is hot due to the concurrence of these waters to the former volcanic eruption in this area.

Aims and Objectives:

1. To study the chemical analysis of water of the hot spring.
2. To study the solid waste of the study area.
3. To study the sewage facility in the study area.
4. To suggest the recommendations for protection of geothermal springs.

Hypothesis:

The geothermal springs of Tansa River are going to polluted by the local natives and visitors.

Geographical Location of Study Area:

A selected area for the present study is the surrounding of Vajrashwari represent distinct geomorphic unit like hilly area and located in Tansa River basin administratively this area is located in Vasai tahasil of Thane District (M.S.). Vajrashwari located 2 to 5 Km to the North direction of Bhivandi Village. It is located on 20° 35' 50" North latitude and 73° 30' 50" East longitude.

Vajreshwari:

For weekend travellers, Vajreshwari town is essentially a single street with shops on either side selling everything that one would need for one's offerings. All traffic patterns seem to lead to the hillock atop which lies the Vajreshwari Temple. This spot is marked by a gigantic *deep-stambha* and is impossible to miss. A quick climb over the few dozen stone steps and one is at the door of the shrine. The temple is a gigantic stone structure and the queues for *darshan* are quite orderly. Post-prayers, stroll around the main temple and take in the views of the streets below and of the Tansa River in the background. For the activity-oriented, take the steps that lead upwards to a holy-pavilion providing even better views of the countryside.

Akloli Kund:

Though the Vajreshwari temple seems to be the centre of all activity, Vajreshwari would have been any other non-descript semi-urban hinterland town had it not been for the nearby hot-water springs. A

couple of tiled-tanks in front of a Shiva temple trap the water of seven hot water springs. Since the water is running water, the fact that dozens take a dip in the tanks shouldn't be a cause of worry. Also, since the waters are laden with minerals, the water appears blackish. However, if urban sensibilities stop you from a complete head-to-toe dunk then do sit at the edge and dip your feet into the tanks. In either case, before you plunge in, feel the water with your fingers as it can sometimes be hot enough to cause minor burns to some people.

Ganeshpuri:

This quaint little town revolves around the Nityanand Mandir, built to honour the Saint Nityanand who took Samadhi here, sometime in the 1960s. The temple and its surroundings are serene, and one can sit peacefully without being harassed. For those needing something more tangible to pass their time observe the flower-sellers trying to lure customers. Just behind the main temple is a small Shiva shrine with yet another set of tanks in front of it that hold the water of some hot-water springs. These are usually less crowded than the ones at Vajreshwari Halfway between Ganeshpuri and Vajreshwari is a campus fenced off from the road and a group of buildings that seem totally alien to their surroundings. This is the Sri Gurudev Ashram, started by Saint Nityanad. Though the founder didn't believe much in material comforts, today's inmates, many of them non-Indians seem quite content with their plush quarters. Non-inmates are allowed entry into some parts of the ashram *Urbanization, pollution are threatening geologically active zone in Tansa River basin.*

Pollution of Hot Springs:

The fast disappearing hot water springs of Tansa River basin, the only zone in Mumbai metro region that is geologically active, have finally figured on the metropolitan authority's map for their conservation. The Tansa River basin, which has a unique ecosystem, is under immense pressure due to urbanization. Human dwellings have already reached its fringes, which are threatening to disturb the delicate ecosystem. Pollution due to bathing the cattle and washing of clothes has plugged and contaminated the springs. Our study will provide solutions to this problem. The study would also help evolve a mechanism for sustained management of the basin's ecosystem, water, soil, ground water, and the flora and fauna. The study would also establish the influence zone of the eco-region and propose ecology-based planning guidelines and management plans for the basin. "Earlier, several hot springs existed, but only few remain," said Shetty.The villages of Ganeshpuri, Vajreshwari and Akloli, situated in the Tansa basin, are considered places of religious importance. Besides being famous for the hot water springs believed to be effective in treating skin diseases, the three temples attract lakhs of devotees, especially during Gurupurnima. Interestingly, the three villages have been declared as recreational and tourism zones under the Draft Development Plan for Mumbai Metropolitan Region 1996-2001. Our study will not only be aimed at preserving and recovering the hot water springs of Tansa River basin, but also provide a recreational tourism plan before any development work is undertaken in the area. The study would also help evolve development regulations for the region.

Data and Methodology:

The information and data is collected through surveying. Spring water sample are collected from Vajreshwari hot springs profiles instructed by geological survey of India. The water sample of spring water tested at "Hydrological project water quality laboratory Level II Nashik" . Thirty Six parameters are analyzed in the laboratory test for the testing of water quality of the springs

Sources of Data:

Primary data:

1. Collected the data of temperature of the hot springs through personal visit to study area by investigator.
2. Personal interviews of the tourist and local villagers are taken by author.

Secondary data:

1. The Report of Environment Management Plan for the Geo Thermal Zone of the Tansa River Basin (Jan. 2011)
2. The research information of springs data collected from the minor research project of Prof. R.S. Shewale.
3. The important references from internet.

Conclusions:

1. The amount of total solids are 3060 (mg/l) is higher than the permissible limit (2000 mg/l).
2. The amount of Chlorides is 1134.4 (mg/l) is also higher than permissible limit (1000 mg/l).
3. Total Hardness (CaCo3) of the spring water is 810 (mg/l) is over than (600 mg/l).
4. Total Coli forms are 290 (TCC/100ml) is very high.

5. All these pollutants are increased due to the local residence peoples and visitors.
6. The Tansa River is also going to polluted by the sewage, exhaust of hot spring.

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Food Security in India

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Abstract

Food security is a multidimensional concept. Food insecurity affects the physical as well as mental health and productivity of a person. The availability of food does not guarantee food security for everyone. Food security implies producing sufficient food and making it accessible to all individuals throughout the year. India has made remarkable progress in food and agricultural production but still, India continues to bear the burden of huge food and nutritional insecurity. There are 195.9 million undernourished people in India with chronic nutritional deficiency. As per data available, 42 percent of total children under the age of five are found underweight and 59 percent are stunted. Due to increased income and consumption expenditure of people food diversity has been noticed. The decline in per capita consumption of cereals harms the nutritional security of rural people. Despite an impressive growth rate of GDP for the past few years and sufficient foodgrains production millions of Indians still do not have adequate access to food, safe drinking water, and sanitation. To ensure minimum food grains supply to the vulnerable section of society the government launched Targeted Public Distribution System. The availability of food is not an issue the crux of the food problem lies in the distribution. Despite huge food grain production, and buffer stock in the country food insecurity has remained a big challenge for India.

Keywords: *Food Security, Hunger, Nutrition, Poverty, Foodgrains*

Introduction

Food security is a multidimensional concept that implies physical and economic access to food and freedom from hunger and malnutrition. The right to food is one of the fundamental rights of human beings. Denial of this right may be detrimental for both the person and the country itself. On the one hand, it affects the physical as well as mental health and productivity of a person/labourer and on the other hand, it negatively affects the productivity and Gross Domestic Product (GDP) of a country. The health of a nation is dependent on food security. World Food Summit (1996) defined food security as "*food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life."*However, the availability of food does not guarantee food security for everyone. In general food security may be defined as access to food along with food production and availability in the country. In this sense achievement of food security implies producing sufficient food and making it accessible to all individuals throughout the year and on a sustainable basis from year to year (Acharya,2009).

India shelters 17.7 per cent of the world's population which has been putting tremendous pressure on land other natural resources. Despite such obstacles, India has made remarkable progress in food and agricultural production in the last few decades especially after the initiation of the Green, White, and Blue Revolution. This has been accompanied by increased levels of input use, mechanization, and policy support (Kumar,2017). The Green revolution that started during the **1960s** has resulted in a phenomenal increase in the production of crops in the country. India has been in a paradoxical situation with mass poverty, hunger coexisting with the increasing food grain production followed by mounting stock. Though there have been remarkable achievements in food production and the reduction of the malnutrition rate still India continues to bear the burden of huge food and nutritional insecurity ranking 94 out of 107 countries in the Global Hunger Index in 2020. India gives shelter to 24 percent of the world's malnourished people and 30 percent of stunted children under the age of five. As per data of the Food and Agriculture Organisation (FAO), there are 195.9 million undernourished people in India with a chronic nutritional deficiency in 2015-17 against 204.1 million in 2005-07. Hungama Report, 2011 reveals that 42 percent of total children under the age of five are found underweight and 59 percent are stunted. Covid-19 pandemic might have increased the figure.

II.Dimensions of food security in India

i)Food Availability: Food availability refers to the physical stock of sufficient amounts/quantities of foodgrains. Food availability or the supply side of food security depends on the level and growth of food production and imports of foodgrains in the country. **Foodgrains Production and Per Capita Net Availability of Foodgrains (Per Annum)**

Year	Foodgrains production (million tonnes)					Per Capita Availability (Kgs Per Year)				Food Grains
	Rice	Wheat	Nutri	Pulses	Foodgrai	Rice	Whea	Cereals	Pulses	

			Cereals		ns		t			
1	2	3	4	5	6	7	8	9	10	11
1960-61	34.5	11.0	23.7	12.7	82.0	73.4	28.9	145.9	25.2	171.1
1970-71	42.2	23.8	30.5	11.8	108.4	70.3	37.8	152.4	18.7	171.1
1980-81	53.6	36.3	29.0	10.6	129.5	72.2	47.3	152.3	13.7	166.0
1990-91	74.2	55.1	32.7	14.2	176.3	80.9	60.0	171.0	15.2	186.2
2000-01	84.9	69.6	31.0	11.0	196.8	69.5	49.6	141.0	10.9	151.9
2010-11	95.9	86.8	43.4	18.2	244.4	66.3	59.7	149.9	15.7	170.9
2019-20(P)	118.4	103.6	47.4	23.1	296.6	73.4	64.8	169.6	17.5	187.1

Source: Directorate of Economics and Statistics, DAC&FW, Govt. of India
P=Provisional Estimate

India has made substantial progress in foodgrains production and became self-reliant in foodgrains production. Though there have been variations in foodgrains production the country has maintained a satisfactory stock of foodstuff. The variability of production in foodgrains leads to variability in the per capita availability of foodgrains (Jha *et al*., 2014). India's foodgrains production has increased from 82.0 million tonnes in1960-61 to 296.6 million tonnes in 2019-20. Production of rice, wheat cereals, and pulses has recorded significant growth during this period. Per capita availability of foodgrains has increased from 171.1 kg in 1960-61 to 187.1 kg in 2019-20. Despite such achievements, India is far behind the nutritional security of other developed countries. Indian farmers have adopted crop diversification due to a rising population, economic growth, increasing urbanization, changing tastes and preferences, and greater profitability. As a result, the demand for non-cereals crops has been on a rise.

Due to increased income and consumption expenditure of people food diversity has been noticed over a couple of years. Long-term data of the National Sample Survey Organisation (NSSO) also indicates a declining trend in per capita consumption of cereals. The consumption of cereals, particularly coarse cereals, has been declining with time and this decline is being compensated by the high-value commodities such as milk, vegetables, fruits, meat fish eggs, etc. (Kumar,1998). The decline in per capita consumption of cereals harms the nutritional security of rural people. The share of total expenditure on food items has declined from 55 percent in 2004-05 to 48.6 percent in 2011-12 in rural areas. In urban areas, it has declined from 42.5 percent to 38.5 percent. Whereas, expenditure on non-food items has increased from 45 percent to 51.4 percent in rural areas and from 57.5 percent to 61.5 percent in urban areas during the period. National Family Health Survey (NFHS)IV conducted in 2015-16 found that 35.7 percent of children were underweight, 38.4 stunted and 21.0 percent wasted. This reflects the poor state of food and nutritional security in India.

ii) Food Accessibility: Food accessibility refers to the physical and economic access of every person to food. In other words, it refers to an individual's capability to purchase food and to the availability of food through safety nets of distribution (Jain,2016). Despite an impressive growth rate of GDP for the past few years and sufficient foodgrains production millions of Indians still do not have adequate access to food, safe drinking water, and sanitation. India is the second-largest producer of rice and the fourth-largest producer of wheat yet 36 percent of children under five years are undernourished. Food security will be meaningful only when the poor will have adequate purchasing power. Apart from the direct food assistance programme several wage employment programmes have been implemented by the Government of India. In 2001 Sampoorna Gramin Rozgar Yojana (SGRY) was launched for employment and income generation in rural areas. In 2006 National Rural Employment Guarantee Act (NREGA) was launched to provide 100 days of employment to at least one member of every rural family. The supply of staple food at an affordable price is essential for food security. The Government of India has introduced several programmes such as Public Distribution System (PDS), Integrated Child Development Schemes (ICDS), and Mid-Day Meal Scheme (MDM) to address food insecurity in the country.

To ensure minimum food grains supply to the vulnerable section of society the government launched Targeted Public Distribution System (TPDS) in 1997. The system has been implemented through state governments. PDS items like rice, wheat edible oils, and kerosene are supplied to consumers at a subsidized rate. More than 4.6 lakh ration shops are involved in distributing PDS goods to different target groups throughout the country. There are four target groups under PDS, i) Poorest of the poor families are supplied 35kg of rice/wheat per month at Rs. 3/2 per kg. ii) BPL families are supplied 35kg rice/wheat per month at half price of economic cost, iii) APL families are also eligible to get PDS items at a price close to the economic cost, and iv) Senior citizens who do not have any income are eligible for 10kg of rice/wheat per month free of cost. There are around 65 million poor families in the country who benefited from PDS.

Out of total subsidy under TPDS, 18 percent is allocated for APL, 46 percent for BPL, and 36 percent for Antodaya Anna Yojana (AAY) the poorest of the poor.

III.Issues and Concerns about PDS

Despite the impressive expansion, the PDS has been subject to inherent problems and criticism since its inception. Firstly, the operational cost of the system has been increasing due to mismanagement. Secondly, it has been alleged that the scheme has not been successful in serving rural families. Thirdly, PDS has failed to cover all BPL families due to leakages, corruption, illegal sales of PDS items in the open market, and the issue of false ration cards to well-to-do families. Fourthly, the items supplied under PDS are of poor quality. In addition to that infrequent supply of foodgrains and political influence in selecting target group/beneficiaries are hampering the proper distribution of PDS items.

IV. National Food Security Act, 2013

The National Food Security Act aims at economic access to adequate food for all at all times. According to this Act, every BPL family will be entitled to get 25 kg of rice or wheat per month at Rs. 3 per kilogram. It is expected that a fixed entitlement of food would be a major step towards food and nutrition security in the country. Under the Act, pregnant women and lactating mothers are entitled to nutritious food of 600 calories and maternity benefits of Rs. 6000 for six months. Children up to 14 years of age will get free hot meals.

Challenges Ahead

Fluctuations in weather conditions during cropping seasons affect food production. Intergovernmental Panel on Climate Change (IPCC) report warns that a rise in global temperature and increasing food demand would pose a larger risk to food security globally and regionally. A temperature rise may have a direct impact on the Rabi crop and every 1^0C rise will reduce wheat production by 4 to 5 Million Tonnes (Borah, 2021). The agriculture sector has to cope with this problem. Another serious issue in realizing food security in the country is to enhance the productivity and modernization of the agriculture sector. The green revolution has yet to reach every corner of the country. Modernization and mechanization of the agriculture sector are the need of the hour. Farmers are to be encouraged with modern technology and easy credit facility. Farmers are increasingly concentrating on crop diversification for higher profit. Prices of staple foods are no longer encouraging and fetching lower returns to the farmers. Guarantee of Minimum Support Price of crops may encourage the farmers to minimize crop diversification. Another challenge in achieving food and nutrition security is the maintenance of the supply chain of foodgrains. The covid-19 pandemic has significantly exacerbated this widespread food insecurity in the country. Therefore corrective measures are needed for the enhancement of agriculture marketing to ensure income and profitability of agriculture products.

Finally, the adequate and safe storage facility of food grains is yet another concern for the government. Storage facilities have to be increased with the up-gradation of the storage system. The distribution system needs to be monitored to minimize the leakage of PDS items.

Conclusion

Though there has been a significant decline in the poverty ratio in India during the last couple of years the Covid-19 pandemic has worsened the scenario of poverty and hungry people. Moreover, providing food security to 135 million people is a gigantic task and requires a huge budget allocation. Availability and access can enhance the food and nutritional security in the country. However, the availability of food is not an issue the crux of the food problem lies in the distribution. The supply chain of food grains and delivery networks needs to be improved. Despite huge food grain production, and buffer stock in the country food insecurity has remained a big challenge for India.

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Assessment of Drinking Water Quality – A Case Study of Osmanabad Area

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Abstract
Water is a vital resource for human survival. In the present study, the physico-chemical characteristics of water in Osmanabad city area were assessed for its suitability for drinking purposes. A total of 258 water samples were collected from household water sources from different parts of Osmanabad city area. In order to assess the water quality, the water samples were analyzed for different physico-chemical properties, e.g., pH, electrical conductivity (EC), total dissolved solid(TDS), total hardness(TH), total alkalinity(TA), chloride (Cl), fluoride (F) and nitrates (NO3) concentrations. The water samples were analyzed for temperature and turbidity also. The results were compared with the standards prescribe by World Health Organization (WHO) and Bureau of Indian Standard(BIS). All the physico-chemical parameters were found to be in the prescribed permissible limit. From the pH values it is clear that water of the study area is alkaline in nature and the total hardness varies in between 55-1837 ppm, which indicates that water in the study area is moderately hard. Hence it is suggested to the household localities to soften the water before consumption.
Keywords: Drinking water, fluoride, de-ionized water, WHO, BIS, Physico-chemical, ppm,

1. Introduction

Water is the Nature's free gift to the human race. It is available in various forms such as rivers, lakes, streams, etc. The importance of water in human life is so much that the development of any city of the world has practically taken place near some source of water supply. The occurrence of water in all the three forms is basically important for human being for comfort, luxury and various other necessities of life. The use of water by man, plants and animals is universal. Every living soul requires water for its survival. It is essential for life, health and sanitation. Being a basic need of human development, health and wellbeing, safe drinking water is an internationally accepted human right(WHO, 2001), which has been enlisted as one of the ten targets in the Millennium Development Goals(MDGs). The impurities in water are to be removed to a certain extent only so that it does not prove harmful to the public health. The term wholesome water is used to indicate the water which is not chemically pure, but does not contain anything harmful to the human body i.e., the water in which there are no excessive organic matter, no pathogenic bacteria, no toxic substances and no excessive organic matter. Thus, the wholesomeness is a must while the palatability of water is desirable. As a decentralized source of drinking water and myriads of other services for millions of rural and urban families, groundwater as a natural resource plays a crucial role which, accounts for nearly 80 percent of the rural domestic water needs, and 50 percent of the urban water needs in India (Kumar et al., 2005). Groundwater pollution unlike others is very critical, as once an aquifer becomes polluted, it is very difficult, extensive and time consuming affair to clean it up and may remain unusable for decades. Therefore, the primary objective of this investigation is to find out the physico-chemical parameters and fluoride (F) concentrations in the water samples to explore their suitability for human consumption and domestic use by the Osmanabad city population.

Osmanabad district of Maharashtra state lies between $18^0$11'9.8" N latitudes and $76^0$2'30.9804"E. longitudes. Total geographical area of the district is around 7517 km^2. The district area falls in the Manjara sub-basin of Godavari river basin and is mainly drained by three non-perennial streams such as The Terna & its tributaries. The ground water exploration revealed the presence of aquifer groups down to a depth of 450 meters comprising basaltic rocks with occasional gravel. The elevation from the mean sea level is 646m. The average gradient of the water table is of the order of 1.2m/km. The overall flow of ground water is from north-east to south-west direction. The local citizens have constructed tube wells of varying depths ranging from 75m to 225m along with the municipal water connections for drinking purpose in particular and domestic purpose in general.

2. Materials and Methods

2.1 Sample Collection:

Sampling is the most important part of any analysis because the final result obtained, even from the most accurate analysis, will be misleading, if the sample on which such analysis is carried out, are not representative ones of the water samples to be tested. As a matter of fact, it will be ideal to carry out all the analysis immediately after the collection of samples and the quicker the analysis.

Total 258 groundwater samples were collected, from Osmanabad city households the entire (Osmanabad city) area, from 86 different location covering each and every corner of the study area. Water samples were collected directly from the respondents /households. All the samples were collected in Monsoon, winter and summer season of 2019. Water samples were collected in pre-cleaned, sterilized, polyethylene bottles of one liter capacity. The first sample was collected from the residence in Rajiv Gandhi Nagar and the last sampling was done from the residence of Tambri Vibhag, opposite to the R.P. College Osmanabad.

2.2 Analytical methods

The water samples were analyzed at the District Soil and Water testing laboratory (State Agriculture department) Osmanabad. The water samples were analyzed for pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Temperature (Te), turbidity (Tu), total hardness (TH), total alkalinity (TA), chloride (Cl-), fluoride (F-) and Nitrate (NO_{3-}). All the reagents used in the present study were of analytical reagent grade and de-ionized water was used for experimental purpose. All the precautions were taken as given in APHA, AWWA, WPCE (2003) for sampling and analysis.

Table 1: Values and Concentration of various water parameters in water samples of Osmanabad city area

Parameters	Range of samples		Average Values	BIS Standards		WHO Limit
	Minimum	Maximum		Acceptable limit	Maximum limit	
pH	6.09	8.6	7.54	6.5-8.5	6.5-9.2	6.5-9.2
EC	150	562	330	300	-	-
TDS	24.8	618	271.34	500	2000	1500
Temperature	24	32.2	28.2	-	-	-
Turbidity	0.01	21.1	0.555	5	10	1-5
Hardness	55	1837	320.77	300	600	100
Alkalinity	20.8	1012	177.92	200	600	100
Chloride	12.6	492	177.38	200	1000	200
Fluoride	0.01	3.61	0.657	1	1.5	1
Nitrate	0	34.8	3.336	45	-	10
Iron	0	6.92	0.585	0.3	-	-

* Units of all the parameter are in mg/l except EC (uS cm^{-1}) and pH.

3. Results and Discussion:

3.1 Hydrogen Ion Activity (pH)

PH is an important parameter in assessing the water quality. It is the expression of hydrogen ion concentration, more precisely, the hydrogen ion activity. PH is a term used to express the intensity of acidic or alkaline conditions. Acidic conditions will prevail as pH value decreases and alkaline conditions will prevail as the pH value increases. According to BIS standards, the acceptable limit for pH of drinking water is specified between 6.5-8.5, pH value in analyzed water samples varied from 6.8 to 8.54 in monsoon, 6.50 to 8.60 in winter and 7.01 to 8.09 in summer. The average values of pH for the samples were found to be 7.86, 7.42 and 7.33 in monsoon, winter and summer season respectively. The results showed that all the water samples were within permissible limits. The highest pH value was observed as 8.6 as the pH of all the samples is more than 7.0, the samples are alkaline in nature and do not causes any harmful effect (Boominathan and Khan, 1994). The average of pH value for all the samples collected was 7.54 which are within the acceptable limit as specified by the BIS standards. The results showed that out of 258 samples collected during the study 251 samples were having pH values within the acceptable limits.

3.2 Electrical Conductivity (EC)

The ability of a solution to conduct an electrical current is governed by the migration of solutions and is dependent on the nature and numbers of the ionic species in that solution. This property is called electrical conductivity. It is a useful tool to assess the purity of water. According to BIS standards, the acceptable limit for EC of drinking water is specified below 300. EC values in analyzed watersamples varied from 182u S cm^{-1} to 485 uS cm^{-1} in Monsoon, 241u S $cm^{-1}$to 562uS cm^{-1} in winter and 150u S cm^{-1} to 458 uS cm^{-1} in summer. The average values of EC for the samples were found to be 357 uS cm^{-1}**,** 348 uS cm^{-1} and285 uS cm^{-1} in monsoon, winter and summer season respectively. The result showed that all the water samples were within permissible limits. The highest EC value was observed as 562 uS cm^{-1}. The

average of EC for all the samples collected was 330 uS cm^{-1} which is slightly more than the acceptable limit as specified by the BIS standards. The results showed that out of 258 samples collected during the study 132 samples were having EC values within the acceptable limits. As the geology of the study are is basaltic Deccan trap, the movement of rainwater through the cracks and crevices dissolves more amount of minerals in the water resulting into higher values of EC which are slightly more than the acceptable limit as specified by the BIS standards.

3.3 Total Dissolved Salts (TDS)

The electrical conductivity of water samples correlates with the concentration of dissolved minerals or with what is commonly known as the total dissolved salts of water samples. The acceptable range of TDS is 500 ppm. According to BIS standards, the acceptable limit for TDS of drinking water is specified below 500 ppm. TDS value in analyzed water samples varied from 24.8ppm to 377ppm in monsoon, 41ppm to 618ppm in winter and 78.5ppm to 525ppm in summer. The average values of TDS for the samples were to be 120.298ppm, 168.723ppm and 168.899ppm in monsoon, winter and summer season respectively. The result showed that all the water samples were within permissible limits. The highest TDS value was observed as 618ppm. The average of TDS for all the samples collected was 271.34 ppm which is within the acceptable limit as specified by the BIS standard. The result showed that out of 258 samples collected during the study 246 samples were having TDS values within the acceptable limits. The entire water samples are non-saline as per the salinity classification (Table2) suggested by Robinove *et al.* (1958). So, it can be concluded that the drinking water of the studied area is suitable for drinking purposes from salinity point of view.

Table 2: Classification of groundwater on the basis of salinity values (Robinove et al., 1958)

TDS (ppm)	Description	No. of Samples
<1000	Non Saline	25
1000-3000	Slightly saline	0
3000-10,000	Moderately Saline	0
> 10,000	Very Saline	0
	Total	25

3.4 Total Hardness (TH)

In groundwater hardness is mainly contributed by bicarbonates, carbonates, sulphates and chlorides of calcium and magnesium. So, the principal hardness causing ions are calcium and magnesium. The acceptable limit of total hardness is 300 mg/l in groundwater, in case of non-availability of alternate water source, ca^{2+} and Mg^{2+} upto 200mg/l and 400mg/l respectively, can be accepted (Ministry of Rural Development, India). If these components are present in high concentration, than this leads to encrustation in water supply structure and adversely affect use of water. According to BIS standards, the acceptable limit for hardness of drinking water is specified below 300ppm. Hardness values in analyzed water samples varied from 55ppm to 1837ppm in monsoon, 102ppm to 310 ppm in winter and 55ppm to 1837ppm in summer. The average values of hardness for the samples were found to be 587.303ppm, 170.168ppm and 204.833ppm in monsoon, winter and summer within permissible limits. The average of hardness for all the samples collected was 320.77ppm which is within the acceptable limit as specified by the BIS standards. The results showed that out of 258 samples collected during the study 231 samples were having total hardness values within the acceptable limits.

Durfor and Becker (1964) have classified water as soft, moderate, hard and very hard as given in table 3 as per this classification most of the samples come under moderate to hard category. On the basis of this classification, it has been observed that no water samples are soft, 23% are moderately hard and 73% are hard in nature.

Table 3: classification of water on the basis of total hardness (Durfor and Becker)

Total hardness	Nature of water
0-60	Soft
61-120	Moderate
121-180	Hard
>181	Very hard

3.5 Total alkalinity (TA)

Alkalinity of water is its acid neutralizing capacity. The alkalinity of groundwater is mainly due to carbonates and bicarbonates. According to BIS standards, the acceptable limit for alkalinity of drinking water is specified below 200 ppm. Alkalinity values in analyzed water samples varied from 20.8 ppm to

1012 ppm in monsoon, 63.81 ppm to 407 ppm in winter and 52.6 ppm to 315.5 ppm in summer. The average value of alkalinity for the samples were found to be 207.615 ppm, 168.012 ppm and 158.154 ppm in monsoon, winter and summer seasons respectively. The results showed that all the water samples were in the permissible limits. The highest alkalinity value was observed as 1012 ppm. The average of alkalinity for all the samples collected was 177.92 ppm which is within the acceptable limit as specified by the BIS standards. The results showed that out of the 258 samples collected during the study 207 samples were having alkalinity values within the acceptable limits.

3.6 Chloride (C1-)

Chloride is an anion found in variable amount in groundwater. Chloride may be present naturally in groundwater and may also originate from diverse sources such as weathering, leaching of sedimentary rocks and infiltration of sea water etc. According to BIS standards, the acceptable limit for chloride values in drinking water is specified below 200 ppm. Chloride values in analyzed water samples varied from 12.6 ppm to 492 ppm in monsoon, 88 ppm to 356 ppm in winter and 69.2 ppm to 345 ppm in summer. The average values for the chlorides for the samples were found to be 205.356 ppm, 175.373 ppm and 151.429 ppm in monsoon, winter and summer seasons respectively. The results showed that all the water samples were within the permissible limits. The highest chloride value was observed as 608 ppm. The average of chloride content for all the samples collected was 177.38 ppm which is within the acceptable limit as specified by the BIS standards. The results showed that out of collected 258 water samples collected during the study 182 samples were having chloride values within the acceptable limits.

3.7 Fluoride (F-)

The sources of fluoride are mainly, industries of iron, steel production, and petroleum refining and phosphate fertilizers. Higher concentration of fluoride causes bone and dental flurosis. Khaiwal and Garg (2006) reported relatively high ranges of fluoride contamination i.e. 0.03 to 16.6 mg 1-1 in groundwater of Hissar region of Haryana. According to BIS standards, the acceptable limit for fluoride value in drinking water is specified below 1 ppm. Fluoride values in analyzed water samples varied from 0.01 ppm to 3.61 ppm in monsoon, 0.01 ppm to 1.78 ppm in winter and 0.01 ppm to 3.12 ppm in summer. The average values for fluoride content for the samples were found to be 0.718 ppm, 0.589 ppm and 0.664 ppm in monsoon, winter and summer seasons respectively. The results showed that all the water samples were within permissible limits. The highest fluoride value was observed as 3.61 ppm. The average fluoride content for all the samples collected was 0.657 ppm which is within the acceptable limits as specified by the BIS standards.The results showed that out of the 258 samples collected during the study 205 samples were having fluoride values within the acceptable limits.

3.8 Nitrate (NO3-)

Nitrate is a compound that is formed naturally when nitrogen combines with nitrogen or ozone. Nitrogen is essential for all living things, but high levels of nitrate contents in drinking water can be dangerous to health especially for infants and pregnant women. According to BIS standards the acceptable value for nitrate content in drinking water is specified below 45 ppm. Nitrate values in analyzed water samples varied from 0 to 34.8 ppm in monsoon, 0.16 ppm to 9.13 ppm in winter and 0.21 ppm to 11.25 ppm in summer. The average values of nitrate content for the samples were found to be 5.987 ppm, 3.452 ppm and 0.57 ppm in monsoon, winter and summer season respectively. The results showed that all the water samples were within the permissible limits. The highest nitrate value was observed as 38.4 ppm. The average nitrate content of all the samples collected was 3.336 ppm which is within the acceptable limit as specified by BIS standards. The results showed that out of 258 samples collected during the study 254 samples were having nitrate values within the acceptable limits.

3.9 Iron (Fe)

Without the right water treatment, iron content can lead to a metallic taste in food and drink. Overall, a bad taste from drinking water and cooking water is never a good sign. So, while normal levels of iron in drinking water won't have a negative impact on human health or wellbeing, excessive amounts can do harms. According to the BIS standards, the acceptable limit for iron in drinking water is specified below 0.3ppm. Iron values in the analyzed water samples varied from 0 ppm to 6.92 ppm in monsoon, 0 ppm to 1.71 ppm in winter and 0.01 ppm to 1.71 in summer. The average values of the iron for the samples were found to be 1.061 ppm, 0.306 ppm and 0.388 ppm in monsoon, winter and summer season respectively. The results showed that all the water samples were within permissible limits. The highest iron value was observed as 6.92 ppm. The average of iron for all the samples collected was 0.585 ppm which is not within

the acceptable limits as specified by the BIS standards. The results showed that out of the 258 samples collected during the study152 samples were having iron values within the acceptable limits.

3.10 Temperature (Te)

The test of temperature of water has no practical meaning. The temperature of water to be supplied from storage reservoir depends on the depth from which is drawn. The desirable temperature of potable water is 10ºc while temperature of 25ºc is considered to be objectionable from the study of temperature, the characteristics of water such as density, viscosity, vapor pressure and surface tension can be determined. According to BIS standards, the acceptable limit for temperature value in drinking water is not specified. Temperature values in analyzed water samples varied from 25.5°c to 28.8°c in monsoon, 24°c to 29.6°c in winter and 26.2°c to 32.02ºc in summer. The average values of the temperature for the samples were found to be 27.9°c, 25.3°c and 31.2ºc in monsoon, winter and summer seasons respectively. The highest temperature value was observed as 32.2ºc. The average temperature for all the samples collected was 28.2ºc.

3.11 Turbidity (Tu)

The colloidal matter present in the water imparts turbidity to water. Turbidity affects the disinfection process because the solids may be partially shielding the organisms from the disinfectant. The permissible limit for the drinking water is 5 to 10 ppm. According to BIS standards, the acceptable limit for turbidity value in drinking water is specified below 1 NTU. Turbidity values in analyzed water samples varied from 0.07 NTU to 1.69 NTU in monsoon, 0.01NTU to 1.72NTU in winter and 0.01 NTU to 21.1 NTU in summer. The average values of turbidity for the samples were found to be 0.432 NTU, 0.397 NTU and 0.836 NTU in monsoon winter and summer season respectively. The results showed that all the water samples were within permissible limits. The highest turbidity value was observed as 21.1 NTU. The average turbidity for the samples collected was 0.555 NTU which is within the acceptable limit as specified by the BIS standards. The results showed that out of 258 samples collected during the study, 236 samples were having turbidity values within the acceptable limits while 22 samples were having turbidity more than the acceptable limits.

Conclusions:

In this study, characterization of the physiochemical parameters of water samples form 86 households at different locations in Osmanabadcity area was carried out. To assess the quality of water samples, each parameter was compared with the standard desirable limits prescribed by Bureau of Indian standard (BIS) and World Health Organization (WHO). From the study it can be concluded that the water in the study area is safe for drinking purposes from the point of view of levels of pH, EC, TDS, Temperature, Turbidity, TA, TH, C1-, F-, NO3-, and Fe. The average values of pH were found to be 7.862, 7.421, and 7.33 in monsoon, winter and summer season respectively. It is also observed that the pH varied from 6.5 to 8.6 against the BIS standard of 6.5 to 8.5 and the highest pH value was recorded as 8.6.The average of pH value for all the samples collected was 7.54 which are within the acceptable limit as specified by the BIS standards. The pH of all the water samples was observed within the acceptable limit and hence the alkaline nature of all the water samples does not cause any harmful effect to the human health. The average value of EC for all the water samples collected was recorded as 330 uS cm-1, which is slightly more than the standard value of 300 uS cm-1. The average of hardness for all the samples collected was 320.77ppm which is beyond the acceptable limit as specified by the BIS standards. The results showed that out of 258 samples collected during the study 231 samples were having total hardness values within the acceptable limits. So, it is suggested to soften the water before consumption to avoid kidney stone disease. The higher values of total hardness are due to the basaltic geological formations in the region. The average content of chloride was found to be 177.38 ppm which is within the permissible limit of 200 ppm prescribed by the BIS. The average fluoride content for all the samples collected was recorded as 0.657 ppm against the standard prescribed as 1 ppm. The average content of iron was found to be 38.4 ppm against the standard of 45 ppm prescribed by the BIS. The average turbidity value for all the samples collected was 0.555 NTU which is under the permissible limit of 1 NTU.Further research can be carried out with detailed mapping and hydrological studies for existing water sources to show flow lines and hydro-geochemical survey in the study area. It is also necessary to find out the source of contaminants,which are present due to soil types, industrialization, water chemistry and other human activities. From the study of various parameters in drinking water it can be concluded that the drinking water found in the Osmanabad city area can be used for drinking purposes.

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REMEDIATION AND SEQUESTRATION OF ARSENIC FROM CONTAMINATED SOIL USING *VETIVERIA ZIZANIOIDES* AND SUITABLE ORGANIC AMENDMENT

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Abstract

The objective of the study was to assess the phytoextraction efficiency in arsenic using of vetiver grasses. The study reported in this paper was undertaken to evaluate the growth response of Vetiveria zizanioides in arsenic (As) contaminated soils and its ability to sequester As. The plant has been recently identified to be tolerant to high As concentration and have great potential in remediating As contaminated soils. This has been demonstrated by conducting pot culture experiment. The soil spiked with different levels of As i.e. 0, 500, 1000, 1500 and 2000 mg kg^{-1} was amended with organic amendments like dairy waste, mycorrhizae and biofertilizer (Azotobacter) and another set without amendments was also kept for comparison to assess the effect of amendments on arsenic removal. The plants were harvested after six months and their growth and As accumulation in roots and shoots were estimated. The results from this study indicate that the plant exhibited high tolerance to As toxicity in the soils and normal growth was attained upto 500 mg kg^{-1} when amended with dairy waste, mycorrhizae and Azotobacter. The plant was not survived at 500 mg kg^{-1} without amendments. This indicates that the soil amendments invoked greater root growth and enhanced the phytoextraction process relative to all other treatments. At higher concentrations viz. 1000, 1500 and 2000 mg kg^{-1} with and without amendments, the plant was not survived. The accumulation of As was much greater in roots (175 mg kg^{-1}) than in shoots (90 mg kg^{-1}). The As level in the polluted soil was reduced from 500 mg kg^{-1} to 265mg kg^{-1} after six months. The removal of As level in the rhizosphere was found to be 53. Microbial population was not affected in the As contaminated soil amended with dairy sludge, mycorrhizae and Azotobacter. These results indicate that Vetiveria zizanioides could possibly be used with success for sequestration of As from contaminated soils.

Keywords*: Arsenic; Spiked soils; Dairy Waste; Mycorrhizae; Azotobacter; Phytoextraction; Vetiveria zizanioides.*

Rationale Of The Study

Arsenic has been present abundantly on earth's crust and long been identified as a carcinogen. Arsenic (As) is one of the toxic compounds present in soil in inorganic and organic forms and has been identified to pose a high risk to large human populations. The sources and distribution of As are largely controlled by many factors like the distribution of organic matter, oxic-anoxic conditions, indigenous microbial flora, etc. Arsenic can be introduced in the environment either by natural processes or by anthropogenic actions. The toxicity of various forms of arsenic strongly depends on their oxidative states and chemical structures.

In soil, the bioavailability of As is mainly influenced by the chemical and physical characteristics of soils together with the character of minerals and clay content, organic matter, texture, pH and Eh, cation-exchange capability (CEC), and presence and concentration of oxides and hydroxides of metals, Al, Mn, etc.

The effects of arsenic (V) can be seen by its analogy with phosphate that can disrupt at least some phosphate-dependent aspects of metabolism in all living forms. It can also be translocated across cellular membranes by phosphate transport proteins, leading to imbalances in phosphate supply. In the case of plants, As is toxic at higher concentrations. It mainly interferes with metabolic processes and inhibits plant growth and development through arsenic-induced phytotoxicity. In the case of animals, the chronic exposure causes many clinical manifestations of which cutaneous lesions are the highest reported; arsenic is also a well-known carcinogen, causing skin, lung, bladder, liver, and kidney cancers.

Currently, the As present in soil and sediments in different forms is the major contaminant. Thus, there is a urgent need for a routine assessment of arsenic on a regular basis. Apart from that, the remediation or treatment measures in these areas are of major concern at this point.

Objectives Of Study

Soil contamination by heavy metals in the environment is of growing concern because of the health risks posed to human and animals. Thus, the main objective of the study is to find new improved and efficient technology using Vetiveria zizanioides and suitable organic amendments for the phytoextraction of arsenic from the contaminated soils through pot culture experiments.

Hypothesis

The proposed study aims to understand the remediation and sequestration of arsenic from the contaminated soils using Vetiveria Zizanioides and suitable amendments viz. FYM, mycorrhizae and biofertilizer so that composition of plant, organic amendment and biofertiliser will act as better accumulator plant for As from the soil respectively.

Methodology

Pot Culture Experiment

The pot culture experiments were conducted at NEERI, India using the soil spiked with arsenic. Vetiveria zizanioides was grown in pots containing the soil spiked with Na2HAs2O4. The Vetiveria zizanioides was grown in five different concentrations of arsenic i.e. 0, 500, 1000, 1500 and 2000 mgAs/kg soil with organic amendments like dairy waste, mycorrhizae and biofertilizer (Azotobacter) and without organic amendments for six months (180 days). Thereafter, plants were harvested and the arsenic accumulation in roots and leaves was assessed.

Different Treatments of Amendments, Microbial Inoculants and Arsenic Metal

Pot culture studies were conducted to ascertain the phytoremediation of arsenic contaminated soils with Vetiveria zizanioides having different treatments with organic amendments (Dairy waste, Mycorrhizae and Azotobacter). Vetiveria zizanioides was planted in pots with different concentrations of arsenic. Different treatments screened under pot culture studies were as follows: -

T1: - Uncontaminated soil, 0 mg/kg

T2: - Arsenic contaminated soil, 500 mg/kg (without amendment)

T3: - Arsenic contaminated soil (500 mg/kg*) + 50 tons/ha dairy waste + mycorrhizae + Azotobacter strains*

T4: - Arsenic contaminated soil, 1000 mg/kg (without amendment)

T5: - Arsenic contaminated soil (1000 mg/kg*) + 50 tons/ha dairy waste + mycorrhizae Azotobacter strains*

T6: - Arsenic contaminated soil, 1500 mg/kg (without amendment)

T7:- Arsenic contaminated soil (1500 mg/kg*) + 50 tons/ha dairy waste + mycorrhizae + Azotobacter strains*

T8:- Arsenic contaminated soil, 2000 mg/kg (without amendment)

T9:- Arsenic contaminated soil (2000 mg/kg*) + 50 tons/ha dairy waste + mycorrhizae + Azotobacter strains*

Preparation of the Soil Spiked with Arsenic

The uncontaminated soil was collected from NEERI's premises and spiked with toxic concentrations of arsenic metal i.e. Na2HAs2O4. Spiking was done to increase the concentration of the different concentrations of metal in the soil. Ratio of 1 Kg of soil / liter of solution was used based on the hydraulic conductivity of the spiked soil. Each pot was filled with 10 kg of arsenic soil. The plant material i.e. Vetiveria zizanioides was cleaned and cut into 35 cm long pieces, planted and nursed for one month. During this nursing period, the arsenic spiked soil was analyzed for various physico-chemical and microbiological properties as per the standard procedure (Piper, 1966) while the microbial population of arsenic spiked soil was analyzed as per the methods of Norland, 1991 and Page et al., 1982 and expressed in the terms of colony forming units (CFU/g).

Growth Observations

The survival of the plants was periodically observed and data with respect to height, root length and biomass (wet and dry weights) were recorded for each plant. The data were analyzed by using Randomized Block Design at 5% confident level.

Arsenic Accumulation

After having recorded the growth parameters, plants were cleaned, cut and the roots and leaves were separated. To get the stable dry weight every part was put into an oven at 600C for three days. Both wet and dry weights were recorded. All dried parts were grounded and mixed thoroughly and then digested as per US EPA – 3030, 1982 method. The samples were analyzed for arsenic content by using ICP-AES. Arsenic concentration in each part of the plant was calculated and defined as mg arsenic per kg of dry weight.

Results And Discussions

Effect of different blends of dairy waste, mycorrhizae and biofertilizer strains on physico-chemical and microbiological properties of arsenic contaminated soil after six month of plantation

The results showed that the T3 treatment (i.e. arsenic spiked soil (500 mg/kg) + dairy waste @ 50 t/ha + mycorrhizae + biofertilizers) was found to be the most responsive treatment, which favoured improvement in physical and chemical properties. The organic carbon content of the soil increased from

0.44 to 0.85% respectively. The results showed that in treatment T3, maximum arsenic percentage reduction of 66.8%. The plant was not survived after six months of plantation in 1000, 1500 and 2000 mg/kg of arsenic contaminated soil. Thus, the plant could tolerate arsenic concentration upto 500 mg/kg and above this concentration it becomes phytotoxic to plant.

The results showed that the microbial population with respect to bacteria, fungi and actinomycetes also increased in T3 treatment as compared to as such arsenic contaminated soil. This indicates that the addition of organic amendments viz. dairy waste, mycorrhizae and microbial inoculants favoured improvements in microbial population. Mycorrhizal fungi have been associated with plants growing on heavy metal contaminated soil (Shetty et al., 1994; Chaudry et al., 1998) and play a possible role in arsenic hyperaccumulation (Ma et al., 2001). Similar observations are observed under present study.

Growth Observations

During the experimental period, Vetiveria zizanioides was found to be highly tolerant and survived in the soil spiked with arsenic up to 500 mg As/kg with organic amendments such as dairy waste, Mycorrhizae and Azotobacter (T3) and grew well with respect to plant height, root length and biomass . In case of treatments T5, T7 & T9 with organic amendments as well as T4, T6 & T8 without organic amendments, Vetiveria zizanioides could not tolerate and survive because of high arsenic concentrations. It was found that the growth of plants in the terms of the height, root length was significant between the arsenic treated soils and control at 5% confident level. The results reported here thus confirmed that Vetiveria zizanioides was highly tolerant and thus could grow in the soil spiked with arsenic up to 500 mgAs/kg due to addition of organic amendments such as dairy waste, Mycorrhizae and Azotobacter. Earlier results reported that the plant could tolerate upto 250 mgAs/kg of arsenic by Truong (2000) and Srisatit (2003).

Arsenic Accumulation of *Vetiveria zizanioides*

Arsenic accumulation was found in all parts of the *Vetiveria zizanioides* at 500 mg As/kg concentration of the spiked soil (T3). The total arsenic accumulation by *Vetiveria zizanioides* was 265 mg/kg in 500 mg As/kg arsenic spiked soil and organic amendments with dairy waste, *Mycorrhizae* and *Azotobacter*. Trough (1999) also reported the similar distribution of metal in the respective parts of the plants. The amount of arsenic accumulation in roots (175 mg As/kg) was higher than that in leaves (90 mg As/kg). Similar finding was also reported by Srisatit et al., (2003). Shiralipour (2002) reported that plant with compost amendments removed <8.15% As from AAC (Artificially arsenic contaminated soil). The result obtained through pot culture experiments showed that in treatment T3, maximum arsenic percentage reduction of 65.8%.

Conclusion

Vetiveria zizanioides could tolerate and grow well up to 500 mg/kg arsenic spiked soil. An improvement in physico-chemical properties and microbial population was due to the addition of organic amendments (dairy waste, Mycorrhizae & Azotobacter). In the case of 1000, 1500 & 2000 mgAs/kg spiked soil, Vetiveria zizanioides could not tolerate and survived even with the organic amendments. The present study indicates that plant height; root length, metal uptake and arsenic efficiency were higher in 500 mg As/kg contaminated soil due to the organic amendments (dairy waste, Mycorrhizae and Azotobacter). The arsenic accumulation in root was higher than that in the leaves of Vetiveria zizanioides. It is recommended that Vetiveria zizanioides could be used to remove arsenic from contaminated soil. However, further research should be carried out to increase the arsenic uptake rate of Vetiveria zizanioides.

Suggestions/Recommendations

However, so far only, Pteris vittata L., a chinese brake fern is known as hyperaccummulator plant for arsenic. While the plants such as Brassica juncea L. (Indian mustard), accumulate high amount of As contents varied in the range of 100-800 mg kg-1 respectively. The drawbacks of these plants are that they are edible plant species and hence there are more chances of bioaccumulation of these metals into the food chain. The pot culture study indicated that Vetiveria zizanioides could accumulate high amount of metals in their biomass i.e. As (265 mg kg-1), from the soil respectively. Also, the plant i.e. Vetiveria zizanioides is universally grown even in harsh environment and thus offers potential avenue for soil phytoremediation, cost effective, environmentally friendly. Hence, it is recommended that the plant Vetiveria zizanioides can grow well even in high concentration of toxic metals (As) using suitable amendments viz. FYM, mycorrhizae and biofertilizer and can be used as a better accumulator plant for As from the contaminated soils respectively.

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The Impact of Covid-19 on Physical Activity and Psychological Well-Being

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Abstract

Moderate-to-vigorous physical activity (such as speed-walking or jogging) has been shown ***to help reduce the use of alcohol and other substances****. Additionally, participation in regular physical activity is shown to boost the immune system. The benefits of physical activity and exercise have been demonstrated across the lifespan. many of body's systems work better when we are consistently physically active. For managing symptoms of depression, some research suggests that elevated levels of aerobic activity (exercise that significantly raises our heart rates) may be associated with greater reductions in depressive symptoms.*

Introduction

Physical activity can be defined as any movement of the body that requires energy expenditure. This includes any motion you do through the day excluding sitting still or lying down. For example, walking to class, taking the stairs, mowing the lawn, and even cleaning your house can be considered physical activity. Exercise is a type of physical activity but not every physical activity is exercise. Exercise is a planned, structured, and repetitive activity for the purpose of improving or maintain physical fitness. The closure of education institutions around the world due to COVID-19 has also impacted the sports education sector, which is comprised of a broad range of stakeholders, including national ministries and local authorities, public and private education institutions, sports organizations and athletes, NGOs and the business community, teachers, scholars and coaches, parents and, first and foremost, the – mostly young – learners. While this community has been severely impacted by the current crisis, it can also be a key contributor to solutions to contain and overcome it, as well as in promoting rights and values in times of social distancing.

As the world begins to recover from COVID-19, there will be significant issues to be addressed to ensure the safety of sporting events at all levels and the well-being of sporting organizations. In the short term, these will include the adaptation of events to ensure the safety of athletes, fans and vendors, among others. In the medium term, in the face of an anticipated global recession, there may also be a need to take measures to support participation in sporting organizations, particularly for youth sports.

The impact of COVID-19 on physical activity and well-being

The global outbreak of COVID-19 has resulted in closure of gyms, stadiums, pools, dance and fitness studios, physiotherapy centres, parks and playgrounds. Many individuals are therefore not able to actively participate in their regular individual or group sporting or physical activities outside of their homes. Under such conditions, many tend to be less physically active, have longer screen time, irregular sleep patterns as well as worse diets, resulting in weight gain and loss of physical fitness. Low-income families are especially vulnerable to negative effects of stay at home rules as they tend to have sub-standard accommodations and more confined spaces, making it difficult to engage in physical exercise.

Physical activity can be defined as **any movement of the body that requires energy expenditure**. This includes any motion you do through the day excluding sitting still or lying down. For example, walking to class, taking the stairs, mowing the lawn, and even cleaning your house can be considered physical activity.

How Much Physical Activity

The WHO recommends 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical

activity per week. The benefits of such periodic exercise are proven very helpful, especially in times of anxiety, crisis and fear. There are concerns therefore that, in the context of the pandemic, lack of access to regular sporting or exercise routines may result in challenges to the immune system, physical health, including by leading to the commencement of or exacerbating existing diseases that have their roots in a sedentary lifestyle.

Effects of Physical Inactivity

Lack of access to exercise and physical activity can also have mental health impacts, which can compound stress or anxiety that many will experience in the face of isolation from normal social life. Possible loss of family or friends from the virus and impact of the virus on one's economic wellbeing and access to nutrition will exacerbate these effects.

For many, exercising at home without any equipment and limited space can still be possible. For those whose home life can involve long periods of sitting, there may be options to be more active during the day, for example by stretching, doing housework, climbing stairs or dancing to music. In addition, particularly for those who have internet access, there are many free resources on how to stay active during the pandemic. Physical fitness games, for example, can be appealing to people of all ages and be used in small spaces. Another important aspect of maintain physical fitness is strength training which does not require large spaces but helps maintain muscle strength, which is especially important for older persons or persons with physical disabilities.

Technology and Physical Activity

The global community has adapted rapidly by creating online content tailored to different people; from free tutorials on social media, to stretching, meditation, yoga and dance classes in which the whole family can participate. Educational institutions are providing online learning resources for students to follow at home.

Many fitness studios are offering reduced rate subscriptions to apps and online video and audio classes of varying lengths that change daily. There are countless live fitness demonstrations available on social media platforms. Many of these classes do not require special equipment and some feature everyday household objects instead of weights.

Such online offerings can serve to increase access to instructors or classes that would otherwise be inaccessible. However, access to such resources is far from universal, as not everyone has access to digital technologies. For individuals in poorer communities and in many developing countries, access to broadband Internet is often problematic or non-existent. The digital divide has thus not only an impact on distance banking, learning or communication, but also on benefitting from accessing virtual sport opportunities. Radio and television programmes that activate people as well as distribution of printed material that encourages physical activity are crucial in bridging the digital divide for many households living in precarious conditions. Young people are particularly affected by social and physical distancing, considering sport is commonly used as a tool to foster cooperation and sportsmanship, promote respectful competition, and learn to manage conflict. Without sport, many young people are losing the support system that such participation provided. Currently some organizations, and schools have begun using virtual training as a method for leagues, coaches and young people to remain engaged in sport activities while remaining in their homes

Conclusions

Moderate-to-vigorous physical activity (such as speed-walking or jogging) has been shown to help reduce the use of alcohol and other substances. Additionally, participation in regular physical activity is shown to boost the immune system. Reduction in substance use is also associated with improvement in the body's ability to fight off infection. physical activities that you enjoy and to share your experience with others. At the same time, there is also evidence to suggest that exercise can be helpful to mood even if the act of doing the exercise is not as enjoyable. **For older adults and among individuals managing chronic medical conditions, regular walks are recommended**. The benefits of strength training and weightlifting (low weight with high numbers of repetitions) may be even greater in older adults to maintain quality of life and functioning. stress related to the growth of the COVID-19 pandemic and its potential to threaten the health of ourselves, our families, and our communities. **Please consider using physical activity and exercise as a strategy to maintain health during this stressful period.**

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Re-imagining Play spaces in urban environment to improve Children's Environmental Health

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Abstract
An environment conditions, how we feel, think, and behave; and it dramatically affects the quality of our lives. The environment either works for us or against us as we conduct our lives. (Greenman). Children growing into healthy & fit adults are an outcome of ideal environmental conditions. However most children in urban environments today, perceive & experience the environments that are created based on adult's logic of design configuration for them. The result of this is seen through the use of traditional Kit-Fence-Carpet playgrounds with its standard & fixed play apparatus which doesn't cater to the satisfaction level of its user's i.e. children. The research attempts to evaluate the children's spaces based on satisfaction level of its users & formulate the guidelines for proposing child sensitive interventions in future.
Keywords: children, environment, satisfaction level, sensitive intervention.

Introduction
The children's spaces in urban environment today are mostly seen exposed to culture of car dependency, increased traffic & urban pollution on daily basis. These spaces are not spacious enough to cater to territorial expanse required for the variety of play, do not support the scale & proportion of child .Most children's spaces are seen devoid of natural elements such as vegetation, mud, water, stones etc. due to the fear of maintenance& upkeep of its facilities. Traditional Kit-Fence-Carpet playgrounds which has fixed, standardised & unmovable play equipment's, demarcated fencing & rubber flooring is used in almost every children's spaces. The general perception of adult's w.r.t play areas in fact is restricted to play equipment's & sand pits which excludes the spontaneity, imagination, unpredictability & flexibility which promotes free play. Such spaces do not stimulate & support the children's natural choice & preferences of play. It is crucial to understand the expectations & choices of children to allow them mobility& freedom to play &socialize. Therefore designing & creating children's spaces which maximize the chances of child's cognitive & social development & support the child's needs is the approach required in future.

Rationale of the Study

Aim
To identify the framework for quality enhancement of Children's Spaces in Urban Environments & determining the satisfaction level of its users through proposing a sensitive intervention.

Objectives
- To understand the current condition of Children's spaces in urban environment.
- To identify the factors (culture, regional, economies, livelihood, education, social status) that influence formation of children's spaces.
- To evaluate the children's spaces based on children's satisfaction level & engagement with the spaces.
- To formulate the guidelines for sensitive intervention for proposing child sensitive interventions in future.

Scope
For the study, Thakur Village is taken as spatial unit of neighbourhood in Mumbai city with 03no.s children spaces within the residential area as research objects. These sites have the social & economic characteristics along with space & local dynamics, reflecting a typical urban environment in city of Mumbai. Therefore the research will help obtain universal results.

Hypothesis
Children's spaces in urban environment today are *insensitive* towards needs & satisfaction level of the children.

I. Methodology
The methodology for the study uses the following to gauge the pulse of the users;
1. **feedback forms** – to gather users (children) perception
2. **interviews & expectation mapping** – to understand the expectation of users
3. **observational surveys** – to evaluate the children's spaces

The outcome of these methods will help *formulate the guidelines* for sensitive intervention of children's spaces in urban environment in future.

1. Feedback forms

The feedback forms were circulated among the children & parents of the sites chosen for research. The questions were kept easy, simple & user friendly to answer. The tentative age group of children chosen to answer was 06 to 12 year old (middle childhood age).

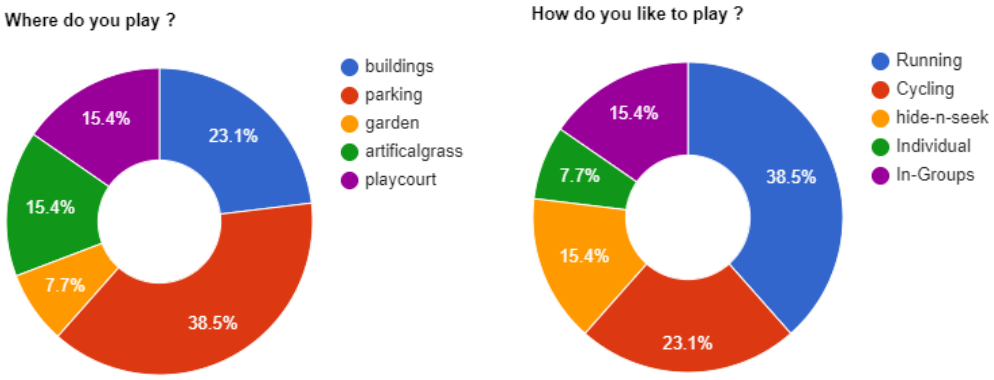

Figure 01: Feedback analysis – to gather children's perception

2. Interviews & expectation mapping

The on-site interviews with users (children) were based on simple one liner quiz format to get spontaneous answers. The answers were recorded on site in form of association diagrams.

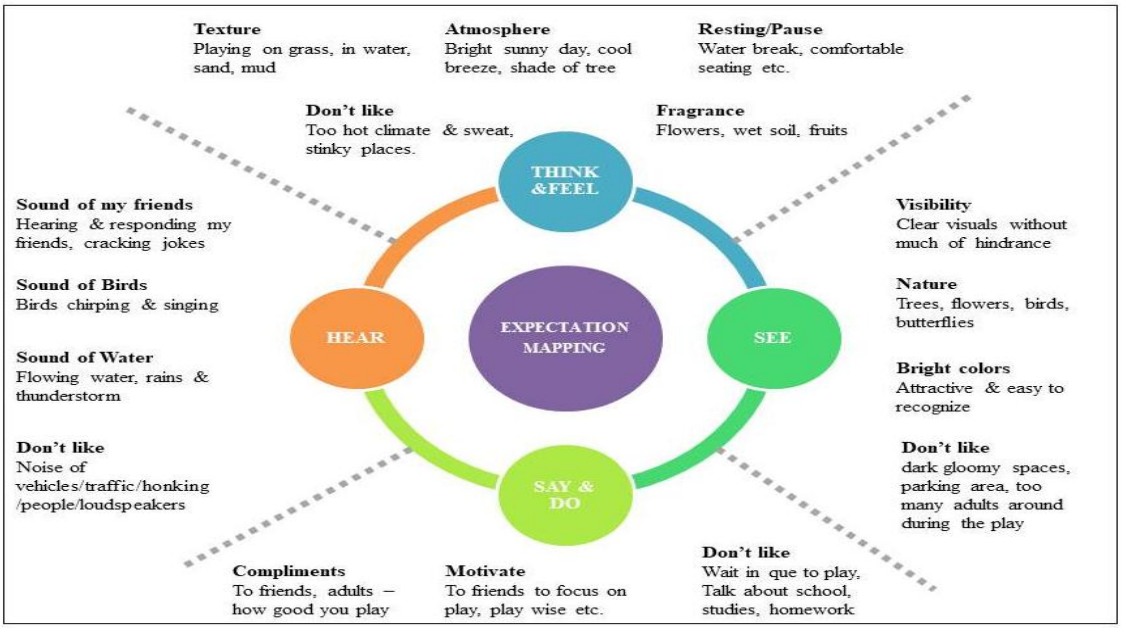

Figure 02: Expectation Mapping – Children expectation from spaces based on short interviews on site.

3. Observational Survey

The Observational surveys was done, purely to understand the *look & feel of childrens spaces* in the selected sites and also to gather first hand information related to *childrens activities & play patterns* during peak play hour in the evening.

Figure 03: Observational survey - Quality of Children's spaces in urban environment – pictures from Thakur Village neighbourhood residential area, Mumbai.

II. Conclusion

- The Feedback form analysis gauges that children's currently are *accommodating play as per the space conditions available*. But they wish to have their own space where they could play with freedom & mobility. Running & Cycling are the most preferred activities, but the *space availability is restricted* to parking areas, corners of the plot & building niches.
- The Expectation mapping helps to gauge the *children's expectation from their spaces* based on their *feelings & associations*. It highlights the *Children's innate tendency to seek connections with nature & other forms of life* based on their variety of opinions & spontaneous responses which shall help to formulate the guidelines for children's spaces in future.
- Observational survey *highlights the use of typical Kit-Fence-Carpet playgrounds with limited connect with nature* & hence justifies the need for sensitive planning in future based on *children's needs, perception & expectations from their spaces.*

III. Guidelines & Recommendations

- Children's play should be looked upon as one of the *fundamental ways of participating in community life* & thereby feeling connected to the community.
- Children's spaces should offer them *chances for social interaction, make friends, experience disagreements, learn tolerance, value the differences & respect others.*
- Children's spaces should provide opportunities & experiences to *help children understand themselves as individuals & in relation their peers & their community* at large.
- Children's spaces should help encounter *natural elements of nature, natural cycles & rhythms of life, growth & rich sensory environment.*
- Children's spaces should have an environment which *helps children to decide what they would want to play*. Designing spaces which naturally help children to *afford play options based on age & satisfaction* instead of designing particular play spaces.
- *Inputs from the experts working with children* from various allied fields such as child psychologists, child development specialists, educators, parents etc. could be taken into consideration for enhancing the quality of children's spaces.
- The further research required for children's spaces should be *evidence based & user centred*. Play is by its very nature *flexible, changeable & multi-faceted*; hence providing suitable environment as a sensitive intervention for Children's spaces is required.

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Participation of Individual and Government for Sustainable Development of Environment

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Abstract-

Today the whole world is suffering from environmental issues. There is no proper data available or it is not wrong to say that under reporting of environmental pollution worldwide. This is because of poor database management on environmental accountability and also because of lack of awareness and consequences on health that pollution could cause over. Health problems like cancer, heart-attack, diabetes etc. are act of god, mainly in developing countries (may be because of lack of education or low income). Although government has taken many strict action for saving the environment. But without equal participation of public it is not possible to keep our environment clean and clear. Best possible ways are to be find out to keep the environment clean and lower down level of pollution. Few steps that government can take for public interest and pollution free environment.

Full paper

Today the whole world is suffering from environmental issues to which we are all responsible, we all have together polluted our beautiful world. If we look at any country, all are facing and troubled by industrial waste, not only industrial waste but also individual waste. There is no proper data available or it is not wrong to say that under reporting of environmental pollution worldwide. This is because of poor database management on environmental accountability and also because of lack of awareness and consequences on health that pollution could cause over. Health problems like cancer, heart-attack, diabetes etc. are act of god, mainly in developing countries (may be because of lack of education or low income). Here people are more concern about food and shelter than health and environmental protection thereby escalating pollution. In India, government has made and implemented many laws for environmental issues, but till all the people, whether it is industries or individual, is not aware about the environmental issues there will be no improvement and changes in the surrounding. An example, in the Ghaziabad, UP, the industrial area where carbon, steel rolls and cement factories are produced and there is a whole residential estate situated at a distance of one kilometer from it, which has a population of about 10 lakhs. The people residing there say that when they wake up in the morning, the air around them is very dirty and at the same time a thin layer of black carbon is deposited on their balcony or terrace. It is not only in Ghaziabad but we can see this situation all over the world. The ecosystem depended to each other like plants to herbivore and then carried forward to carnivore. All of these plays a major role in the biochemical cycle but if there is any disturbance in this system it is considered as pollution. The whole world has undergo in disturbance. Cutting of excessive plants and trees, killing of animals, setting up of companies which produce a large scale of smoke and waste, excessive use of chemicals etc. are the major components of disturbing the ecosystem and environmental pollution. As we are on the way to development we are generating more and more wastage which create new type of pollution. Human are now going to moon and mars but with this development how much humans are burdening on the eco-system and on environment, is hard to calculate. There are many components of pollution like air pollution, water pollution, land pollution noise pollution, radio-active pollution, electronic pollution, food pollution etc. all these contaminate the environmental pollution and which causes real or potential harm to the health of human as well as other living organism without justification. The growth of population leads many human problems like exploitation of natural resources to meet day-to-day essential requirements. This non ending requirements results social and economic development which is good but also create hazardous effect on environment. Industrial waste and individual waste all are responsible for polluting the air, land and water, trees are being cut in the name of development, setting up of industries or development of residential buildings. Industrial waste and individual waste is being shed in the water, the smoke coming out of the chimney is polluting the air, the smoke of the vehicles, the vehicles moving at the loud noise, it is polluting all the air. Today we cannot survive without mobiles and internet, this create an invisible cyber-net which harms the habitants like birds. They are now verge of extinction. Saving the environment is not only the job of the government or NGO or in the hands of few people, but it is an important task for everyone living in it. Even small steps taken by us can save the environment from being polluted. Small step like in switch off of vehicle while waiting in traffic, for small distance going on foot instead of using the car, reducing the loud noise etc. are very small step but it is very important for the environment.

Although government has taken many strict action for saving the environment. But without equal participation of public it is not possible to keep our environment clean and clear. Best possible ways are to

be find out to keep the environment clean and lower down level of pollution. Few steps that government can take for public interest and pollution free environment like

1. Children and students play a vital role in bringing changes in society. Agriculture as a subject and a regular activity should be introduced in the curriculum of education. Now it is being done as an occasional activity by the students like activity on environmental day. It must be a regular subject that should be taught in the schools from the very beginning so that children should do such activity at home also. Students should do practical plantation and cultivation of plants which give them an insight knowledge of subject and at the same time they will get physical exercise and learn to protect environment. These small steps make environment healthier.
2. Setting up manure making plants in every locality and neighbourhood. NGOs should give charge to educate and train the localities about usage of manure making plants and how it will reduce waste and pollution and also reuse of the waste that is converted into manure. This manure can be purchased by the localities at a very cheap price.
3. Spreading practical knowledge like organic farming can be done by all individuals at their homes. Introduction of terrace gardens should be encouraged at local level and for this NGOs must take active participation in teaching and educating the localities.
4. Plant such trees which consume less water as well as which absorb more carbon dioxide. It has now been seen that the sanitation workers burn the waste, instead of burning the waste, it is necessary to dispose of them properly, this reduces pollution and at the same time the waste is also reused.
5. In order to protect soil from getting spoiled, the government may lay a layer of wood sawdust, which does not spoil the soil, nor does the dust fly, and at the same time the soil remains fertile, this method should be arranged by the government. So that the fertility of the soil should be maintained and it doesn't spoil.
6. Mandating water harvesting projects. Rain water harvesting should be promoted in agriculture and for other uses like to bathe cattle, for cleaning work etc.

Suggestion –

Not only government initiatives but public participation is equally important for environmental protection. Small steps make a huge impact in protection of surrounding. A small example to protect environment that all individuals can take is terrace farming. Terrace farming also known as roof gardening. Advantage of terrace gardening is that it can be done in small space like terrace, it do not need any type of special skill or education or training. Best part of terrace gardening is to reuse of waste materials like containers, plastic bottles or boxes etc. Vegetables like potato, onion, beans, chillies, tomato, herbs etc. can be planted in terrace farming. There are many advantages of terrace farming like

a. It is safe from all pesticides, as it is grown by the individual for self-consumption so least pesticide is being used.
b. Consumption of green and healthy vegetables and fruits.
c. Plants produce oxygen and inhale carbon-dioxide. This increases oxygen level.
d. Terrace farming or roof farming absorbs heat and therefore reduce temperature of house or building by 2-3 degree.
e. Terrace farming also give an individual physical exercise i.e. regular physical movement of individuals.
f. Greenery is a major source of relief booster i.e. plants reduces the stress level from its greenery and by producing oxygen in the air.
g. There is also a commercial benefit of terrace farming. If individual want may sell organic products in the market. This will give a financial benefit to the individual as terrace farming requires very less investment.

Government should promote terrace farming through advertisement and NGOs should take active participation in promoting terrace farming.

There are many workshops organised to promote terrace farming. Dr. Kadur regularly organizes workshops on organic and terrace gardening. To know more about his work or to be part of his workshops, contact him at – vishy_kadur@yahoo.co.in. NIESBUD - National Institute of Entrepreneurship and Small Business Development, in Noida also organises workshop on terrace farming.

Daily wastage that is generated from food and plant residue are good source of organic manure. There should be a proper maintenance of food wastage management. Government should promote setting up of manure making plant is all societies and local areas not only in rural areas but also in urban areas. Spreading educating about the usage of the plant to the people and how to use it. This will help in creating organic manure and people can use this manure in planting greenery at the same time it will increase the

fertility and usage of soil. Organic manure or fertilizers help in improving the fertility and soil structure by retaining all the nutrients and substances by allowing carbon fixation. It also increases the water absorbing and retaining capacity of soil that help in growth of plants, vegetables and fruits. It will also decrease the soil pollution. It also contribute in producing biogas and help in resolving problems like scarcity of cooking gas. Some of the advantages of organic manure fertilizers are that it create the balance between soil and ecosystem and results environment benefit. Organic manure helps in boosting of plants health naturally because it is all made up of residue of plants, trees, waste of vegetables and fruits. The process of making organic fertilizers and manure do not need any chemical intervention and therefore it do not disturb soil and environment. It supplies nutrients and natural substances to the plants and trees. Organic fertilizers do not over fertilize the plants and trees.

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Impacts of Tourism on Environment

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Abstract:

Impacts of tourism bring many economic and social benefits, particularly in rural areas and developing countries, but mass tourism is also associated with negative effects. Tourism can only be sustainable if it is carefully managed so that potential negative effects on the host community and the environment are not permitted to outweigh the financial benefits. Tourism is an important, even vital, source of income for many countries. Its importance was recognized in the Manila Declaration on World Tourism of 1980 as "an activity essential to the life of nations because of its direct effects on the social, cultural, educational, and economic sectors of national societies and on their international relations. Tourism brings in large amounts of income into a local economy in the form of payment for goods and services needed by tourists, accounting for 30% of the world's trade of services, and 6% of overall exports of goods and services. It also creates opportunities for employment in the service sector of the economy associated with tourism.

Introduction

Tourism is travel for recreation, leisure, religious, family or business purposes, usually for a limited duration. Tourism is commonly associated with international travel, but may also refer to travel to another place within the same country. The World Tourism Organization defines **tourists** as people "traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes". Tourism has become a popular global leisure activity. Tourism can be domestic or international, and international tourism has both incoming and outgoing implications on a country's balance of payments. Today, tourism is a major source of income for many countries, and affects the economy of both the source and host countries, in some cases being of vital importance. The direct employment within the tourism industry and indirectly in sectors such as retail and transportation. When these people spend their wages on goods and services, it leads to what is known as the "multiplier effect," creating more jobs. The tourism industry also provides opportunities for small-scale business enterprises, which is especially important in rural communities, and generates extra tax revenues, such as airport and hotel taxes, which can be used for schools, housing and hospitals.

Positive impacts of tourism: Tourism encourages the preservation of traditional customs, handicrafts and festivals that might otherwise have been allowed to wane, and it creates civic pride. It also helps generate funding for maintaining animal preserves and marine parks through entrance charges and guide fees. By creating alternative sources of employment, tourism reduces problems.

Social Effects: The improvements to infrastructure and new leisure amenities that result from tourism also benefit the local community. Tourism encourages the preservation of traditional customs, handicrafts and festivals that might otherwise have been allowed to wane, and it creates civic pride. Interchanges between hosts and guests create a better cultural understanding and can also help raise global awareness of issues such as poverty and human rights abuses

Environmental Effects: Tourism particularly nature and ecotourism helps promote conservation of wildlife and natural resources such as rain forests, as these are now regarded as tourism assets. It also helps generate funding for maintaining animal preserves and marine parks through entrance charges and guide fees. By creating alternative sources of employment, tourism reduces problems such as over-fishing and deforestation in developing nations.

Economic Effects: In economic factor tourism effects many economic environment in positive way. It always generates a good factor which improves business for some industries like hotels, shoppers, business, guides which improve the standard living of people who earn and all tourist in a positive manner. It provides an employment to many unemployed people.

Negative Impacts: Negative impacts from tourism occur when the level of visitor use is greater than the environment's ability to cope with this use within the acceptable limits of change. Uncontrolled conventional tourism poses potential threats to many natural areas around the world. It can put enormous pressure on an area and lead to impacts such as soil erosion, increased pollution, discharges into the sea, natural habitat loss, increased pressure on endangered species and heightened vulnerability to forest fires. It often puts a strain on water resources, and it can force local populations to compete for the use of critical resources.

There are basically three negative impacts that effect on environment:

1. Social Effects: Visitor behavior can have a detrimental effect on the quality of life of the host community. For example, crowding and congestion, drugs and alcohol problems, prostitution and

increased crime levels can occur. Tourism can even infringe on human rights, with locals being displaced from their land to make way for new hotels or barred from beaches. Interaction with tourists can also lead to an erosion of traditional cultures and values.

2. Environmental Effects: Tourism poses a threat to a region's natural and cultural resources, such as water supply, beaches, coral reefs and heritage sites, through overuse. It also causes increased pollution through traffic emissions, littering, increased sewage production and noise.

3. Economic Effects: Successful tourism relies on establishing a basic infrastructure, such as roads, visitor centers and hotels. The cost of this usually falls on the government, so it has to come out of tax revenues. Jobs created by tourism are often seasonal and poorly paid, yet tourism can push up local property prices and the cost of goods and services. Money generated by tourism does not always benefit the local community, as some of it leaks out to huge international companies, such as hotel chains. Destinations dependent on tourism can be adversely affected by events such as terrorism, natural disasters and economic recession.

Main Impact Areas

Depletion of Natural Resources: Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce.

Water resources: Water, and especially fresh water, is one of the most critical natural resources. The tourism industry generally overuses water resources for hotels, swimming pools, golf courses and personal use of water by tourists. This can result in water shortages and degradation of water supplies, as well as generating a greater volume of waste water.

In dryer regions like the Mediterranean, the issue of water scarcity is of particular concern. Because of the hot climate and the tendency of tourists to consume more water when on holiday than they do at home, the amount used can run up to 440 liters a day. This is almost double what the inhabitants of an average Spanish city use.

In average golf course in a tropical country such as Thailand needs 1500kg of chemical fertilizers, pesticides and herbicides per year and uses as much water as 60,000 rural villagers.

Local resources: Tourism can create great pressure on local resources like energy, food, and other raw materials that may already be in short supply. Greater extraction and transport of these resources exacerbates the physical impacts associated with their exploitation. Because of the seasonal character of the industry, many destinations have ten times more inhabitants in the high season as in the low season.

Land degradation: Important land resources include minerals, fossil fuels, fertile soil, forests, wetland and wildlife. Increased construction of tourism and recreational facilities has increased the pressure on these resources and on scenic landscapes. Direct impact on natural resources, both renewable and nonrenewable, in the provision of tourist facilities can be caused by the use of land for accommodation and other infrastructure provision, and the use of building materials. Forests often suffer negative impacts of tourism in the form of deforestation caused by fuel wood collection and land clearing. For example, one trekking tourist in Nepal - and area already suffering the effects of deforestation - can use four to five kilograms of wood a day.

Pollution

Tourism can cause the same forms of pollution as any other industry: air emissions, noise, solid waste and littering, releases of sewage, oil and chemicals, even architectural/visual pollution.

Air Pollution and Noise: Transport by air, road, and rail is continuously increasing in response to the rising number reported that the number of international air passengers worldwide rose from 88 million in 1972 to 344 million in 1994. One consequence of this increase in air transport is that tourism now accounts for more than 60% of air travel and is therefore responsible for an important share of air emissions. Transport emissions and emissions from energy production and use are linked to acid rain, global warming and photochemical pollution. Air pollution from tourist transportation has impacts on the global level, especially from carbon dioxide (CO_2) emissions related to transportation energy use. And it can contribute to severe local air pollution.

Noise pollution from airplanes, cars, and buses, as well as recreational vehicles such as snowmobiles and jet skis, is an ever-growing problem of modern life. In addition to causing annoyance, stress, and even hearing loss for it humans, it causes distress to wildlife, especially in sensitive areas. For instance, noise generated by snowmobiles can cause animals to alter their natural activity patterns.

Solid Waste and Littering: In areas with high concentrations of tourist activities and appealing natural attractions, waste disposal is a serious problem and improper disposal can be a major despoiler of the natural environment - rivers, scenic areas, and roadsides. For example, cruise ships in the Caribbean are estimated to produce more than 70,000 tons of waste each year. .In mountain areas, trekking tourists

generate a great deal of waste. Tourists on expedition leave behind their garbage, oxygen cylinders and even camping equipment. Such practices degrade the environment with all the detritus typical of the developed world, in remote areas that have few garbage collection or disposal facilities.

Aesthetic Pollution: Often tourism fails to integrate its structures with the natural features and indigenous architectural of the destination. Large, dominating resorts of disparate design can look out of place in any natural environment and may clash with the indigenous structural design. A lack of land-use planning and building regulations in many destinations has facilitated sprawling developments along coastlines, valleys and scenic routes. The sprawl includes tourism facilities themselves and supporting infrastructure such as roads, employee housing, parking, service areas, and waste disposal.

Physical Impacts

Attractive landscape sites, such as sandy beaches, lakes, riversides, and mountain tops and slopes, are often transitional zones, characterized by species-rich ecosystems. Typical physical impacts include the degradation of such ecosystems. An ecosystem is a geographic area including all the living organisms (people, plants, animals, and microorganisms), their physical surroundings (such as soil, water, and air), and the natural cycles that sustain them. The ecosystems most threatened with degradation are ecologically fragile areas such as alpine regions, rain forests, wetlands, mangroves, coral reefs and sea grass beds. The threats to and pressures on these ecosystems are often severe because such places are very attractive to both tourists and developers. Physical impacts are caused not only by tourism-related land clearing and construction, but by continuing tourist activities and long-term changes in local economies and ecologies.

Physical Impacts of Tourism Development

Construction Activities and Infrastructure Development: the development of tourism facilities such as accommodation, water supplies, restaurants and recreation facilities can involve sand mining, beach and sand dune erosion, soil erosion and extensive paving. In addition, road and airport construction can lead to land degradation and loss of wildlife habitats and deterioration of scenery.

Physical Impacts from Tourist Activities: Trampling Tourists using the same trail over and over again trample the vegetation and soil, eventually causing damage that can lead to loss of biodiversity and other impacts. Such damage can be even more extensive when visitors frequently stray off established trails.

Trampling impacts on vegetation	Trampling impacts on soil
Breakage and bruising of stems	Loss of organic matter
Reduced plant vigor	Reduction in soil macro porosity
Reduced regeneration	Decrease in air and water permeability
Loss of ground cover	Increase in run off
Change in species composition	Accelerated erosion

Conclusion

The quality of the environment, both natural and man-made, is essential to tourism. However, tourism's relationship with the environment is complex. It involves many activities that can have adverse environmental effects. Many of these impacts are linked with the construction of general infrastructure such as roads and airports, and of tourism facilities, including resorts, hotels. On the other hand, tourism has the potential to create beneficial effects on the environment by contributing to environmental protection and conservation. It is a way to raise awareness of environmental values and it can serve as a tool to finance protection of natural areas and increase their economic importance.

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An Assessment on Indian Conventional Information and Biopiracy Confirmations

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Abstract:
' Biopiracy' refers the unethical or lawful appropriation or commercial exploitation of biological materials that are native to a particular country or territory without providing fair financial compensation to the people or government of that country or territory. Although biopiracy continues to emerge in the eyes of the media and the public, it continues to be a source of disagreements, confusion and arguments. The main objective of this mini review is to understand it by taking into account the actual harm caused to the indigenous communities whose conventional knowledge is appropriated, thereby reaching a conclusion about current scenario of biopiracy in India.

Keywords: *Biopiracy, Patents, Indigenous community, Conventional Knowledge.*

Introduction

Biopiracy can be described as the unauthorized use or appropriation of conventional indigenous knowledge regarding the beneficial uses of plants or animal specimens along with the chemical and genetic resources contained therein, by third parties for commercial profit without sharing the same with the indigenous community[1]. Because of the patenting of biological materials, the locals of the affected countries would have less access to those new improvements which is possibly their original idea or discovery in the first place. Patent holders would have exclusive rights over their inventions and could therefore raise prices if they wished. Many of the least developed countries are rich in genetic resources but do not have the requisite technology to develop these resources, while the first world countries are poor in genetic resources but have highly developed technologies, which stimulates biopiracy by developed countries.[2] Biopiracy can be of three forms, bio-prospecting that involves discovery of new plants and animals with beneficial uses, discovery of unknown benefits of a known plant and third, being the most abusive is the commercial exploitation of indigenous knowledge[3].

Biodiversity and conventional knowledge

India is one of the twelve mega-biodiversity countries of the world. With only 2.4 per cent of the land area, India already accounts for 7 per cent to 8 per cent of the recorded species of the world. This number is based on the survey of 65 to 70 per cent of the total geographical area of the country. The Botanical Survey of India and the Zoological Survey of India have recorded over 47,000 species of plants and 81,000 species of animals respectively. It is anticipated that some of the remaining areas (e.g., Himalayan region, A & N Islands) may be far richer in biological diversity than most of the areas already surveyed. The Convention on Biological Diversity (CBD) is a landmark in the environment and development field, as it takes for the first time a comprehensive rather than a sectoral approach to the conservation of Earth's biodiversity and sustainable use of biological resources. It is a framework of agreement in two senses. In the first sense, it leaves it up to the individual Parties to determine how most of its provisions are to be implemented. This is because its provisions are mostly expressed as overall goals and policies, rather than as hard and precise obligations as in, for example, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[4]. *Conventional knowledge associated with biological resources is an intangible component of the resource itself. It has the potential of being translated into commercial benefits by providing leads for development of useful products and processes. The valuable leads provided by conventional information save time, money and investment of modern biotech industry into any research and product development. Hence, a share of benefits must accrue to creators and holders of traditional knowledge. Only new knowledge can be patented. Patents only apply to inventions, not to existing knowledge. But if information is held only in oral form, then many IPR regimes, do not consider oral knowledge as proof of previous documentation and therefore such knowledge is in danger of being patented.* Whether it is plant, animals or microorganisms, it will be useful when uses of the particular biological resources are known. Indigenous people are the source of nearly all our knowledge about the uses of the plant, animals and even of the microorganisms in their localities. This conventional knowledge about the usage of biological resource has been unethically accessed by numerous vested interest groups and got protected through various IPR forms leading to agro biodiversity loss, genetic erosion, loss of conventional varieties etc.

Biopiracy dispute circumstances in India

India has always been at the forefront when it comes to a debate about misappropriation of its conventional knowledge by corporate entities and foreign research organizations. The conventional knowledge is considered as information about natural products carried over by communities through generations without proper account or documentation of the same. Recently, the debate has been

articulated as involving issue of bio-piracy, where an entity makes use of conventional knowledge illegally and reaps benefits out of such exploitation without prior consent of communities and sharing any benefits with communities[5].

India along with developing countries is demanding mandatory disclosure under Patent law of two kinds of information by patent applicants: Source or origin of biological resources; and Evidence of prior informed consent and benefit sharing with communities[7]. Disclosure of such information by patent applicants will result in reducing the chances of exploitation of conventional knowledge propagated among local communities. In the past, the Indian Parliament has passed legislation and also made amendment to existing legislation for protecting interest of communities in conventional knowledge. National Biodiversity Act protects conventional knowledge by regulating use of such information by a foreigner, Indian citizen, and body corporate controlled by foreigner/Indian citizen. The said Act also have requirement of prior permission by entity seeking IPR protection based on knowledge/information obtained from Indian communities. Section 3 (p) of the Indian Patent Act, 1970, also bars the patent protection for invention involving use of conventional knowledge or any duplication or aggregation of such knowledge. Further, there is protection provided under Protection of Plant Varieties and Farmers Rights Act 2001, Geographical Indication of Goods (Registration and Protection) Act 1999, and Scheduled Tribes and other Conventional Forest Dwellers (Recognition of Forest Rights) Act, 2006. Other initiatives by India include Conventional Knowledge Digital Library which is a digitized conventional medicinal knowledge available in public domain in the form of existing literature (Ayurveda, Unani, Siddha and Yoga)[7]. This initiative was formulated in backdrop of revocation of patent on wound healing properties of turmeric at the USPTO and patent granted by European Patent Office on antifungal properties of neem. Conventional information has increased access to use of such knowledge for beneficial purposes.

Recent analysis of Indian Conventional drugs victimized by biopiracy

Bio piracy is not limited to plants and recipes alone, using intellectual property rights, larger cooperation gets patent on indigenous medicinal plants, seeds, genetic resources, and conventional formulas by excluding local identity, as listed in Table 1. Taking advantage of these rights, "biopiracy" has happened by taking biological resources from one country to another country with the intention of building up global economies. As highlighted at the protest in the late 1990s by Dr. Vandana Shiva, the two examples from Indian context can be highlighted as basmati varieties of rice are transferred to build up the rice economy of United States and the export of neem seeds from Indian farms by giant corporates D. Singh, 2003.The list where bio-pirates have been granted through patents is long-standing and cannot be compiled into a single piece of writing.

Biopiracy is obtaining IPRs without consent of / any benefits going to, the original holders of the biological resources/ knowledge on which the innovation is based and/or commercially exploiting biological resources/ knowledge without consent of / any benefits going to, the original holders (without obtaining IPRs). Biopiracy is a form of theft. Some examples of biopiracy are the patents, which were granted over Neem, Turmeric Karela, Jamun, Brinjal, Basmati Rice *and so on as* summarized *in Table below.*

Table 1 summarizes the conventional Indian drugs victimized by bio-piracy[8].

S.No.	Common Name	Indigenous use	Patent Number	Patentee	Purpose
1.	Turmeric *[Curcuma longa]*	heal wounds and rashes	US Patent 5401504	University of Missisipi Medical Center, Mississipi	Wound-healing agent
2.	*Neem [Azadirachta indica]*	Antiseptic toothbrush, Insect repellent, Diabetes	EP436527	US Corporation W.R. Grace Company and US Department of Agriculture	Neem Extracts
			US Patent 5047242	Native Plant Institute ("NPI") Salt Lake City	Azadirachtin derivative insecticides
			US Patent 4943434	Rohm and Haas Company ,Philadelphia	Insecticidal hydrogenated *neem* extracts
			US Patent 5110591	PPG Industries, Inc.,Pittsburgh	*Neem*-oil-emulsifier

			US Patent 5405612	W. R. Grace & Co.-Conn. ,New York	Hydrophobic extracted *neem* oil--a novel insecticide
			US Patent 4556562	Vikwood, Ltd. Sheboygan	Stable anti-pest *neem* seed extract
3.	*Anar [Punica granatum]*	Anti – diarrhoea, womicidal	US Patent 5411733	Toyoharu Hozumi, Takao Matsumoto, HaruoOoyama, Tsuneo Namba, Kimiyasu Shiraki, Hattori Masao, Masahiko Kurokawa, ShigetoshiKadota, Japan.	Anti-viral agent
4.	*Karela, Jamun,* Brinjal	Control of Diabetes	US Patent 5900240	Cromak Research Inc.	Anti-diabetic properties
5.	*Basmati* Rice	Unique aroma and Flavour	US Patent 5663484	RiceTec	New Variety of basmati lines
6.	*Amla* [*Phyllanthus emblica*]	Greyness of hair	JP9110661	Unilever in the Japanese patent office	Hair blackening composition extracted from the *amla* fruit
7.	*Guggul* [*Commifora mukul*]	Lowering fat	US Patent 643699	SABINSA Corporation, US	Nutritional/ Nutraceutical improvement of cardiovascular disease.
			US Patent 6113949	Prolab Nutrition, Inc.	Weight control product and method of treating hyperlipidemia
8.	*Kala jeera* [*Nigella sativa*]	Jaundice, Halitosis, Skin diseases	US Patent 6042834	Baraka, Mohamed Wasif	Herbal composition for diabetes and method of treatment
			US Patent 5653981	Medenica, Rajko D.	To increase immune Function
9.	*Aswagandha* [*Withania somnifera*]	Treatment of depression, insomnia, gastritis, gastric ulcer and convulsions	EP 1906980	Natreon Inc., US Multinational	Method of Treatment or Management of Stress
10.	*Bel* [*Aegle marmelos*]	Leaves useful in diabetes	US Patent 5886029	Dhaliwal, Kirpal S.	Method and composition for treatment of diabetes
11.	*Latjira* [*Achyranthes aspera*]	Skin diseases and anti-inflammatory	US Patent 6080401	Reddy; Malireddy S. Englewood, CO	Enhancement of the curative action of the drugs
12.	*Amaltas* [*Cassia fistula*]	Prevention of dysentery	US Patent 5411733	ToyoharuHozumi,Japan	Antiviral agent

13.	*Tulsi* [*Ocimum sanctum*]	Skin diseases	US Patent 6264995	Newmark; Thomas Schulick; Paul	Herbal composition for reducing inflammation
14.	*Kalimirch* [*Piper nigrum*]	Dermatopathy, Used in the preparation of pipla	US Patent 6346539	Raman; Amala Lin; Zhixiu Robert; Charles Hider London	Treatment of skin conditions
			US Patent 5536506	Majeed, Muhammed Badmaev, Vladimir Sabinsa Corporation	Use of piperine to increase the bioavailability of nutritional compounds
15.	*BhoomiAmla* [*Phyllanthus niruri*]	Cures liver disorders used for treating everything from jaundice to sluggish livers.	US Patent 4673575	Baruch Blumberg, Venkateswaran; Pinayur S. Fox Chase Cancer Center	Composition,Pharmaceutical preparation and method for treating viral hepatitus
16.	*Sharifa* [*Annona squamosal*]	Inflammation, constipation, urinary infection,infertility	US Patent 4762716	Moeschler; Heinrich F. Pfluger; Wolfgang Wendisch; Detlef	Insectide Annonin obtained from pulverized *annona squamosa* extract.
			US Patent 5955497	Mclaughlin, Jerry L. Hopp, David C.	Novel acetogenins isolated from Annona squamosal exhibit cytotoxicity to human tumor cell lines
17.	*Harad* [*Terminalia chebula*]	For dysentery and diarrhea, stomach complaints, ulcers, vomiting and worms Flatulence	US Patent 6187313	Alvin Burton Segelman, Nature's Sunshine Products,USA	Composition and method for treating and preventing helicobactor-pylori-associated stomach gastritis, ulcers and cancer
18.	*Imli* [*Tamarindus indica*]	Fruit Drink	US Patent 5474791	Linda Zablocki; Suzanne Pecore; The NutraSweet Company, (Deerfield)	Beverages using tamarind extract and method of making such beverages
19.	*Manjistha* [*Rubia cordifolia*]	Skin diseases	US Patent 6258344	The Procter & Gamble Company, Cincinnati	Skin lightening compositions
20.	*Chandrabhaga* [*Rauwolfia serpentina*]	Useful in epilepsy	US Patent 6323236	Susan McElroy; University of Cincinnati,Cincinnati	Use of sulfamate derivatives for treating impulse control disorders.
			US Patent 2870140	Marvin R. Thompson, Robert E. Thompson.	Therapeutic agents derived from *rauwolfia serpentine*

21.	*Banaba* [*Lagerstroemia speciosa]*	used as a remedy for the symptoms associated with elevated blood glucose levels	US Patent Application 20060198907	Alex Moffett, Parag Shah	Pharmaceutical, therapeutic, and dietary compositions derived from *Lagerstroemia speciosa L*. plant
			US Patent 6589573	Ito En, Ltd. ,Tokyo, Japan	Xanthine oxidase inhibitor and method for producing the same
22.	*Arjuna* [*Terminalia arjuna]*	Useful in bilious affections	US Patent 5411733	HozumiToyoharu Matsumoto Takao et.al.	Antiviral agent containing crude drug
23.	*Bahera* [*Terminalia bellirica]*	Germicidal	US Patent 5693327	Eladevi Shah	Herbal compositions
24.	*Adrak* [*Zingiber officinale*]	in rheumatism and inflammation of the liver	US Patent 6274177	Tian-Shung Wu; National Science Council ,Taipei	Method of preparing an extract potent in anti-inflammation and anti-platelet aggregation from *Zingiber officinale*
		promotes digestive power	*Patent application number: 20090104293*	*Medical and Pharmaceutical Industry Technology and Development Center, Taipei*	Use of an extract from rhizomes of *Zingiber officinale* in treating a disease associated with Helicobacter pylori

Conclusion

While patents were first used to protect inventions and stimulate innovations, many anti-biopiracy activists and some academic and scientific circles are pushing for changes in the system as it is now thought to hamper research in many important areas. To counter this, many researchers are attempting to collect genes and publish them in scientific domains seed banks, gene banks etc. By sharing sequences, scientists can prevent big firms from claiming uniqueness and novelty, two criteria for patents.

Biopiracy as "a silent disease" is hardly detectable because it frequently does not leave any traces. Unfortunately, the electronic media favours to highlight environment pollution and deforestation, while biopiracy incidents are less reported. Biopiracy is not likely to disappear any time soon. As climate change threatens, many large agribusinesses and researchers are patenting drought-resistant genes from plants for future use in crop species. At the present time, the problem of biopiracy leftover in a situation in which two sides cannot reach an agreement.

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Effect of Aerobic Exercises on the Agility and Flexibility of College Level Students

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Abstract
The research scholar selected N=40 subjects for the present study from college going boys. The subjects were selected by Purposive sampling method. After selecting the sample the subjects are given aerobic exercises. Pre-test of subjects was taken and the training program (Aerobic exercises) was given to the group. After giving the four week training program the post test was administered of the subjects and the results will be drawn by using t-test. No significant difference in both parameters.
Keywords: *Training program, Aerobic Exercises*

Introduction

Aerobic Exercises

Aerobic exercise (also known as endurance activities, **cardio** or **cardio-respiratory exercise**) is physical exercise of low to high intensity that depends primarily on the aerobic energy-generating process. "Aerobic" is defined as "relating to, involving, or requiring free oxygen", and refers to the use of oxygen to adequately meet energy demands during exercise via aerobic metabolism. Aerobic exercise is performed by repeating sequences of light-to-moderate intensity activities for extended periods of time. Aerobic exercise may be better referred to as "solely aerobic", as it is designed to be low-intensity enough that all carbohydrates are aerobically turned into energy via mitochondrial ATP production. Mitochondria are organelles that rely on oxygen for the metabolism of carbs, proteins, and fats.
Examples of cardiovascular or aerobic exercise are medium- to long-
distance running or jogging, swimming, cycling, stair climbing and walking.

AGILITY

Agility or **nimbleness** is an ability to change the body's position efficiently, and requires the integration of isolated movement skills using a combination
of balance, coordination, speed, reflexes, strength and endurance. Agility is the ability to change the direction of the body in an efficient and effective manner and to achieve this requires a combination of

- Balance – The ability to maintain equilibrium when stationary or moving (i.e. not to fall over) through the coordinated actions of our sensory functions (eyes, ears and the proprioceptive organs in our joints);
- Static balance – The ability to retain the centre of mass above the base of support in a stationary position;
- Dynamic balance – The ability to maintain balance with body movement;
- Speed - The ability to move all or part of the body quickly;
- Strength - The ability of a muscle or muscle group to overcome a resistance; and lastly,
- Coordination – The ability to control the movement of the body in co-operation with the body's sensory functions (e.g., in catching a ball [ball, hand, and eye coordination]).
- Flexibility or limberness refers to the anatomical range of movement in a joint or series of joints, and length in muscles that cross the joints to induce a bending movement or motion. Flexibility varies between individuals, particularly in terms of differences in muscle length of multi-joint muscles. Flexibility in some joints can be increased to a certain degree by exercise, with stretching a common exercise component to maintain or improve flexibility.

Methodology

For Present study experimental method was used, 40 students were selected as subjects for present study, selected Aerobic exercises were given as treatment for four weeks, shuttle run was used as criterion measure for agility and sit and reach test was used for flexibility. After collection of the data T test was used for data analysis.

Table No. 1, Table showing the mean of Pre Test and Post Test scores of players on the Basis of 't' ratio for shuttle-run Test to measure the Agility

Sr. No.	Test	Mean	M.D.	S.D.	S.E.	't' ratio
	Pre-Test	18.05	0.1	4.72	1.49	0.06
	Post Test	18.15		4.76		

*Significant at 0.05 level of confidence

Table No. 1 shows that the mean of Shuttle-run Test of college students for Pre-test and post test score are 18.05 and 18.15. Similarly an examination of table shows that there is a significant difference in the mean Shuttle-run Test of Pre-test and post test score of college students as a result of post test as the obtained value of't' (0.06) is less than the required 't' ratio value 2.09 at 0.05 level of confidence.

Table No. 2, Table showing the mean of Pre Test and Post Test scores of players on the Basis of 't' ratio for sit and reach tests to measure the Flexibility

Sr. No.	Test	Mean	M.D.	S.D.	S.E.	't' ratio
	Pre-Test	47.95	0.25	4.72	1.49	0.17
	Post Test	48.2		4.76		

*Significant at 0.05 level of confidence

Table No. 2 shows that the mean of Sit and Reach Tests of College student for Pre-test and post test score are 47.95 and 48.2. Similarly an examination of table shows that there is a significant difference in the mean Sit and Reach Tests of Pre-test and post test score of College student as a result of as the obtained value of 't' (0.17) is less than the required 't' ratio value 2.09 at 0.05 level of confidence.

Results

1. Pre-Test of agility test was found 18.05.
2. Post-Test of agility test was found 18.15.
3. Pre-Test of flexibility test was found 47.95.
4. Post-Test of flexibility test was found 48.2.

Conclusion

After the analysis of the data there was no significant difference found among both the groups respectively.

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Yog and Development

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Abstract:

In this whole world based on male and female energies because God (nature) has ultimate power of reality. It is based on $E=mc^2$ (Einstein), Newton's IIIrd law & law of attraction, all three factors are playing everywhere in this world. Female is the largest voltage of this world. It is said that a sound mind resides in a healthy body. If your mind is sound and body is healthy, your performance can be better in all the activities you carry out in our day to day life. Yoga can play a very crucial role in maintaining healthy body and provide peace to a human being Yoga can also help all round development. This paper is an attempt to show the benefit of yoga for overall development of health and how it is helpful for all round development. Moreover, an ancient scripture of mythology is introduced and the ways in which they are helpful for maintaining health and also for all round development.

Keywords: *Yoga, Saptashati, women, meditation, wishes, and spiritual ascension, purity of thought, positive radiance etc.*

Introduction:

Yoga is a very old practice which has been in existence since ages in India. The word Yoga originated from the Sanskrit language. It denotes union of bridge that specifies the practice of yoga brings together the one's body, mind and spirit. Yoga includes several physical postures which are called Asanas. These postures combined with breathing techniques (pranayama) and meditation (Dyana), makes the goals of a sound body and a quiet, peaceful mind complete. Sri Durga Saptashati is an ancient scripture of mythology. While the tales and fables in this scripture, highlighting the heroics of Mother Goddess Durga, are known to all and widely discussed in traditional culture, the real power of the scripture lies in the mystic meditation revolving around the scripture. This secretive meditational process of Durga Saptashati laid encrypted in a spiritual code for ages. It was kept as a closely guarded secret to avoid it falling into the wrong hands. But, the merciful Healing Master Avdhoot Baba Shivanandji took it upon himself in the contemporary times to revive this supremely powerful but forgotten spiritual practice. Babaji reckoned that in the current milieu of conflict, war, rebellion, strife, epidemics, incurable diseases, natural disasters, catastrophes, pain and suffering, mankind was becoming increasingly disconnected with itself. He felt that time was ripe to overhaul such a vitiated atmosphere with something which could not only arrest this slide but universally resurrect a congenial environment for good health, peace, happiness and an overall harmonious existence for all living beings. Thus, Babaji decoded and distillated the 13 chapters and 700 verses of the Durga Saptashati scripture. What came through was a very powerful gist of Beej Mantras or seed Syllables Each Beej Mantra is or seed syllables each Beej Mantra is a living entity and invokes the goddess in some form. Each syllable has great sanctity and purifying capacity there are three units in the meditation, corresponding To the divine Trinity of Goddesses Mahakali (kill the vices), Mahalaxmi (Bestows infinite material and spiritual wealth) and MahaSaraswati (imparts great wisdom) and so the devoted practitioner is blessed with 11th of the soul with every passing chapter of the process. The Demons which goddess Durga overpowers in the various story legends of the Durga Saptashati are actually all bad habits of ego, criticism sycophancy, greed and the cascade of misdeeds which have occupied our lives because of ignorance as the practitioner of these meditation follows the procedure the intimate connection with the god is that gets established kills the negativity within helping us internalize the real essence of Durga Saptashati which is renunciation of all kinds of devilish tendencies. The defining element of these meditation is that it is known to be the giver of great bones. Moreover, with Babaji having moulded such a complex, long-drawn meditation into a succinct process it has become tailor-made for the fast paced modern Times.

The greatest asset of Durga Saptasati Sadhana is that it help us learn the real meaning of renunciation and detachment by guiding us towards the practical aspect of spirituality. So we realize that the devil of Mahishasur, Madhu-Kaitabh, Shumbh-Nishumbh and Raktabeej are not external entities but symbolic of bad qualities within us. Saptashakti is a facilitator in us becoming aware of the fact that when we kill the bad tendencies we are showered with great boons, material wishes and spiritual ascension.

Importance of Durga Saptasati Sadhana

Durga Saptshati Sadhna is the perfect example of how the power of sound and vibration when blended with the emotion of devotion can prove to be my tea beneficial turning the chant of syllables into a meditation in motion.

Regular conduct of these purifying practice prices the vibration of the region where it is done, thus its exponents talk of its great capability of restoring peaceful and normal order across the word if done in every nook and corner collectively. Saptashati syllables grants infinite boons of diverse variety on the devoted practitioner the benefits through uncountable are summarized below.

1. Balances the ambient energy with image positive radiance
2. Create a protective shield around the factor which helps at every juncture.
3. Triggers personality and character development
4. Cleanses the mind of doubt and ambiguity
5. Forces great love and warm along family members when done at home
6. Aspire the individual on the path of virtuousness
7. Imparts the rare combination of purity of thought prosperity and wisdom
8. Rises the vibration of the practitioner and automatically his family
9. The quotient a very smooth effect on the body mind and soul

Over and above days it is said about the Durga saptasati meditational chance that day possesses the power of England or a 180 degree turn around even for the one who finds himself totally down and out in every sphere of life or for the person who is on the verge of total breakdown

The Infinite benefit of Durga saptashati Sadhana instant near the positive while paying the individual with an appreciable amount of creative energy.

Conclusion:

Thus, this type of meditation which is based on the ancient scripture of mythology 'Sri Durga Saptashati' is very helpful for developing.

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Social Behavior of High and Low Socio Economic Children: A Comparative Study

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Abstract

The purpose of the study was to compare the social behaviour of high and low socio economic status children. For this purpose researcher has selected the 40 children's (20 children's of high socio economic status and 20 children's of low socio economic status) from Pombhurna, Chandrapur with the help of purposive sampling method. The age of the children's were ranged between 12 to 15 years. Socio economic status was measured with the help of Socio Economic Status Scale (Rural) developed by Divya Singh and Deepa Vinay. Further children's were categorized into high and low socio economic status. Social behaviour of children's was measured with the help of Social Behaviour Inventory developed by M.C. Joshi and Jagdish Pandey. Statistical Analysis was done on the basis of 't' test and the level of significant was kept at 0.05. Result reveals that there was difference between the mean score of high socio economic status children's and low socio economic status children's as the mean score is 102.4 and 94.2. Whereas the mean difference was found as 8.2, to check this difference is significant or not researcher further calculate 't' test and the 't' value 2.34 which was found to be greater than the tabulated 't' value 2.024. This shows that there is significant difference was found between high socio economic status children's and low socio economic status children's. Concluding the above study it has been observed that there is difference found between the mean score of high socio economic status children's and low socio economic status children's and it also found to be significant. The high socio economic status children's shows high and better social behavior as compared to low socio economic status children's, the difference may be attributed that low socio economic status children's goes through many difficulties and troubles in their family, such as lower educational achievement, poverty and mal nutrition which leads to poor health, ultimately it affect the behavior of children's and our society also. The hypothesis of the researcher was that there will be significant difference between high socio economic status children and low socio economic status children in reference to social behavior. The result was found to significant hence it was accepted.

Keyword: Socio economic status, Social behavior, children, etc.

Introduction

Social behavior is defined an act directed towards society, or the behavior taking place between members of the same species. It is the behavior towards other selves such behavior apprehends another as a perceiving, thinking, Moral, intentional, and behaving person; involves the expectations about the other's acts and actions. Before understanding social behavior we must know about social acts, and social actions. A social act is an act done by intention, aim, plan, purpose, and so on which encompasses another person. A social action is an action which directed towards accomplishing a social act. From the moment of birth, human beings are social creatures. Indeed, without social relations no child would survive. Even when an individual is able to live independently, very few people look to live in isolation. Instead, we generally receive social interactions, and no study of behaviour would be complete without taking into consideration to these interactions. A numerous study shows that early childhood interventions has found short and medium term effects on academic or cognitive outcomes which leads to improvements in pro-social and anti-social behaviours, such as delinquency, risky adolescent behaviour, aggression, employment and earning. The potential of socio economic status affect in a broad range of children's social behaviours, attitudes and skills has strong implications for the development of various policies that may prevent antisocial behaviours of children. As child grows they become more social. This revolution period is often very problematic for children. During this stage social behaviour is developed. Socio economic status plays vital role in the determination of their social behaviour.

Rationale of the Study

The impact of socio economic status on early childhood interventions or children's social and emotional behaviour was globally observed. Now days the requirement of children is increased and if it is not fulfil by parents they are going to wrong tract. Hence researcher has taken the study entitled 'Social Behaviour of High and Low Socio Economic Children: A comparative study'.

Purpose of the Study

The purpose of the study was to compare the social behavior of high socio economic status children and low socio economic status children.

Hypothesis

There will be significant difference between high socio economic status children and low socio economic status children in reference to social behavior.

Methodology

The purpose of the study was to compare the social behaviour of high and low socio economic status children. For this purpose researcher has selected the 40 children's (20 children's of high socio economic status and 20 children's of low socio economic status) from Pombhurna, Chandrapur with the help of purposive sampling method. The age of the children's were ranged between 12 to 15 years.

Administration of the test

Socio economic status was measured with the help of Socio Economic Status Scale (Rural) developed by Divya Singh and Deepa Vinay. Further children's were categorized into high and low socio economic status. Social behaviour of children's was measured with the help of Social Behaviour Inventory developed by M.C. Joshi and Jagdish Pandey

Statistical Analysis

Statistical Analysis was done on the basis of 't' test and the level of significant was kept at 0.05.

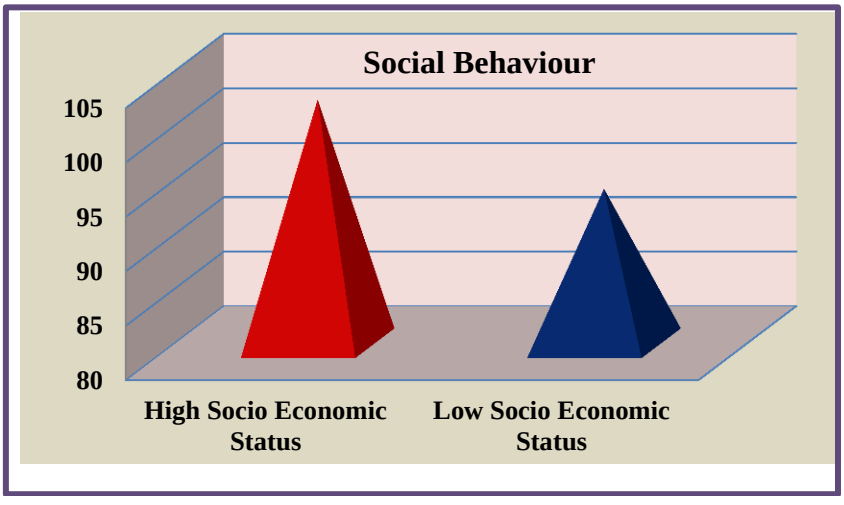
Table, Comparison of social behavior of high and low socio economic status children

Children	Mean	S.D	S.E	M.D	D.F	Obt. 't'	Tab 't'
High Socio Economic Status	102.4	12.34	3.504	8.2	38	**2.34***	2.024
Low Socio Economic Status	94.2	9.66					

*Significant at 0.05 Level

Above table reveals that there was difference between the mean score of high socio economic status children's and low socio economic status children's as the mean score is 102.4 and 94.2. Whereas the mean difference was found as 8.2, to check this difference is significant or not researcher further calculate 't' test and the 't' value 2.34 which was found to be greater than the tabulated 't' value 2.024. This shows that there is significant difference was found between high socio economic status children's and low socio economic status children's.

Graph, Mean comparison of social behavior of high and low socio economic status children



Conclusion

Concluding the above study it has been observed that there is difference found between the mean score of high socio economic status children's and low socio economic status children's and it also found to be significant. The high socio economic status children's shows high and better social behavior as compared to low socio economic status children's, the difference may be attributed that low socio economic status children's goes through many difficulties and troubles in their family, such as lower educational achievement, poverty and mal nutrition which leads to poor health, ultimately it affect the behavior of children's and our society also. The hypothesis of the researcher was that there will be

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Environmental Sustainability in work place and its implications- a Micro study in Dakshina Kannada District of Karnataka

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Abstract:

To make the Earth habitable for future generations and to live our life to its full potential, as the citizens of Earth we all need to lend our hands in keeping our planet clean. To minimize the damage to their organizations both internally as well as externally, Companies and Organizations of today adopt environmentally sustainable workplace practices and focus on green environment. And in ensuring environmentally sustainable office, the role of employees cannot be disregarded as employees are the keys to implement sustainability measures. This paper is an empirical study on the environmental sustainability practices adopted in the working places of employees of Dakshina Kannada district of Karnataka State. Primary data is collected by conducting a survey among 125 employees of Dakshina Kannada, employed in different Organizations like, Banks, Private and Public Companies, Co-operative societies, Educational institutions, Super Markets, Hotels and Small business shops. Secondary data is incorporated from journals, newspapers and internet sources. The main objectives of study are to understand the awareness level of employees about the environmental sustainability practices adopted by their organizations and to understand to what extent employees are involved in sustainability initiatives of their organizations so as to increase their accountability to practice them in their organizations.

Keywords: *Environmental Sustainability, Green environment, Awareness level of employees, Accountability of employees.*

Introduction:

Environmental protection and sustainability have become the issues of great concern today. To make the Earth habitable for future generations and to live our life to its full potential, maintaining the ecological system of environment and pollution free society is the responsibility of each and every individual. Though industrialization has resulted in rapid economic development of the countries around the globe by bringing a series of changes in the life style of the people by ensuring higher standard of living at one end, the other end tells a very bad story of causing impairment to the environment. It's very saddening to note that, the very survival of human kind now requires adoption of strategies to ensure environmental protection and sustainability. To minimize the damages to their organizations both internally as well as externally, Companies and Organizations of today adopt environmentally sustainable workplace practices and focus on green environment.Creating great impact on customers and the world necessitates them to create healthy and sustainable workplace which correlates to happier employees, improves the productivity and lessens the work- related illnesses of employees. Environmentally sustainable office implies better work culture and work- life balance. It has the power to unite the staff for a good cause.

Green Environment in work place:

To promote Green Environment and environmental sustainability in workplace, employees can be used as champions, as they come up with innovative ideas for environment protection and as they are the key factors to implement eco- friendly work practices. Following simple strategies can be practiced in the work place by involving the employees to lessen the damages to the environment.

- Adopting recycling program
- Using both the sides of the paper while printing or photocopying
- Acquiring recycled products or papers.
- Donating unwanted supplies to educational institutions or other non-profit organisations
- Using reusable plates, water bottles, coffee mugs etc. instead of disposable products.
- Putting the computer in sleep mode instead of using screen savers
- Using energy – efficient light bulbs
- Choosing Environmentally Friendly Packaging and Labelling
- Offer incentives to employees who follow environmentally, friendly practices like biking, carpooling, or taking public transit.
- Going paper less. Switching to electronic files and using cloud -based collaboration options like Google drive.

Objectives of Study:

- To know the awareness level of employees about environmental sustainability practices adopted by their organisations.
- To understand to what extent employees are involved in sustainability initiatives of their organisations.

Rationale and Significance of Study:

Today environmental sustainability has become the topic of public debate and irrespective of any boundaries like caste, race, religion and kind, each and every country and the entire human kind is bound to adopt and follow environment sustainability strategies. Every positive action in this regard however big or small is considered as a significant step for creating a virtuous cycle of sustainability. Today developing and promoting environmental sustainability practices has become a great movement across the globe to create a sustainable Earth and economy for future generations. In this regard, this study is more significant.

Literature Survey:

- Sanjee Udari Samaranayake and Saliya De Silva (2010), in their research article "Effect of Green Workplace Environment on Employee Performance" attempted to examine the perceptions of employees regarding green workplace environment and its impact on their performance. They found from their study that Green building contributed to improvement in employee performance, resulted in saving energy and resources, improved the market conditions and created better public image.
- Deniz .S.Ones and Stephan Dilchert (2012) in their research article "Environmental Sustainability at Work: A Call to Action" provided an overview of contributions of industrial and organizational psychologists to the organisations and the world economy to ensure environmental sustainability. They found from their study that I-O psychologists have a major role to play in environmental sustainability and so far, application of I–O psychological research is limited in business organisations. They concluded by describing the ways in which I–O psychologists can contribute to environmental sustainability.
- Anbalagan. G and Shanthi Viswanathan (2015) in their research article "A study on environmental awareness and related practices among the high school students at Madurai District, Tamil Nadu" found that changing life style and usage of modern technologies pose serious threat on the environment and hence pollution levels are alarming every day. They stressed the need for environmental sustainability by ensuring strict adherence to policies and programmes that support efficient use of resources by reducing environmental damages.
- Elisabeth Subbuer and Martina Schafer(2018) in their research paper "Greening the workplace: conceptualising workplaces as settings for enabling sustainable consumption"provided a framework to identify the weaknesses of existing entrepreneurial strategies to promote Pro Environmental Behaviour (POB) among the employees and to adopt extensive strategies to ensure green environment in work place.
- Pascal Paillé, Nabil Amara etal.(2018) in their research paper "Greening the workplace through social sustainability among co-workers" examined the indirect effect of job satisfaction on co-workers support on eco- helping through their commitment and helping behaviours. Implications of the study emphasised the significance of mutual exchanges among colleagues in promoting eco-friendly changes.

Literature review revealed that no specific studies to understand the perspectives of employees about environmental sustainability is undertaken in Dakshina Kannada District of Karnataka and hence to fill this research gap this study is undertaken.

Research Methodology:

This is an empirical study made by conducting a survey among 125 employees of Dakshina District of Karnataka employed in different Organizations like, Banks, Private and Public Companies, Co-operative societies, Educational institutions, Super Markets, Hotels and Small business shops. Google form containing structured questionnaire was circulated among employees via whatsapp groups and by email to collect primary data. Customers were chosen by following Convenience sampling method. Secondary data is included from newspapers, journals and internet sources.

Hypotheses:

H1. Employees of Dakshina Kannada District have awareness about environmental sustainability practices adopted by their organisations.

H2: There is a significant difference in the awareness level of employees based upon their Gender, Age, Educational qualifications, Occupations and Monthly Income level (i.e. Demographic variables).

Limitations Of Study:

Information provided in this paper is based upon the general opinions of just 125 employees of Dakshina Kannada District of Karnataka State. It is a micro study. A detailed study can be undertaken on this topic to get more information about the real conditions in the working place.

Data Analysis:

In order to get meaningful information from the data collected from 125 employees of different organisations of Dakshina Kannada District with the help of a structured questionnaire data analysis is carried out. Statistical techniques such as Percentage analysis, Mean, Standard Deviation, % Mean, and Chi square test are used for the analysis and interpretation of data by using SPSS software.

Findings Of Study:

Demographics:

From Table 1, it is clear that both male and female employees of different age groups, occupations, educational qualifications and monthly income groups are surveyed for collecting their opinions. It means that respondents surveyed have different demographic profile.

Awareness level of Employees about environmental sustainability practices adopted by their organisations.

To know the awareness level of Employees about environmental sustainability practices adopted by their organisations, responses of respondents about their awareness level was measured on 5 point Likert rating scale, 'Very Poor' (1), 'Poor' (2), 'Average' (3), 'High' (4) and Very High (5). Mean Value, Standard Deviation and % Mean were found out and interpretations are made based upon % Mean Value as, if % mean is 0% - 20 % ' Very Poor', 21% - 40% 'Poor', 41%-60% ' Average', 60%-80% 'High' and 81%-100% 'Very High' level of awareness. The results are shown in Table 2.

Testing of Hypothesis:

H1. Employees of Dakshina Kannada District have awareness about environmental sustainability practices adopted by their organisations.

Study revealed that Awareness level of respondents about environmental sustainability practices adopted by their organisations was 'High' with Mean and Standard Deviation 3.56±.93671 and
% Mean71.2%. So the alternative hypothesis '**Employees of Dakshina Kannada District have awareness about environmental sustainability practices adopted by their organisations' is justified.**

H2: There is a significant difference in the awareness level of employees based upon their Gender, Age, Educational qualifications, Occupations and Monthly Income level (i.e. Demographic variables).

Values obtained about Respondents' level of awareness about environmental sustainability practices adopted by their organisations based on demographic factors was compared by using Chi square test and presented in Table 3.

Chi square test results in Table 3 reveals that there is a significant difference in the awareness level of respondents about environmental sustainability practices adopted by their organisations based upon demographic variables, as $p= 0.000<0.01$ on each of the demographic factors such as Gender, Age, Educational qualifications, Occupations and Monthly income level of respondents. So alternative Hypothesis **H2: There is a significant difference in the awareness level of employees based upon their Gender, Age, Educational qualifications, Occupations and Monthly Income level (i.e. Demographic variables) is accepted.**

- **Employees' involvement in sustainability initiatives of their organisations.**

To understand employees involvement in sustainability initiatives of their organisations, respondents were asked to give their opinions about their involvement in various initiatives taken by their organisations to ensure environmental sustainability on 5 point rating scale as (Very high =5, High =4, Average =3, Poor =2, Very Poor =1). Mean Value, Standard Deviation and % Mean were found out and interpretations are made based upon % Mean Value as, if % mean is 0% - 20 % ' Very Poor', 21% - 40% 'Poor', 41%-60% ' Average', 60%-80% 'High' and 81%-100% 'Very High' level of involvement in sustainability initiatives of their organisations . The results are shown in Table 4.

Study results revealed that Employees' involvement in sustainability initiatives of their organisations was 'High' on each of the initiatives adopted by their organisations with % Mean more than 70% on each of the factors. It means that employees of Dakshina Kannada District have realized the importance of environmental sustainability and actively join their hand with their employers in their efforts to lessen the damages to environment.

Suggestions:

Though Employees of Dakshina Kannada District have adequate awareness about the significance of Green environment in their work place and they actively participate in Environmental sustainability practices of their organisations , they need to focus more on issues such as Pollution due to industrialisation ,Climate Change, Deforestation, Loss of Biodiversity. Melting Polar Icecaps etc which cause a big threat even to the very survival of human kind on the Earth. Environment protection measures have to be given more priority at every phase of operations not as one of the requirements but as one of the prime responsibility of each individual living on the Earth. Study revealed that Employees' involvement in Environmental sustainability practices of their organisations is not at a very high level. Massive efforts are required in this regard.

Conclusion:

Green workplace is not only the healthy environment, but it will inspire and motivate the employees and result in improved productivity of the employees. Previous studies revealed that the productivity of the employees can be raised by 21%, if given good working environment. It is a well known fact that, the mood, attitude and quality of the work of the employees are greatly influenced by the working environment. More over Quality of Working environment is very important to ensure job satisfaction to employees. To conclude, keeping our home and work place green and pollution free is our foremost Responsibility To Ensure peaceful living and healthy Eco system.

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APPENDIX:

Table 1: Demographic profile of Respondents

Demographic factors	Classification	Number of Respondents	Percent
Gender	Male	59	47.2
	Female	66	52.8
Age group	Less than 25	21	16.8
	25to 35 years	33	26.4
	35to 45years	36	28.8
	45years to 55 years	23	18.4
	55 years & above	12	09.6
Monthly Income of the respondents	Less than Rs.15,000	14	11.2
	Rs.15,000- Rs.30,000	13	10.4
	Rs.30,000- Rs.45,000	35	28.0
	Rs.45,000- Rs.60,000	45	36.0
	Rs.60,000& above	18	14.4
Educational qualification	SSLC	08	06.4
	PUC	20	16.0
	Graduation	70	56.0
	Post Graduation	15	12.0
	Other qualification	12	09.6
Occupation	Office Attenders	09	07.2
	Office clerks	55	44.0
	Supervisors	25	20.0
	Managers	20	16.0
	Others	16	12.8

Source: primary data

Table 2: Distribution of respondents on the basis of their Awareness level about environmental sustainability practices adopted by their organisations

Factor	Very poor No. & %	Poor No. & %	Average No. & %	High No. & %	Very High No. & %	Mean / Standard Deviation	Percentage Mean
Awareness level of respondents	4 (3.2%)	6 (4.8%)	52 (41.6%)	42 (33.6%)	21 (16.8%)	3.56±.93671	71.2%

Source: Primary data

Table 3: Chi square test results of values obtained about Respondents' level of awareness about environmental sustainability practices adopted by their organisations based on demographic factors

Demographic factors	**Chi square value**	**d.f**	**P**	**Significance**
Gender	25.810	1	0.000	Highly Significant
Age group	12.650	1	0.000	Highly Significant
Monthly income	9.867	1	0.000	Highly Significant
Occupation	12.456	1	0.000	Highly Significant
Educational Qualification	14.432	1	0.000	Highly Significant

Source: primary data

Table 4: Distribution of respondents on the basis of their involvement environmental sustainability practices adopted by their organisations

Factors	Very poor No. & %	Poor No. & %	Average No. & %	High No. & %	Very High No. & %	Mean / Standard Deviation	Percentage Mean
Switch off lights whenever leaving a room	00 (0%)	00 (0%)	38 (30.4%)	75 (60%)	12 (9.6%)	3.7920± .59968	75.84%
Reading documents on screen rather than printing them out	00 (0%)	00 (0%)	34 (27.2%)	79 (63.2%)	12 (9.6%)	3.8240± .58287	76.48%
Taking part in recycling program	00 (0%)	00 (0%)	37 (29.6%)	72 (57.6%)	16 (12.8%)	3.8320± .63164	76.64%
Printing or photocopying double sided	00 (0%)	00 (0%)	22 (17.6%)	89 (71.2%)	14 (11.2%)	3.9360± .53497	78.72%
Using public transportation or Walking or riding a bicycle rather than driving a car	00 (0%)	00 (0%)	45 (36%)	80 (64%)	00 (00%)	3.64± .48193	72.8%

Source: Primary data

Benefits of Yoga for Women

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Abstract

We can perform yoga in every stage of life. Yoga is boon to us. Performing yoga we can led to healthy life there are plenty of benefits of yoga that can beneficial to everyone but in women heath yoga can perform important role. Women whether working or housewife take care of family health but always neglect her health thus women has lot of problem in her old age it is better to keep on check in early age . Yoga can help her in busy schedule. Few minutes for her can change her life and also give her better health.

Keywords*:-Yoga, women, health*

Introduction

Yoga is a discipline to improve or develop one's inherent power in a balanced manner. It offers the means to attain complete self-realization. The literal meaning of the Sanskrit word Yoga is 'Yuj'. According to Maharishi Patanjali, Yoga is the suppression of modifications of the mind. The word 'Yoga' is derived from Sanskrit root yuj which means 'join' or 'unite'. This may be taken as the union of body, mind and soul, yoga signifies 'integration of personality' at the highest level. As means, yoga includes various practices and techniques which are employed to achieve the development of such integration. These practices and techniques are means in the yogic literature and are also referred collectively as 'Yoga'. Yoga has been practiced for thousands of years and, over the years, many different interpretations have developed about what yoga means. Each different type of yoga has its own emphasis and practices. Yoga is most often associated with the physical practice of asanas, particularly stretching exercises to build flexibility and relax the body. Yoga asanas can also build strength, coordination, balance and stamina. However, this is only one aspect of yoga as asana practice is just one of the "eight limbs" of yoga as listed in Patanjali's Yoga Sutras, a key sacred text on the philosophy of yoga.

These eight limbs are:

https://www.elkhavenwellness.com/yoga

1. Yama - Five abstentions (or outer observances)
2. Niyama - Five inner observances
3. Asana - Meaning "seat" and referring to the physical posture needed for meditation
4. Pranayama - Controlled or suspended breath
5. Pratyahara - Withdrawal of the senses
6. Dharana - Single pointed concentration
7. Dhyana - Meditation
8. Samadhi – Liberation

Benefits of yoga for women

1. Improve balance

Practicing yoga regularly can improve balance. Performing yoga can improve your balance which is very useful to avoid fall in old age

2. Stress management

A woman faces a lot of depression and stress due to a variety of reasons such as family pressure, if working then office pressure or any other reason. Yoga is one of the best ways to eliminate all pressure. Yoga keeps all your depression away and keeps your mind fresh

3. Flexibility

In this modern era most of the work done with the help of machinery so that everyone is lacking flexibility. Flexibility of body one of the important advantage of doing yoga daily. Practicing yoga asana your muscles are also stretched thereby your body flexibility increases. It's also help to reduce various kind of body pain in women.

4. Weight management

After age of 40 women stared to gain weight due to lack of exercise or any other reason related to changes in her body. Obesity is one of the major problems related to weight which is very common among Indian women. Practicing yogasanas your muscles are also stretched thereby increasing the flexibility of your body with practicing yoga regularly they can help their weight management.

5 .Peace of mind

In Yoga performing asanas as well doing meditation helps in increasing the sharpness of brain and concentration power. It helps in relaxing mind and provides more peace of mind which is really useful for women.

6. Bone health

Many postures in yoga require that you lift your own weight which helps to maintain your bone health. It is found in research yoga practice increased bone density also.

7. Improve Posture

Yoga will make you more aware of your body and train your muscles to align correctly .Correctly aligning the body allows the body to function with a minimal amount of energy. Yoga poses aimed at balance, flexibility, and stamina, strengthen muscles and connective tissues enabling good posture.

8. Improve functioning of the body

Medically proved yoga has various health benefits. All organs and systems of our body should be properly developed and function. It implies a healthy body without any disease. Yogic practices like asana, pranayama, and bandha play a beneficial role in physical development and also improve functioning of the body.

9. Yoga during adolescence

In adolescence is a time of confusion for child who is usually not prepared for dramatic changes happening in her body. Physiological and endocrine system changes create imbalance in body and mind with the practicing yoga they can be saved from various psychosomatic diseases like depression, anxiety.

10. Yoga during pregnancy

Pregnant women faces morning sickness, nausea, fatigue, mood swing, back pain and many other physical problems performing yoga during pregnancy can help women deal with emotional as well as physical challenges.

11.Yoga during menopause

When women go through menopause experience symptoms like anxiety, stress, depression, hot flashes, fatigue, lonely feeling.Performing asanas and meditation can help to soothe the nervous system and balance the hormone it will also reduce stress and depression so it is very useful performing yoga during stage of menopause.

Conclusion

There are multiple benefits of yoga for the women. Whether it's adolescent, middle age, old age she can avail benefits from yoga. Yoga has proved to be of great benefit in reducing mental and physical disorder. Peace of mind good sustainability; good health, concentration and attention are some of the major outcomes of yoga .Yogic practices are found effective for development of all dimensions of personality thus yoga can play important role in women life.

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Global Environmental Health and Sustainable Development

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Abstract

The adoption of 2030 global agenda, the countries are moving forward for achieving a world free from poverty, gender inequality and economic inequality and ensuring a healthy planet for future generations. These integrate various social, economic and environmental developments. India continues to target and maintain its economic growth by introducing various policies and measures relating to sustainable development, climate change and resource efficiency. If we talk about economic development a healthy population is essential for it. The poorest people on the planet suffer most from the health effects from exposures to environmental hazards like air pollution and impure water. In turn, disease and disability related to polluted environments slows and blocks economic development. We know that India is one sixth of the global community. Our development needs are enormous. Our poverty or prosperity will have direct impact on the global poverty or prosperity. People in India have waited too long for access to modern amenities and means of development.

The paper discusses the need for integrated action at all levels and, in particular, on the need to focus on long-term action directed at reducing the driving forces that generate the environmental health threats. Only this approach can achieve sustained health benefits and environmental protection in accord with the principles of sustainable development.

Rationale of the Study

In the past decade, the problem of environmental pollution has become more and more serious, raising concerns about environmental protection. Mankind has also begun to attach importance to the issues of environmental health and environmental ecology (NCERT, 2021-22). The performance of environmental protection lies in the control of environmental pollution, the prevention of pollution decline, the protection of human beings from environmental pollution, and the auxiliary improvement of healthy environmental quality (Vardhan, 2014). As countries develop, there is increasing industrialization and this has consequences for the environment and health through air, water and soil pollution, as well as waste disposal (Lahiry, 2017). At the dawn of the new millennium, poverty is likely to remain the number one killer worldwide. Poverty is an important reason that babies are not vaccinated, clean water and sanitation are not provided, drugs and other treatments are unavailable, and mothers die in childbirth. A disproportionate burden of disease will continue to be borne by disadvantaged or marginalized women, especially those living in environmentally degraded or ecologically vulnerable areas, in zones of conflict or violence, or compelled to migrate for economic or other reasons. The feminization of poverty is a major threat to social and economic development (Nugent R, 2017). The quality of the environment and the nature of any economic developments taking place are major determinants of the health of people in that environment. However, environmental health issues have not traditionally been seen as a priority in policy making, or in developmental planning. This is despite the fact that biological agents in the environment such as mosquitoes, parasites and water-borne bacterial pathogens are involved in the world's most significant health problems. These factors are responsible for the illness and premature death of millions of people in the developing world, from causes such as malaria, intestinal parasites and diarrhoeal disease (KK, 2017). In addition, chemicals such as pesticides and cleaning agents, and physical hazards in the home, the workplace and the natural environment are responsible for millions of additional illnesses, injuries and deaths (Koukel, 2012). Health and the environment are not independent entities; they are influenced by external driving forces such as population pressure and poverty (Hinton, 2018). If the world's peoples are to achieve good health, then individuals, governments and other agencies must learn to balance the interaction between human activities and the environment. In order to achieve this in a manageable way, two important criteria must be followed:

(1) Economic development must meet people's needs;

(2) Ecological sustainability must be achieved; this means ensuring that natural resources can be sustained for present and future use without being irreparably damaged or destroyed (Alison P. Galvani, 2016).

Objective of the Study:

The study defines environmental health as the body of knowledge concerned with the prevention of disease through control of biological, chemical, or physical agents in the air, water, and food, and the control of environmental factor which may have an impact on the well-being of people. Environmental health differs from public health in that it stresses prevention and concentrates on the human living environment. In its broad sense, environmental health reduces exposure to adverse environmental

conditions and is often discussed as "occupational and environmental" health. To achieve these goals, action is required on the local, national and global level by individuals and through cooperation between governmental and nongovernmental agencies..

Methodology

Economic development has led to tremendous improvements in people's well-being, but often at the expense of the environment. Industrialization has contributed to pollution of air and water, changing dietary patterns, and shifting patterns of transportation and land use. Exposures to air and water pollutants directly increase disease.

Similarly, dietary changes and decreased levels of physical activity, resulting from transportation and other work and lifestyle changes, are contributing to global epidemics of obesity, diabetes, and associated diseases. Globalization and the large geographic scale over which rapid industrialization is occurring make these environmental health problems global health problems.

Sustainable development is frequently defined as development that meets the needs of present generations without compromising the ability of future generations to meet their own needs. As evidence of the harm to health and well-being from widespread environmental degradation and global climate change grows, communities and governments are placing greater emphasis on assuring that economic development is achieved in a sustainable way.

Conclusion

Environment and development-related health effects are becoming of increasing concern world-wide, in both developing and developed countries. As problems become more complex and widespread, resources with which to tackle them are dwindling. New approaches needed to address the challenges must be based on integrated, holistic policy and planning mechanisms at all tiers of government, involving all relevant partners and sectors. This study has attempted to lay the basis for the development and use of health and environmental indicators in sustainable development planning. It is emphasized that indicators are most effective if they are developed as part of the overall policy and planning process, whether this occurs at the national or the local level.

In order to manage health, environment and development hazards more effectively in the future, decision-makers in various fields should develop and use appropriate indicators, so that the information provided is as useful and meaningful as possible for policy and planning at all levels. The public must also become more closely involved in indicator development and use. It is therefore essential that they are developed in as efficient and effective a way as possible, the ultimate aim being improved decision making. In this regard there remains a key need to harmonize indicator development systems at all levels and tiers of government, on both a national, as well as international level.

Suggestions/ Recommendations

- Improving environmental quality for the poorest populations with the greatest burden of environmental diseases, by reducing exposures to air pollution in homes and villages from biomass burning, and providing clean water and sanitation.
- Identifying efforts to address environmental problems that can also provide health benefits. For example, creating environments that encourage biking and walking for transportation reduces greenhouse gas and toxic air pollution emissions (environmental benefit) and increases physical activity (health benefit).
- Recognizing that some policies, practices, and technologies designed to promote sustainability Environmental Factors and economic development may have unintended the Burden of Disease in adverse environmental health effects, and attempting to prevent or mitigate these before they are Developing Countries implemented.

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Geographical Study of Hydroelectric Power in India

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Abstract:

Our earth is water planet, an as average 71% part of the earth surface is covered by water. So the earth is known also blue planet. Water is most important element for the environment. Hydrological cycle generate water in different forms in the earth environment. Velocity for the water is made by geomorphic condition of the earth crust. Velocity of the water is a kinetic energy. This kinetic energy is converts into the mechanical energy and generate the electrical energy is known as hydel energy. In India hydel energy is prime sources for the electricity. It has the past history from the human civilization. Now a day total generation of hydel energy in India is 148,700 MW. India is 5th largest nation for hydroelectricity in world. Hydel electricity is eco-friendly. Indian major dam are made production of hydel electricity with the agricultural irrigation system. Now a day government of India is trying to gain the more efficiency from the hydel electrical project. These projects are working in the hilly remote region that's why these are useful in the tribal and backward region.

Introduction:

Man was aware about the hydel energy from the past period. Evidences suggests that the fundamentals of hydropower by the ancient Greek Civilization. (Hernandez) He was using this water energy for the domestic activity also. Hydropower is a method of sustainable energy production. (Milewki, 2002)At the global level 17% electricity is generated from the hydroelectricity. (electricity, 2021) At the world level more than 150 countries are generating the hydroelectricity. This is clean source of the electricity so it is known as the white coal of energy. (knowledge, 1945) When water is coming from high land toward the low land, it develops the kinetic energy. Man is using this kinetic energy in his different activity is known as the hydel energy. India is one of largest producer of hydroelectricity after the China, Brazil, Canada, USA, and Russia. India made 4% of the world hydroelectricity. First hydroelectric plant was began at Niagara water fall in 1881.There is different kinds of technology to construct the hydroelectricity plant by conventional dam are most suitable. Most of the hydroelectric power plant had made potential dammed water driving a water turbine and generate the electricity. (Maganine) In India hydroelectric power plant was stated in 1889 at Darjeeling. Most of Indian hydroelectric power stations are public sector. Indian company has constructed some hydropower project in Bhutan and Nepal (India, 2016). In India there are 197 are major hydroelectric plant. These power plants are constructed by NHPC, SJVN, NTPC and NEEPCO. Most of the hydroelectricity is generate in the Uttarakhand, Maharashtra, Andhra Pradesh, Himachal Pradesh and Gujarat. In India maximum electricity is generated by coal. Hydroelectricity production is 15%. Hydroelectric power is generate mostly flow of water. Running water generate the kinetic energy. It converts into the electrical energy. India is third largest producer and third largest consumer of electricity of the world it had installed capacity of 383 Gw. (power, 2020) It has installed hydroelectricity power plant. India had also achieved close to 100% electrification of the rural area. (Energy, National Electricity Plan, 2018) Hydroelectricity is the biggest hydropower application. It generates lot of world electricity. Today more than the 50% of total electricity supply for more than 35 countries of the world. (Kaygusuz, 2016)

1) Tehri Hydropower Project: This is one of the tallest dam of the world. Maximum capacity of this plant is 2,400 Mw. This is multi-purpose dam in which water irrigation facility is supply to the Uttar Pradesh and Haryana state.

2) Koyna Hydroelectric Project: This hydroelectric project began in 1954. It is constructed on Koyna River. It has 2000 Mw. Power capacity. This dam is located in the western Ghat. It generates the electricity and supply for Satara and surrounding district. Though it is one of old plant but it has good efficiency even today. This plant is operated by Maharashtra State Power Generation Company.

3) Srisailam Hydropower Project: This hydropower project is owned by Andra Pradesh Government. It has 1670 Mw power capacity. This project is located on Krishna River. This electricity is useful for the Kurnool and Mahabubnagar district. Some electricity is applicable for the Telangana state also.

4). Nathpa jhkri Hydropower Project: This power project is located in Himachal Pradesh. It has 1520 Mw. Power capacity. This is gravity dam project. It is operated by Sutlej Jal Vidyut Nigam.

5). Sardar Sarovar Hydropower Project: The capacity of this power project is 1,450 Mw. capacities. It is constructed on river Narmada near Navagam in the Gujarat state. Due to the environmental issues it is

stated late in 2017. The height of this dam is 138 meter. Electricity of this dam is useful for Gujarat, Maharashtra, Rajasthan and Madhya Pradesh.

Hydro Electric project in Maharashtra:

Maharashtra state is one of the leading state for hydroelectricity in India. Most of these power projects are located in the western site of Western Ghat. These hydroelectric plant are- Bandardhara, Bhira, Bhivpuri, Dimbe, Jayakwadi, Khadkawasala, Koyana, Pawana, Radhanagari and Yeldari. In the mountian ranges of the western ghat has the lot of sites for generation of the hydro-electricity.

Hydroelectric power station in Ahmednagar District:

This district has Harichandra and Balaght ranges. Average height of district is 540 meter form the sea level. It has monsoon rain fall. In this district, it had two sites for the hydro electrical power as Bhandardara Hydroeletrical power projects it is located on the river Pravara. It was began from the 1986. Total capacity of this project is 25 Mw. It has two turbines. This project is under the Government of Maharashtra. This dam provides the water for the irrigation network of Akole, Sangamner. Shrirampur taluka. Electricity is connected with the Babhleshwar electrical board. Nilwande Dam is a gravity dam built using the roller compacted concrete. This is a first dam of this technology in India. This dam is located near the Ghatghar village in Ahmednagar district. This project has the capacity of 250 Mw. This hydroelectric power project is started in 2008. It is under the irrigation department of the Maharashtra Government.

Advantages Of Hydroelectric Project:

Energy is most necessary for the national development. This is green source of the energy. This is renewable energy. After the generation of the electricity, Water is useful for the irrigation purpose another benefit is to control the flood and supply the water for agriculture and drinking purpose. Hydro electricity is useful for the rural and tribal development. These hydroelectric projects are multipurpose. There will be develops the plant of fishing, swimming and boating also. This is a domestic source of electricity for the each of the state. Hydro power takes zero power but it has the maximum output of the electricity.

Disadvantes Of Hydroelectricity:

Hydroelectricity project are badly effecting on the forest environment. It also effecting on the migration of tribal people in that area. In have flood risk in the rainy period. Another effect on the water ecosystem. As the economic view it is expensive than other power plant. As the Geographical view, it has need of ideal geomorphic location. There is habitat fragmentation of surrounding region of hydroelectric plant. (Paul, 2007) Such a case is happen in China; three Gorges dam in china has made the migration of local people (Bosshard)

Conclusion:

Hydro-electricity is renewable source of electricity. At the global level it has large scope. In India, most of hydroelectricity plants are established on the multipurpose dam. So there is double benefit as electricity and irrigation. India is monsoon climatic nation. So in the rainy and winter session, it generates maximum electricity. In Ahmednagar district there is need of electricity is 1300 Mw. Hydroelectricity Is generating 250 Mw. Both of these two hydroelectric plants are located in the tribal and hilly region. That's it take part in the regional development. India had also achieved close to 100% electrification of the rural area.

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Evaluation of Physicochemical Parameters of Drinking Water from Mahagaon Tehesil, District-Yavatmal (MS).

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Abstract

As water plays vital role in human life, so it is very important to know the quality of water. In view of this, we have collected 10 drinking water sample from different villages of mahagaon tahesil, district Yavatmal (MS), having different sources such as bore well, well, hand pump to study it's suitability for drinking purpose. Physico-chemical Parameter such as Temperature (T), P^H, Total Dissolved Solid (TDS), Total Hardness (TH), of drinking water was determined. Result shows that most of the parameters are within permissible limit given by WHO, but some samples requires some purification process.

Keywords: *Physico-chemical Parameter, Water Samples, Water quality standards.*

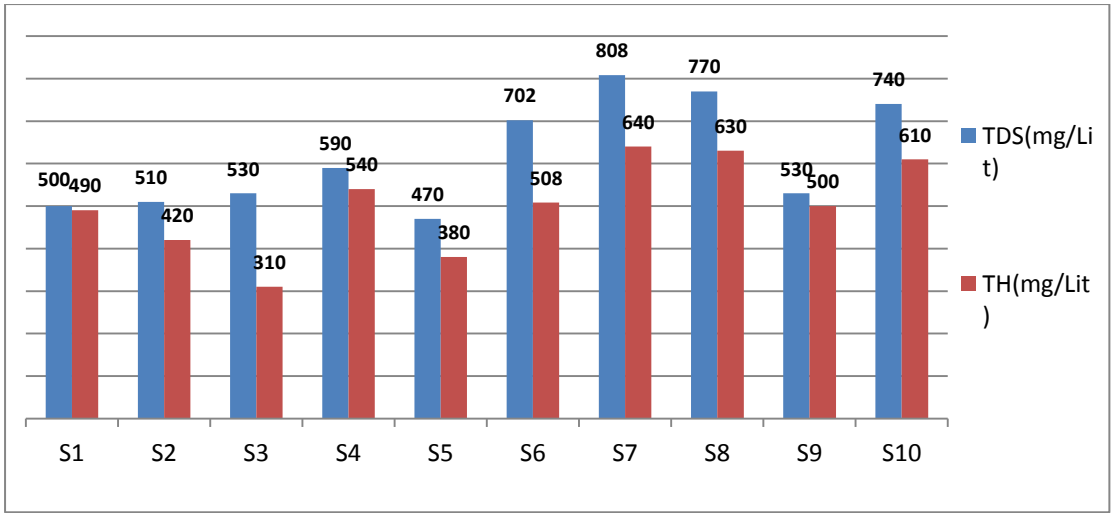
Introduction

Most of the diseases are water born, our body contain 60% of water, it is one of the most important, abundant & precious compound on earth, although statistics, the WHO reports that approximately 36% of urban & 65% of rural were without access to safe drinking water [2, 3]. Major source of drinking water is Ground water. Quality of drinking water decreases day by day due to various man made activities. As various type of pollutant & several other substances are dissolved in ground water, the concentration of dissolved substances is useful for human body but in specific limit. In this research paper an attempt has been made to evaluate Physico-chemical Parameter of drinking water having different sources & to compare the observed value with standard value of WHO.

Material & Method

Water sample were collected in clean and dry polythene bottle of one liter capacity. Sample are collected from different sources (bore well, well, hand pump). P^H, conductance, TDS, salinity are measured by portable water analysis kit and TH is determined by complexometric titration. Color, odour, temperature were determined at the point of sample collection. Observed value for different parameter has been compared with standard specified by world health organization (WHO).

Name of Region	**Sample No. & Source**	**P^H**	**Total Dissolved Solid(mg/lit)**	**Total Hardness(mg/lit)**	**Temperature ^oC**
	STANDARD WHO	**6.5 to 8.5**	**2000**	**600**	--
Sawana	S_1 (Bore Well)	7.2	500	490	24
	S_2 (Well)	7.4	510	420	24.5
Mahagaon	S_3 (Bore Well)	7.7	530	310	24.9
	S_4 (Bore Well)	8.2	590	540	25
Malkhini	S_5(Well)	8.0	470	380	24.9
	S_6(Well)	7.2	702	508	24
Fulsawangi	S_7(Bore Well)	7.6	808	640	25.2
	S_8(Bore Well)	7.0	770	630	24.7
Kalgaon	S_9(Bore Well)	8.2	530	500	25
Veni	S_{10}(Bore Well)	7.6	740	610	24



Abbreviations- Total Dissolved Solids (TDS), Total Hardness (TH)

Result and Discussion

The Value of P^H was within the permissible limit and P^H value fluctuated in between 7.2 to 8.2. Temperature was found to be in the range between 22 to 25 ^OC during study. Temperature was measured using thermometer. Maxima of total dissolved solid (TDS) and total hardness (TH) were found to be 808 mg/lit and 640 mg/lit [7]. Observed value of TDS are within the permissible limit. Hardness of water is due to the Calcium and Magnesium ion, value of total hardness is exceeding the permissible limit in few samples. High concentration of hardness may cause kidney problem [8].

Conclusion

The present paper undertaken to account to bring an acute awareness among the people about the quality of water. The result shows that most of the parameter are within the permissible limit. It can be conclude that water is safe for drinking purpose, but in some samples requires some purification processes.

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Comparative Study on Speed and Agility among theDifferent Games

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Abstract:
The main purpose of the study is to find the comparison of speed and agility among the different games. To achieve the objective of this study, the investigator randomly selected thirty male of district-level handball, basketball, and softball players from age 14 to 15 years. In that, each game consists of ten (10) players who were chosen as subjects for study. Two tests aremainly used for this study. 50 yard dash and shuttle run for three groups respectively. Speed andagility data obtained from subjects were statistically used by analysis of variance. For the hypothesis, the level of significance was set at the level of .05. There was no significant difference in handball, basketball and softball players in speed and agility. As mean value is less than speed and agility is more and vice versa. Basketball players mean score have comparatively more speedand agility than other two groups.

Keywords: *speed, agility*

Introduction:

Generally, speed is considered agile. Speed is a skill of performing the movements ofthe limbs. Speed is the skill of performing the movements of the limbs at a rapid rate. Speed is said to be a fundamental component of physical fitness. Moving the organs or muscles as soon as possible is a very complex process, which is controlled by the brain and nervous system. Quick explosive power movements in different directions agility of a person. It is said that performing any cutting movement or game drill with the application of a power component exposes the agility of the component. Agility is the ability to perform a series of explosive power movementsin rapid succession in various directions. The movements made in the opposite direction sequentially are actually to increase the agility of that artist. Zigzag activity is specific to the development of agility. It is the ability of a person to quickly change directions while walking. Agility is the ability of a person to quickly change the position of his body with well-balanced movements. Ability to quickly start and stop movement and change body position.

Methodology:

To achieve the objective of this study, the investigator randomly selected thirty male of district-level handball, basketball, and softball players from age 14 to 15 years. In that, each game consists of ten (10) players who were chosen as subjects for study. Two tests are mainly used for this study. 50 yard dash and shuttle run for three groups respectively.

Table-1: Selected games, age range and player numbers

Games	Age Range	Players Number
Handball	14-15	10
Basketball	14-15	10
Softball	14-15	10

Results and Discussion:

Speed and agility data obtained from subjects were statistically used by analysis of variance. The post-hoc test was applied and the F-ratio was found to be significant. For the hypothesis, the level of significance was set at the level of .05.

Table 1: Descriptive statistics of different game players

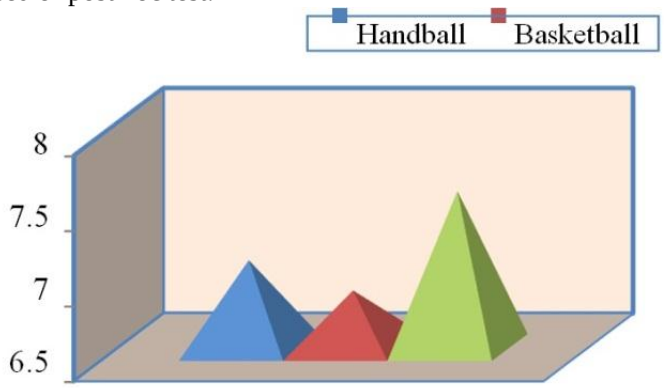
Variables	Groups	Handball	Basketball	Softball
Speed	Count	10	10	10
	Sum	70.79	68.78	75.38
	Average	7.08	6.88	7.54
	Variance	0.48	0.22	0.49
Agility	Count	10	10	10
	Sum	91.25	90.11	95.76
	Average	9.13	9.01	9.58
	Variance	0.57	0.22	0.65

Table 2: Analysis of Variance (ANOVA) of the means of different game players with compare to speed

Source of Variation	*SS*	*df*	*MS*	*F*
Between Groups	2.289	2	1.144	2.887
Within Groups	10.704	27	0.396	
Total	12.9926	29		

*significant at 0.05 level F0.05 (2, 27) = 3.354

Table-2 reveals that there was insignificant difference between the means of handball, basketball, and softball players of speed. The calculated 'F' was 2.887 where as tabulated 'F' was 3.354. Calculated 'F' lower than the tabulated 'F', which shows insignificance in handball, basketball, and softball players of speed. Therefore, there is no need of post hoc test.



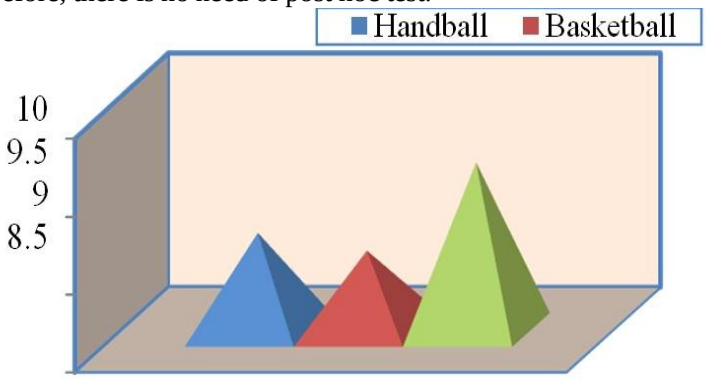
Graph-1: showing mean difference of all groups in speed

Table 3: Analysis of Variance (ANOVA) of the means of different game players with compare to agility

Source of Variation	*SS*	*df*	*MS*	*F*
Between Groups	1.788	2	0.894	1.862
Within Groups	12.962	27	0.480	
Total	14.750	29		

*significant at 0.05 level F0.05 (2, 27) = 3.354

Table-3 reveals that there was insignificant difference between the means of handball, basketball, and softball players of agility. The calculated 'F' was 1.862 where astabulated 'F' was 3.354. Calculated 'F' lower than the tabulated 'F', which shows insignificance inhandball, basketball, and softball players of agility. Therefore, there is no need of post hoc test.



Graph-2: showing mean difference of all groups in agility

Conclusion:

Based on the result drawn with the mentioned methodology, the following conclusion was soughed out. There was no significant difference in handball, basketball and softball playersin speed and agility. As mean value is less than speed and agility is more and vice versa. Basketballplayers mean score have comparatively more speed and agility than other two groups.

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The Position of Women in Hardy's Novels and Victorian Society.

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Abstract

The Victorian Women were rarely offered fresh active fiction bearing imaginative possibilities of challenge. The tales of discovery, of travel, of work, of exploration, were men's stories. In Hardy's Wessex world the sphere is broadened yet kept well within the range of plausibility and possibility. So, Women work outside the home in both conventional and unconventional occupations from teaching to negotiating the price of corn, from serving as barmaids to inaugurating telegraphic system from working as milkmaids to organizing public readings. Women travel unaccompanied beyond the neighborhood, embark upon enterprises of their own volition,initiate relationships. In other words, they struggle to shape their lives with a vigor and energy. The more remarkable fact is that they struggle against all odds, a struggle in a world that as Hardy says in The Return of The Native, is not friendly to women. Hardy sets at odds those social and literary conventions which reinforced the culturally based induction in Victorian England, of a sexual 'amnesia' in women. From infancy women were kept in ignorance of their own bodies to experience puberty, defloration and sexual intercourse as mystery. Thomas Hardy's women toil and labor, the physical reality of exhaustion leaves women as it leaves man. Hardy starts where the majority of Victorian Novelists left off, with real, flesh-and blood women and he begins with radical verse, the soiled and soiling world of work was not, as Victorian argued, a suitable place for noble womankind. In the same radical spirit, Hardy not only acknowledges to female volatile emotions, female sensations, but he also treats them with the same devotion to physical detail as he gives to the male. Hardy's treatment of women was quite different from that of his predecessors. He also looked at them too much of the eye of a scientist.

Keywords: Women, Emotions, Cultural, Treatment and Society.

Introduction: Hardy described all that is responsible for good or evil in a women's character, and all that is untrustworthy in her brain. He totally discarded the sex-taboos of the earlier Victorians. He handled the problems of love and sex dispassionately and scientifically. He also hatred for theVictorian wax-dolls. A conventional and superficial novelist would not take up the tragedy of 'a pure woman' when she was raped in her sleep. Dickens and other Victorians were afraid of describing a pure woman realistically and logically. On the other hand, characters of women in their novels were based upon the conventions and taboos prevailing in the society. Hardy was the first novelist who made advancement in the sphere of treatment of women. In handling the question of chastity and the institution of marriage, he was in agreement with Freud and the modern psych-analysts. Says a learned critic, "Hardy's Tess is a moral tale in the same sense in which Madame Bovary of Flaubert and Tolstoy's Resurrection are moral tales. During the later days of Queen Victoria, the theory of determinism was very popular, and Hardy like George Eliot, makes his characters responsible for their acts, as opposed to the practice of the Victorian novelists. He is certainly of the opinion that our deeds determine us as much as we determine our deeds. We have seen in Victorian England, Women, by marriage the husband and wife are one person in law, that is the very being or legal existence of the woman is suspended during her marriage. So, this system of cover underpinned the laws of Victorian England so far as they related to married women. In effect, a woman surrendered her legal existence on marriage. On marriage, the control of woman's real property and income from woman's real property, that is, property held in the form of freehold land, passed under common law to her husband, though he could not dispose of it without her consent. Her personal property that is, money from earnings or investments, and personal belongings such as jewellery, passed absolutely into his control. Before the divorce and Matrimonial Causes Act of 1857 divorces could only be obtained in England through a cumbersome process. It involves a suit by the husband against another man for criminal conversation, then an ecclesiastical divorce which did not allow the right of re-marriage, can take place. The 1857 Act was designed to allow moderately wealthy men to divorce their wives. A woman could be divorced on the simple grounds of her adultery (her adultery threatened his ability to pass his property to his male heirs), whereas a woman had to prove adultery aggravated by desertion for two years or by cruelty, rape, sodomy, incest or bigamy. So, the husband could claim damages against the adulterous third party, the wife could not. There was no provision for consensual divorce. So, the divorce granted Jude and Sue in Jude the obscure would have been invalid since they were not adulterous, and they would have been in breach of the law in allowing it to be supposed that they were.

Rationale of The Study: The Matrimonial Causes Act of 1878 allowed a less costly judicial separation, but without the right of re-marriage. This Act promised maintenance to the woman separated from her husband in a case of assault, triggered off discussion on various marriage problems including neglect or simple incompatibility. Mona Caird wrote profusely about the marriage debate in several of her articles.

For her, marriage was "an established system of restriction" where "the victims are expected to go about perpetually together, as if they were a pair of carriage horses."The Victorian Society held rigid views on marriage and the role of women in life. Most women regarded marriage as a fixed fact of nature. It was a fundamental part of their life plan, as was childbearing. In the mid 19th century, reproduction was considered a woman's only correct occupation. So, Marriage and divorce legislation regulated the relations between men and women. Under the common law doctrine, when a woman married, she lost her independent legal personality as a femme sole (single woman) and became a femme covered woman. Men could divorce their wives solely on the grounds of adultery, but women were forced to show proof of cruelty and other sort of infidelity. Divorce was very expensive, only available to the rich. People most often simply lived apart or separated from one another. Matrimonial Causes Act of 1923 equalized the grounds for divorce by allowing woman to sue an adulterous husband for divorce.

Objective of The Study: In the middle of this strict social code, Hardy came into being. He had a very distinct view of the institution and the implications that came along with it. He felt that it was absurd to force two people to vow to love each other for ever and even if that did not happen, the couple was socially required to stay together. Hardy was not so much against the marriage as he was against the idea that it was an irrevocable contract. He points out that Tess of the D'urbervilles deals in the inequities women face and their serious consequences for the sex. Sense and sensibility deals with the full spectrum of gender issues, while approaching the gendered system as posing problems for both male and female lovers, and Wuthering Heights seeks to transcend gender within love altogether. The Women in Jane Austen's novels offer a clear representation of the 19th century women. Austen refuses these women any sexual expression and focuses more upon their concern with marriage and society. Hardy resists Austen's socially accepted depiction of the female with his radically independent heroines. Hardy redefines the role of women in his novels, focusing on sexuality. By emphasizing, the physical aspects of femininity in his unorthodox representation of the sexual female, Hardy threatens the Victorian model of women. In an age that placed a high value on reticence, self-restraint and certain feminine qualities such as delicacy of health, a retiring disposition, a physical and intellectual timidity, and so forth. Hardy's women, with their admixture of qualities, transcending the stereotype of Madonna and whore that must have confused many readers caught with mixed feelings of admiration and alarm. Indeed, for removing the paragon from her pedestal and for raising the fallen women from the gutter, for presenting humanity imperfect but lovable heroines, Hardy was charged with misrepresenting womankind. Hardy abhorred what he called the 'perfect woman in fiction.' On the contrary, his heroines best faculties are presented in the context of their less-than perfect natures in a less than perfect world. The prosaic reality in Far From the Madding Crowd, where two aspiring farmers rise to prosperity but only the female contender is denied legal rights and privileges, constitutes a primary motif modulating into a dominant theme in the darker work of Jude the Obscure.

Hypothesis: It means literally an idea or theory that the researcher sets as the goal of the study and examines it and is placed as a theory when the status of women in the novels of Hardy are full of intrigues and hang upon the ironical decision of a cruel and reckless fate.

Methodology: The present paper is solely based on secondary sources of data. The extent of the position of women and Victorian society depends upon the whims of the chance. The endings, in his novels such as in The Return of The Native or The Woodlanders, mark no distance travelled from the ancient method of writing. In fact, Hardy was the last Victorian and the first modernist.

Conclusion: Hardy was a serious and sober thinker, untainted with cynicism diabolism. But he was one of all the great Victorians, the one least given to didactic moralizing. Consequently his realism, though thoroughly native in feeling, is most in line with that of continental writers. His philosophy is pervasive, but always in terms of feeling and imagination, always subject to the dominance of the aesthetic faculty. We resent his intrusions no more than those of some Martian commentator. His style is simple and candid, notable for its almost scientific precision of statement, and often, under stress of emotion, discreetly rhythmical in cadence. His presents are inimitable and nothing can be finer than the scenes in Warsen's Malt-house or in the Book Head Tavern. He is not guiltless of melodrama in the handling of incident. He is awkward and lumpy in exposition. His dialogues are sometimes stiff and stilted. At times, he betrays the 'intellectual' in figure and allusion. But he comes nearest of 19th century novelists to treating men and women with a due sense of their dignity and their claim as consideration as independent beings. Gabriel Oak, Eustacis Vye, Mrs. Yeobright, Tess Durbey Field, Michael Henchard, Jude Fawley, Arabella, Sue Bridehead are among the unforgettable creations of fiction. His forte is setting his characters against some vast backdrop. Of space and time, which lends them grandeur in the very act of dwarfing them and assimilates their individual suffering to the general pathos of humanity. In him Victorian fiction transcends. Victorianism and its prose do out its verse in essential poetry. According to Joseph Warren

Beach, "Hardy's austere devotion to his art and to his view of truth, his hatred of display, the profoundity and originality of his genius which ranged from fiction to lyric poetry, from lyric poetry to epic drama and his matchless understanding of the humor, the dignity and the quiet worth of English character, combined to make him the most impressive personality among the authors of our day." He also made a new poetry, new in its music, new in its speech, and in matter all his own. So, Hardy's art was the art of presenting the tragic struggle between human will and cosmic forces. In the words of Randall Williams, "In Hardy's novels the strongest thing is necessity, the wisest is time, and the greatest in the heart of man." Lionel Johnson says, "The deep tendencies underlying all the irony and even the grimness of Hardy's work is not to be overlooked."For this alone, readers in the 21st century will persist in reading the works of Thomas Hardy for their conflicted and contradictory engagement with matters of gender in Victorian England.

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Geographical Study Of Education Facilities And Mode Of Transport Availing By Scheduled Caste Area Students In Beed District

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Abstract

Education denotes an attempt on the part of the adult members of human society to shape the development of coming generation in accordance with its own ideas of life. Literacy depends entirely on the educational facilities available in the field. Education is an important stage of economic development and lack of education indicates the backwardness of a particular field. Economic progress, political awareness, social development and maturity revolve around education and training. Education enables the mind to be fertile, aware and to make sound decisions and develop one's vision. In the lack of education leads to inappropriate use of natural resources and over exploitation which leads to environmental degradation. It can be argued that education is important not only for economic progress but also for the protection of the natural environment as well as the social environment. In present paper researcher is attempted to study the educational facilities and mode of transport availing the Scheduled caste students.

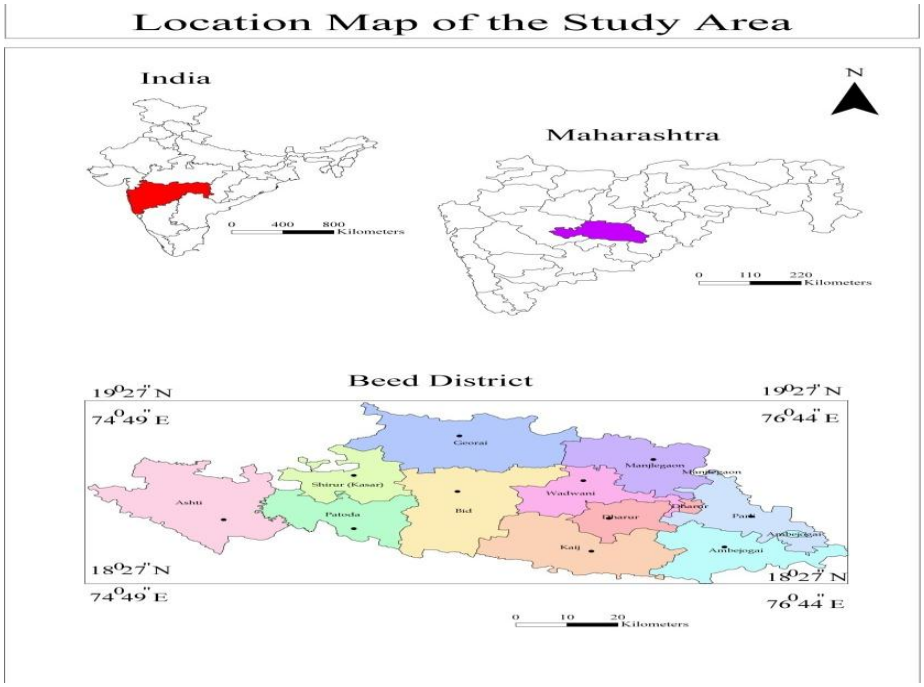
Keywords: - *Education, higher educational, role of education, primary education, Scheduled caste, transport.*

Introduction:-

Literacy and educational opportunities one of the important indicators of social development is the level of literacy and educational attainment, a high level of which is considered an important factor in the process of modernization. There are significant changes affecting demographic behavior with regard to education, marriage, fertility, mortality rates, migration and participation in the labor force. There are several examples available in the literature based on demographic research to support this claim. The study of the educational attainment of men and women in the population is important for studying the characteristics of the population. Educational attainment is usually calculated by dividing the percentage of different levels of educational attainment among the literate population over 10 or 15 years. As a sizable percentage of literate males and females do not undergo any formal schooling or education, the category of literate but without formal education has to be introduced. It has been observed that one-fourth about literate population in investigation was literate but had not the benefit of any formal education. Education is a freeing force that transcends barriers in caste, class and religion and reduces inequalities imposed by birth and other conditions. The change planned by education serves as a major tool for national development (Joshi, 1997, p. 3). Education has been recognized as a basic tool to bring out socio-economic and cultural changes in any region and study region is not an exception to this. In spite of numerous efforts for the expansion of educational services in India, still the greater part of the country suffers from appalling literacy and ignorance (Verma, 2006). Education is a tool of transmission of culture, accumulated knowledge and experience of society. It is also the tool for economic betterment and societal change (Saran, 1997,). Education is an integral part of every human being. Last four decades the Government of India has enhancing educational policy for all. But still Scheduled caste education status is very low due to the poor financial condition, migration, neutral attitudes of parents and teacher towards education, language problems health problems these reason affecting on SC's education of Beed district of Maharashtra state.

Study Area:-

Beed district is situated in central part of Maharashtra and lies between $18^0$27' and $19^0$27' north latitude and $74^0$49' and $76^0$44' east longitude. It is surrounded by Aurangabad and Jalna districts to the north Parbhani district to the north east Latur district to the south-east, Osmanabad district to the south and Ahmadnagar district to the west. The shape of the Beed district is broadly likely that of a trapezium, the northern and southern sides of which are nearly parallel. Geographical area of this district is 10693.00 sq.km.and it is 3.44% of Maharashtra State. According to the 2011 census, Beed district has total 1368 inhibited villages and 25,85,049 people are residing within the district and Population density of the district was 242 persons per sq.km. Percentages of the rural population are 80.10 percent while 19.90 percent people live in the urban areas.



Objectives:-

1. To find out the distribution of education facilities in the study region.
2. To identify the mode of transport availing the student.
3. To analyse factors affecting on educational and transport facilities in study region.

Data Base And Methodology:

The study is based upon the secondary data as well as the primary data through village and household questionnaire designed for the purpose. The geographical study for a specific 29 villages is selected as Sample villages have been selected by stratified area sampling method and for household respondent's random sampling methods. The collected data has been processed and analyzed by using different quantitative, statistical technique.

Dissections:

The proportion of education facilities has been presented in table no 1.2(A) and 1.2(B).The proper presentation and evaluate the educational facilities, and mode of transport availing in Scheduled caste areas.

Primary and Middle Educational Facilities

Table No. 1.1 (A), BeedDistrict: Availability of Educational Facilities

S. No.	Sample Village	Primary		Middle		
		Distance (km)	Mode of Transport	Place	Distance (km)	Mode of Transport
1	Adas	00	FT	Adas	00	FT, B
2	Adola	00	FT	Gangamsala	03	FT, B
3	Asardhav	00	FT	Asardhav	00	FT
4	Babhalgaon	00	FT	Nirpna	04	FT, B, ST
5	Bramhagaon	00	FT	Kesapuri Camp	02	FT, B, ST
6	Chondi	00	FT	Chondi	00	FT
7	Dautpur	00	FT	Dautpur	00	FT
8	Devigavhan	00	FT	Jamgaon	01	FT
9	DubbaMajra	00	FT	Ekdara	10	PT, ST
10	GhatJawala	00	FT	Valipur	02	PT, B
11	Jaulala	00	FT	Jaulala	00	FT
12	KalegaonGhat	00	FT	KalegaonGhat	00	FT
13	Kharadgavhan	00	FT	Khuntefal	05	PT, B
14	LokhandiSawargaon	00	FT	LokhandiSawargaon	00	FT, B
15	Madmapuri	00	FT	Pimpalner	05	PT
16	Mandva (pathan)	00	FT	Mandva (pathan)	00	FT

17	Massajog	00	FT	Massajog	00	FT
18	Mohkhed	00	FT	Mohkhed	00	FT
19	Patharwalakh.	00	FT	Gutegaon	02	PT, FT
20	PimpalgaonMochi	00	FT	Beed	07	ST, PT
21	Raheri	00	FT	Talwada	08	ST
22	Rajkapur	00	FT	Javla	03	PT, B
23	Ranjani	00	FT	Gadhi	01	FT, PT,ST
24	Sabdarabad	00	FT	Nathra	03	FT, PT,ST
25	Satra	00	FT	Potra	01	FT
26	SawargaonChakla	00	FT	Borgaon	01	FT, PT
27	Suppa	00	FT	Kuslamb	03	ST, PT, B
28	Welturi	00	FT	Gangadevi	03	FT, B
29	Yusuf Wadgaon	00	FT	Yusuf Wadgaon	00	FT

Source : Based on Village Questionnaire.

FT = Foot, PT = Private transport, B = Bicycle and ST = State transport

In the region, all sample villages have a facility of primary school. 18 sample villages do not have the facility of a middle school, while Adas, Asardhav, Chondi, Dautpur, Jaulala, Kalegaon Ghat. Lokhandi Sawargaon. Mandva (Pathan), Massajog, Mohkhed and Yusuf Wadgaon villages are having the facilities of middle school. Students from Adola, Babhalgaon, Bamhagaon, Devigavhan, DubbaMajra, GhatJawala, Kharadgavhan, Madmapuri, Patharwalakh., Pimpalgaon Mochi, Raheri, Rajkapur, Ranjani, Sabdarabad, Satra, Sawargaon Chakla, Suppa, Welturi sample villages have to cover a distance of 1 to 10 kms to avail middle school facilities from nearby places. Students of the sample villages not having middle schools are facing the problems of distance, especially during rainy season. The distance has become the restricting factor, especially to Scheduled Caste girl students. Observed of the researcher on the region in 11 sample villages primary and middle school situation of classrooms has been very poor. The school buildings are in broken condition and hence not attractive. In the physical barriers and communication difficulties also keep the Scheduled Caste children away from the schools.

Higher Secondary Facilities

Out of 29 sample villages, only 3 sample villages have the facility of higher secondary schools include Adas, Lokhandi Sawargaon, Yusuf Wadgaon Table no.5.9B clearly shows that student of 16 sample villages covers a distance from 1 to 10 kms to attend their classes in secondary education. In 6 sample villages cover a distance from 11 to 18 kms of attends their classes in secondary education. It has been found that students of DubbaMajra, Patharwalakh.,Suppa and Welturi sample village are coming to a distance of 30, 33, 25 and 29 kms to attend the school. It has been observed that about 13.90 per cent students use bicycle while 21.00 per cent students prefer to walk and about 65.10 per cent students are availing the facility of state transport bus or private transport facilities.

College Facilities

Table no.1.2 (B) clearly indicates that in the study region college facilities are available only at the Tehsil level. In the study region, only Adas and Yusuf Wadgaon sample villages have been college facilities are available for these villages. While residents of the Bramhagaon, Adola, Asardhav, Babhalgaon, Devigavhan, GhatJawala, PimpalgaonMochi, SawargaonChakla, Raheri, Jaulala, Kharadgavhan, Lokhandi Sawargaon, Mandva (Pathan), Massajog, Madmapuri, Sabdarabad and Satra sample villages have to cover 1 to 12 kms distance to avail the college facilities from Gadhi, Manjlegaon, Gangamasla, Parli, Adas, Dharmpuri, Ashti, Pimpalner, Beed, ShirurKasar, Talvada, Patoda, Dhanora, Ambejogai, Kaij, Shirurkasar, Sirsala and Chousala. Students from 7 sample villages are forced to move for about 15 to 33 kms to avail the facility of college.

Table No. 1.2 (B), BeedDistrict: Availability of Educational Facilities

S. No.	Sample Village	Higher Secondary			College		
		Place	Distance (km)	Mode of Transport	Place	Distance (km)	Mode of Transport
1	Adas	Adas	00	FT,B	Adas	00	FT,B
2	Adola	Gangamasla	03	PT, B	Gangamasla	03	PT, B
3	Asardhav	Adas	05	PT, ST	Adas	05	PT, ST
4	Babhalgaon	Dharmpuri	05	PT, ST	Dharmpuri	05	PT, ST
5	Bramhagaon	Kesapur Camp	02	FT, ST	Manjlegaon	02	PT, ST

6	Chondi	Chondi	01	FT	Dharur	16	ST, PT
7	Dautpur	Parli	03	PT, ST	Parli	03	PT, ST
8	Devigavhan	Aavti	05	ST, PT	Ashti	05	ST, PT
9	DubbaMajra	Majrgaon	30	ST, PT	Manjlegaon	30	ST, PT
10	GhatJawala	Dhek,moha	08	ST, PT	Pimpalner	07	ST, PT
11	Jaulala	Patoda	09	ST, PT	Patoda	09	ST, PT
12	KalegaonGhat	Kej	18	ST, PT	Kaij	18	ST, PT
13	Kharadgavhan	Dhanora	10	ST, PT	Dhanora	10	ST, PT
14	Lokhandi Sawargaon	LokhandiSawargaon	00	FT	Ambejogai	10	PT, ST
15	Madmapuri	Shirurkasar	12	ST, PT	Shirurkasar	12	ST, PT
16	Mandva (pathan)	Ambejogai	10	ST, PT	Ambejogai	10	ST, PT
17	Massajog	Kej	11	ST, PT	Kaij	11	ST, PT
18	Mohkhed	Didrud	08	PT,ST	Telgaon	17	PT, ST
19	Patharwalakh.	Gevrai	33	ST	Georai	33	ST
20	PimpalgaonMochi	Beed	07	ST,PT	Beed	07	ST,PT
21	Raheri	Talvada	08	ST, PT	Talvada	08	ST, PT
22	Rajkapur	Beed	15	ST, PT	Beed	15	ST, PT
23	Ranjani	Gadhi	01	ST, PT, B	Gadhi	01	ST, PT, B
24	Sabdarabad	Sirsala	12	PT,ST	Sirsala	12	PT,ST
25	Satra	Chousala	12	ST, PT	Chousala	12	ST, PT
26	SawargaonChakla	ShirurKasar	07	PT, ST	ShirurKasar	07	PT, ST
27	Suppa	Patoda	25	ST	Patoda	25	ST
28	Welturi	Kada	29	ST	Kada	29	ST
29	Yusuf Wadgaon	Yusuf Wadgaon	00	FT	Yusuf Wadgaon	00	FT

Source : Based on Village Questionnaire.

FT = Foot, PT = Private transport, B = Bicycle and ST = State transport

The status and pace of infrastructure development among the sample village present a very complex picture. In some sectors, constant efforts have been made to plug the sectorial imbalance. On the other hand systematically plan for sustainable development of the rural people as well as respective rural areas to have been designed and attempts are made to implement in a phased manner.

Conclusion:-

In the last two decades on a large scale, Aasharam Schools have been opened by the study region and provide the initial infrastructure of primary education. The Ashram schools the proportion of the school-going children has increased. Education is meant to enhance the capacity of upliftment and provide opportunities for socio-economic development. There has been some improvement in the quality of primary education in Scheduled caste areas and this has happened due to government and non-governmental activities. But to date, the number of out-of-school children remains constant, mainly due to lack of interest and parental motivation, inability to understand the medium of education (that is, state language), absence of teachers and attitude (especially for girls), large seasonal migration. The low literacy rate in Aboriginal society indicates the need to support health care needs.About 58 percent sample villages has no regular bus facilities, road connectivity is also very poor, due to the pathetic economic condition the parents, students are prefer bicycle and footslog and beside that degree of educational facilities is also lower in study areas.

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Water Quality and Health

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Abstract

Health is directly proportional to the water quality. The intake qualities of water give us different result.The word water quality itself express about its quality. High quality always gives us high performance in any type of work. Health should be always better for higher benefit of the society. Water is essential to sustain life and a satisfactory (adequate, safe and accessible) supply must be available to all. Drinking water quality varies from place to place, depending on the condition of the source water from which it is drawn and the treatment it receives.Water quality is measured by physico- chemical parameters, such as the Temperature, pH, DO, CO_2,salts and bacterialevels. Potability of water depends on the total dissolved solids and suspended solids in the water.The main aim of study is to known about water quality status and contaminated water are linked to transmission of water borne diseases like diarrhoea, dysentery and typhoid and reduces metabolic process of body..

Keywords: *Water Quality, Potable water, Health Fitness, Climate, Sewage.*

Introduction

The word health refers to a state of complete emotional and physical well-being. Healthcare exists to help people maintain this optimal state of health. In some bodies of water, the blooms of microscopic algae and quantities of pesticides, fertilizers, heavy metals, influx of domestic sewage and other contaminants may also be measured to determine water quality.The World Health Organization classifies "improved" sanitation services as those with flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs.Without at least basic sanitation servicesdefined as improved facilities that are not shared with other householdsthe risks of water contamination from human excreta increase. Poor sanitation and contaminated water are linked to transmission of diseases causing diarrhea as well as cholera, dysentery, and typhoid. As a result, every year 361,000 children under five years cause death due to diarrhoea. Improving access to safe drinking water can result in tangible benefits to health. Every effort should be made to achieve a drinking-water quality as safe as practicable. Safe drinkingwater, as defined by the guidelines, does not represent any significant risk to health over a lifetime of consumption, including different sensitivities that may occur between life stages. Those at greatest risk of waterborne disease are infants and young children, people who are debilitated or living under unsanitary conditions. Safe drinkingwater is suitable for all usual domestic purposes, including personal hygiene. The guidelines are applicable to packaged water and ice intended for human consumption. However, water of higher quality may be required for some special purposes, such as renal dialysis and cleaning of contact lenses, or for certain purposes in food production and pharmaceutical use. Those who are severely immune-compromised may need to take additional steps, such as boiling drinkingwater, due to their susceptibility to organisms that would not normally be of concern through drinkingwater. Most health issues arise from inadequate access to clean water and from chemical contaminants. Therefore pure water always referred for sound health. According to a 2017 report from the World Health Organization (WHO) and the United Nations Children's Fund, 844 million people still lacked even a basic drinking water servicean improved source within a 30-minute round trip from homein 2015. An "improved" water source provides water when needed and is free from contamination, primarily microbial contamination from human or animal faeces. That's almost 12 % of the world population without access to clean water at home when it's needed,The 10 countries where at least 20 % of the national population lacks basic water service, eight are in sub-Saharan Africa and two are in Oceania. Water supplies in some areas are being depleted or becoming unpredictable with climate changes, slowing or reversing past progress in providing water access to communities.

Objectives:

Today the main problem is water pollution and eutrophication of water bodied, most of the water bodies which supply drinking water get polluted due to urbanisation and industrialization. Many researcher works on water quality status in India and abroad. Water-quality objectives aim at ensuring the multipurpose use of fresh water, i.e., its use for drinking-water supply, livestock watering, irrigation, fisheries, recreation or other purposes, while supporting and maintaining aquatic life and the functioning of aquatic ecosystems. They are being developed in UN/ECE countries by water authorities in cooperation with other relevant institutions to set threshold values in water quality to be maintained or achieved within a certain time period. Water-quality objectives provide the basis for pollution control regulations and for

undertaking specific measures for the prevention, control or reduction of water pollution and other adverse impacts on aquatic ecosystems. A major advantage of the water-quality objectives approach is that it focuses on solving problems caused by conflicts between the various demands placed on waters, particularly in relation to their ability to assimilate pollution. The water-quality objectives approach is sensitive not just to the effects of an individual discharge, but to the combined effects of the whole range of different discharges into a water body. It enables an overall limit on levels of contaminants to be set according to the required uses of the water body. It is generally recognized that water-quality objectives, the setting of emission limits on the basis of best available technology, and the use of best environmental practice are integral instruments of prevention, control and reduction of pollution in inland surface waters. Priority is given to the reduction of pollution and the conservation of waters in their natural state and the restoration of water quality taking into account the necessary water uses. In addition to an improvement of water quality, water bodies, their banks and related terrestrial ecosystems have to be restored or maintained in a state which allows the development of a sound diversity of species in ecosystems that are as undisturbed as possible.

Water Pollutants

Day by day decline the quality of water main due to following pollutants. Some major pollutant threaten the water quality Chemical contaminants: natural or human-created chemicals are also dangerous for all. Biological contaminants: microbes including bacteria, viruses, protozoa, fungi, algae, amoebas, and slime molds.Radiological contaminants: radiation from decaying radioactive elements, both naturally occurring from soil and bedrock and from radioactive waste deposited or leaking into water supplies.Thermal contamination, excess heat that impairs a water ecosystem's ability to sustain its life-forms, is also a class of contamination. Although heat can impair an ecosystem's ability to produce food and other valuable services to humans, its direct impacts on human health are minimal.

Natural Water Contamination

Some water contaminants may be entirely natural and not created by human activity , such as Pathogens (bacteria, viruses and other microbes) , and other metal,Radon and other radioactive material , Salt and other minerals , Nitrates.Being derived from nature and natural processes doesn't mean these contaminants are safe. Metals, radioactive materials, nitrates and other natural contaminants can make water unsafe for human use. Even though these contaminants are found in nature, the levels of each in water are also increased by human activity.Chemical contaminants from both natural sources and human activity can make water unsafe or even unusable. Chemical contamination of water is a concern in many parts of the world, with the specific chemicals and their sources varying from one place to another. Some concerning facts and trends:

Hypothesis

1. Water Pollution is an undesirable change in physical, chemical or biological characteristics of water. Human population explosion, rapid industrialization, deforestation, unplanned urbanization, scientific and technological advancement etc. are mainly responsible for the pollution crisis on the earth. 2. Wastewater from manufacturing or chemical processes in industries contributes to water pollution. Industrial wastewater usually contains specific and readily identifiable chemical compounds. 3. During the last fifty years, the number of industries in India has grown rapidly. But water pollution is concentrated within a few sub sectors, mainly in the form of toxic wastes and organic pollutants. Out of this a large portion can be traced to the processing of industrial chemicals and to the food products industry. 4. The effects of water pollution are not only devastating to people but also to animals, fish, and birds. Polluted water is unsuitable for drinking, recreation, agriculture, and industry. It diminishes the aesthetic quality of lakes and rivers. More seriously, contaminated water destroys aquatic life and reduces its reproductive ability. Eventually, it is a hazard to human health. Nobody can escape the effects of water pollution. So the present study may be helpful for finding out methods for the treatment of effluents in batch scale that are cost effective so that smallscale industries can treat their wastes before releasing them into the environment.

Plastics In Water: Although direct impacts on human health are not yet widespread, the volume of plastic in surface water is enormous and growing exponentially.Many plastic monomers are classified as carcinogenic, mutagenic or toxic for reproduction. Other compoundssuch as solvents, initiators, catalysts and other polymerization additives, plus additives including flame retardants, phthalates and lead compoundsmay be added to plastic during production.

Water Scarcity

Water scarcity is essential for the purpose save us from various types of diseases. It can only be possible by getting such ideas thoroughly. Even in areas with normal rainfall, water scarcity is becoming a concernor already has become a concern. According to the World Wildlife fund, more than a billion people

worldwide lack access to water, and a total of 2.7 billion find water scarce for at least one month of the year. Water scarcity has many causes; water availability is being limited in many places by drought, which can reduce drinking water and an area's ability to produce food crops and livestock. The growth of the human population puts extra pressure on water supplies. Fresh water contains only 2.5 % on earth which is utilizable for human and wild animals. Most of the water bodies exhausted due to eutrophication. During summer season every country facing the problems of water scarcity. It is today need to avoid influx of solids waste in water bodies.

Water-Quality Criteria

Waterquality criteria generally describe the quality of water needed to protect and maintain individual water uses. Many waterquality criteria set a maximum level for the concentration of a substance (in water, sediment and/or biota, respectively) which is not harmful under the conditions of a continuous water use for a single, specific purpose, such as water for drinkingwater supply, agriculture and recreation, and requirements of biological communities and the functioning of aquatic ecosystems in general.

Roles And Responsibilities In Drinking –Water Safety Management

Public health authorities in order to effectively support the protection of public health, a national entity with responsibility for public health will normally act in four areas.Local authorities' Local environmental health authorities often play an important role in managing water resources and drinking-water supplies. This may include catchment inspection and authorization of activities in the catchment that may impact on source water quality.Water resource management water resource management is an integral aspect of the preventive management of drinking-water quality. Prevention of microbial and chemical contamination of source water is the first barrier against drinking-water contamination of public health concern.Drinking-water supply agencies Drinking-water supplies vary from very large urban systems servicing populations with tens of millions to small community systems providing water to very small populations. In most countries, they include community sources as well as piped means of supply .Community management Communitymanaged drinking-water systems, with both piped and non-piped distribution. Role and purpose of health-based targets Health-based targets should be part of overall public health policy, taking into account status and trends and the contribution of drinking-water to the transmission of infectious disease and to overall exposure to hazardous chemicals both in individual settings and within overall health management.

Conclusion: Every one needs water for their life, water is universal solvent everyone knows how water is precise for us. This review conclude that to aware all the peoples about water pollution and transmission of diseasesand water borne contaminations.Most of the water bodies exhausted due to eutrophication. During summer season every country facing the problems of water scarcity. It is today need to avoid influx of solids waste in water bodies. Every effort should be made to achieve a drinkingwater quality as safe as practicable.

Suggestions And Recommendations: The study recommended that for future to plane effective scientific methods for water conservation, recommended to increases depth of water bodies for more availability of water during summer season. Every water supply office monitor physico chemical and biological parameters. To establish water treatment and water purification plants. To organized public awareness programme by corporates, NGO and research workers.

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Environment – Health and Safety – A Glance

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Abstract

Environment is that in which all living and non-living things are formed, working in a specific order. Ecosystems can sometimes deteriorate under natural conditions but can be damaged by human consequences and irregularities can also be observed. Many factors such as climate change, rainfall variability, production conditions and product quality are reflections of environmental change. Environmental changes, especially those resulting from man-made actions, have spread widely over the years increasing global warming, increasing soil inefficiency, loss of green areas etc. The human factor is the first factor in the creation of so many conditions that can be considered. These negative changes made by man on nature again affect the people. Due to disturbances in ecological balance, the emergence of adverse conditions that have a profound impact on human health is inevitable. The current research paper sheds light on the relationship between human health and the environment and human security.

Key words *– environment, change, health, safety*

Objective:

- To clarify the concept of environment.
- To practice the change in the environment.
- Knowing the causes of changes in the environment
- Projecting the relationship between human health and the environment.

Hypothesis

- There are irregularities in environmental balance.
- Many factors such as production conditions and product quality are reflections of environmental change.
- Environmental change is a human factor.
- There is a relationship between human health and the environment.

Introduction

Man is the smartest person on earth. So they used their intelligence to develop the environment as they wanted. When we ask for help from any person or society, we are always grateful to him. Man has never followed this rule with the environment. That is why today idioms like save the environment are heard. First and foremost, everyone needs to understand that I am a part of the environment. Even if a single member of the family behaves irresponsibly, the whole family suffers. The same is the case with the environment. I have to keep in mind that I have a debt to the environment and I want to pay it. Increasing population is one of the main reasons for environmental degradation. We can survive a day without food, a day without water, but we cannot survive even a moment without oxygen in the air. And most of the oxygen production is done by the trees of the area. Plants make their own food and release carbon dioxide, which is bad air, into good air. Today, deforestation is rampant. Sunderlal Bahuguna started the 'Chipko Andolan' to save the forests and create awareness among the people and was successful in doing so. The importance of trees is unparalleled.

Human health and environment

The impact of environmental factors on health is another issue that we can mention in our title, the global warming problem that we face on a large scale and in environmental dimensions. The most important damage to the nature of human population, which is fraught with unplanned expansion and erratic expansion, is the loss of green space. The most significant risk of environmental imbalance is the increasing concentration of harmful gases emitted into the atmosphere following the gradual depletion of green matter, which is defined as an oxygen source. Humans, animals, plants, in short, all living things are affected as a result of global warming. These changes in the ecological balance can cause serious health problems in living organisms that face significant risks in their vital functions. GMO products have become more widespread in recent years. Genetically modified organisms can be described because such nutrients pose a significant risk to human health, as shown by scientific research. Humanity, which wants to produce more rapidly, neglects health when trying to achieve it. In fact, today the main cause of cancer and a variety of diseases are GMO products which are a way to fundamentally disrupt the environmental balance. As a result, the ecosystems created by all living and non-living things come together. Therefore, all kinds of disturbances in this ecological balance will have serious consequences on the health of the whole living world, especially humans. We, the people who have been blessed as the only wise thought of nature, should pay attention to the direct impact of the environment on health and undertake restorative

activities in this direction. Many people often think of environmental health in terms of clean air and water, but things like global warming are part of the larger concepts of natural environmental power.

Air quality

Poor gas quality has been linked to health issues, eg. SIDS, Lung Cancer and COPD Air pollution has also been linked to low birth weight. The Clean Air Act of 1970 raised the demand to change all that. For the first time, the government took on the responsibility of protecting air quality for all US citizens by regulating harmful emissions from things like cars and factories. The law was expanded in 1990 to prevent acid rain and ozone depletion, and is still in effect. In its 2011 Prospective Report, the Environmental Protection Agency estimated that the Clean Air Act would prevent more than 230,000 deaths by 2020.

Water and sanitation

According to the Centers for Disease Control and Prevention, an estimated 780 million people worldwide do not have safe drinking water, and 2.5 billion (or about a third of the world's population) lack access to clean sanitation. The results are dire. Worldwide, 2,200 children die every day from diarrhea caused by improper water and sanitation. In the United States, screening and chlorating water systems have been simplified, leading to a significant reduction in common diseases such as typhoid.

Conclusion

Today as man has progressed, the need of man has also increased. Today man is harming the environment to fulfill his basic needs and amenities. It is cutting our trees too. That's why we are facing other types of calamities like pollution, global warming and natural calamities. At the same time, they are facing crisis like fall in water level, erratic rainfall, increasing drought etc. Man is responsible for disturbing the balance of this environment. Nature provides useful things in human life with great readiness. But when the opportunity comes to repay it, man takes a step back. Nature is the guardian of man, and it is in the hands of man to take care of it.

Suggestion

1. Research on various elements of the environment.
2. Keeping various elements of the environment free from pollution.
3. To protect humans from the effects of pollution.
4. Protecting endangered species.
5. Prescribing specific rules or principles to maintain the quality of the environment. To protect the quality of environment through pollution control.
6. Review and improve management measures.
7. Collecting materials for environmental management.
8. To arrange environmental education and create awareness in the society.
9. To strive to maintain ecological balance through multipurpose use of resources.
10. Conservation of Biodiversity.
11. Adoption of clean technology product concept.
12. Enforcing rules and regulations for environmental protection.

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Studies on Diversity of Odonata in Diwan Lake and Nawargaon Region, District Chandrapur, Maharashtra, (India)

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Abstract

The present work carried out for Odonate faunal diversity in Diwan Lake and around Nawargaon region during the year 2019-2020 to collect, record and their diversity status. In the present report 25 species of odonata belonging to 22 genera and 4 families (Gomphidae, Aeshnidae, Libellulidae and Coenagrionidae). Maximum number of species belongs to Libellulids family, which was represented 20 species. Aeshidae family was represented by 4 species. Gomphidae and Libellulidae family was represented by 1 species. This indicates Divan lake and Nawargaon region is a rich habitat for Diversity of dragonflies and area can be attributed to the high diversity of plant and water.

Key words- Odonates, Diversity, Lake, Nawargaon

Introduction

Odonates includes Dragon flies and Damsel flies are characterized by large multifaceted eyes, two pairs of strong, transparent wings, some spices with coloured patches, & elongated body. Dragonflies are most attractive creature on earth belonging to the most popular insect. These are observed near the ponds, lakes, rivers, ditches and all over the marshy places and very selective to the habitat selection. They also play significant role in the food web as herbivorus, carnivorus and detrivorus. Larvae of odonata are the predators of aquatic food chain and the adult odonates are the predators of various insects which act as the crop pests. The odonates are highly sensitive to changes in habitat, which make them good bioindicators in environment. (Kietzka *et al*. 2018).

More than 6000 species of odonates are identified and described all over the world. In India 536 species and subspecies are recorded. Total 101 species of odonates are recorded in Maharashtra. (Kulkarni *et al*.,2012). Total 34 species of dragonflies are recorded belonging to 24 genera and 4 families out of 26 are common and 8 are occasional. Libellulidae family is dominating to other genera and species followed by Aeshnidae, Gomphidae and Macromiidae. (Shende and Patil 2013). The purpose of this research was to compare species diversity of Odonata. Information of species diversity of Odonata in lakes is still rare.

Divan lake and Nawargaon region is a good habitat for Diversity of dragonflies situated at Sindewahi Tahsil near buffer zone of famous Tadoba Andhari Tiger Reserve (TATR) in District of Chandrapur

Materials And Methods:

Nawargaon Town located at 20.3701° N and 79.5884° E altitude in Sindewahi Tehsil, District Chandrapur. The odonates sampling is carried out during July 2020 to July 2021 in ten different sites of Nawargaon. It is carried out in 03 km. area around each site. The observations are carried out in morning and evening time weekly. Species were photographed in different angle in their natural habitat. If any difficulties to identify, then specimen are captured for their further identification and then they are released in their natural habitat immediately. The specimens is collected by using sweep net and observed from herbs, shrubs and ponds in 10 different study sites. The identification is done by the standard identification key prescribed by Andrew *et al.* (2008), Tipale *et al*. (2008) and Subramanian *et al.* (2009).

Observations :

In the present study, 25 species of Dragonflies belonging to 22 genera and 4 families were observed. 3 genera and 4 species *(Anax Parthenope, Gynacantha Bullata, Anaciaeschna Jaspidae, Anax Junium)* are reported from family - Aeshnidae. The maximum 19 species *(Tholymis Tillarga, Diplacodes Triviallis male, Orthetrum Pruinosum male, Orthetrum Sabina, Diplacodes female, Protomarcha Congener, Pantala Flavescens , Leucorrhinia Albifrons, Bradinopyga Geminata, Sympetrum Sanguineum, Brachythemis Contaminat, Libellula Invests, Urothemis Signata, Tramea Onusta, Orthemis Ferrugines, Orthetrum Sabina, Libellula Saturata, Erythrodiplax Umbrata,Trithemis kirbyi, Pachydiplax Longipennis)* belonging to 17 genera from family Libilluidae.

1 genera and 1 species *(Ictimogonphus rapax)* Belonging to family Gomphidae. Coenagrionidae, this family referred to as the narrow winged damselflies. Narrow stalked, usually colourless and clear wing, the present observation 1 genera and 1 species. *(Agriocnemis pygmaea).* (Table 1)

S.No.	Species	Common name
	Family: aeshnidae (genera 3, species 4)	
1.	*Anax parthenope* (sely 1839)	Lesser emperor

2.	*Gynacantha bullata* (kirsch 1891)	Black-k need duskhwer
3.	*Anaciaeshaa jaspidae* (*Burmeister* 1839)	Rusty darner
4.	*Anax junium* (drury 1773)	Common green darner
	Family: Coenagrionidae (genera 1, species 1)	
5.	*A. pygmaea* (Rambur 1842)	Feather tailed glider
	Family: libellulidae (genera 17, species 19)	
6.	*Tholymis tillarga* (rambur 1842)	Coral tailed cloudy wing
7.	*Orthetrum sabina* (drury 1770)	Slender skimmer
8.	*Diplacodes trivalis* female	Ground skimmer
9.	*Orthetrum pruinosum* (male) (Burmeister 1839)	Marsh hawk
10.	*Potomarcha congener* (rambur,1842)	Yellow tailed ashy
11.	*Pantala flavescencs* (fabricius 1798)	Wandering glider
12	*Leucorrhinia albifrons* (burmeister 1839)	Dark whiteface
13	*Bradinopyga geminate* (rambur,1842)	Granite ghost
14	*Symptrum sangsanguineum* male (muller 1764)	Rudy darker
15	*Branchiithemis Contaminants* female (fabricium 1793)	Ditch jewel
16	*Lebellula insect* (Hagen 1861)	Slaty skimmer
17	*Urothemis signata* male (rambur 1842)	Greter crimson
18	*Tramea onusta* (hagen 1861)	Red saddlebags
19	*Orthemis ferrugeinea* (fab 1775 female)	Roseate skimmex
20	*Othotrum Sabina* (drury 1770)	Slender skimmer
21	*Libellula saturata* (uhler 1857)	Flame skimmer
22	*Erythrodiplax umbrata* (Linnaeus 1758	Band winged dragonlet
23	*Trithemis kirbyi* (sety 1891)	Orange winged dropwing
24	*Pachydiplax longipennis* (brayer 1868)	Blue dasher
	Family: gomphidae (1. Speies, 1 genera)	
25	*Ictinogomphus rapax*	Clubtail

Table 1. Diversity of odonates with generic, species and common name

Discussions :

Total 25 species of dragonflies belonging to 22 genera and 4 families (Gomphidae, Aeshnidae, Libellulidae and Coenagrionidae) have been reported in the present study. The family Libellulidae is consisting of maximum number of genera and species followed by Aeshnidae, Gomphidae and Coenagrionidae.

Subramanian (2009) recorded 11 dragonfliy families, of which Libellulidae (972) and Gomphidae (958) are major families containing maximum species throughout the world followed by Aeshnidae (436). Out of 7 families, Libellulidae and Gomphidae are major families consisting of 85 species each in India,. These are followed by Aeshnidae (45). In Indian peninsula, major species are studied under family- Libellulidae (50) followed by Gomphidae (27) and Aeshnidae (8).

Sharma et al., (2009) collected and identified 147 species of dragonflies belongs to 5 families Libellulidae, Gomphidae, Aeshnidae, Corduliidae and Cordulegasteridae in Indian Agricultural Research Institute, New Delhi, India. Nair (2011) recorded 65 species belongs to family- Libellulidae, Gomphidae, Aeshnidae and Cordulegasteridae in Orissa and Eastern India. Manwar *et al.* (2012) reported in Chatri Lake Region, in Pohara–Malkhed Reserve Forest, Amravati, Maharashtra (India) recorded 22 species of dragonflies and damselflies of 4 families and 17 genera; of which 50% species are of family Libellulidae followed by Coenogrionidae (36%), Gomphidae (9%) and Platycenemididae (5%).

The families Libellulidae (49 species), Gomphidae (26 species) and Corduliidae (22 species) are the most species-rich, followed by Aeshnidae (8 species) Cordulegasteridae(2 species) in Western Ghats (Subramanian et al., 2011). Priyanka *et al.*(2014) reported 33 species of odonates belonging to 22 genera and 06 families from the different gardens of Pune city, Maharashtra. Dayakrishna *et al.* (2015) observed 420 individuals of odonates belonging to 19 species under 04 families from Corbet Tiger Reserve, Uttarakhand, India. Out of Libellulidae was the most abundant family with 15 species followed by

Coenagrionidae (02 spe.). Anita *et al.* (2016) reported 20 species of odonate with the family Libellulidae is the most dominant family and maximum number of species during the post mansoon season.

During the last decade, many researches have published data on the distribution of ododnates in various region of Chandrapur district. Tipale *et al*. (2012) reported 64 species of ododnates from Tadoba Andhari national park. According to checklist the ododnates fauna of Nawargaon region consist of total 25 species belonging to 20 genera and 4 families. Maximum number of species belongs to Libellulids family, which was represented 20 species. Aeshidae family was represented by 4 species. Gomphidae and Libellulidae family was represented by 1 species. These data helps to understand changing species distribution and the reason to change in particular ecosystem.

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Source of Energy Fromwater and Food For Physical Fitness.

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Abstract:

The water-food-energy is playing a significant role for physical fitness for all the sportsmen as well as all human beings. It has achieved considerable prominence across academic research and policy sectors. Without water, life is impossible. Potable water has various qualities in order to improve stamina. It's common to hear that water is essential for your health. This substance makes up a majority of your body weight, body contain more than 70% water and is involved in many important functions, including flushing out waste from your body by the lymphatic system,to maintain the bodyhomeostasis. Similarly,without food life is impossible on the earth, consumed food is essential for liberation of energy is in form of ATP. In order to sustain oneself, everyone has to take plenty of water and balance diet. All physiological body activities required energy maintains all body systems. The main aim of study is known, all the players how to maintain their strength and stamina during playing activities.

Keywords: *Water, Food, Energy, Physical Fitness*

Introduction

You get most of your water from drinking beverages, but food also contributes a small amount to your daily water intake. Water is a main component of saliva. Saliva also includes small amounts of electrolytes, mucus, and enzymes. It's essential for breaking down solid food and keeping your mouth healthy. The good news about eating for sports is that reaching your peak performance level doesn't take a special diet or supplements. It's all about working the right foods into your fitness plan in the right amounts.Teen athletes have different nutrition needs than their less-active peers. Athletes work out more, so they need extra calories to fuel both their sports performance and their growth.So what happens if teen athletes don't eat enough? Their bodies are less likely to achieve peak performance and may even break down muscles rather than build them. Athletes who don't take in enough calories every day won't be as fast and as strong as they could be and might not maintain their weight.Eating extra for excellent performance is always beneficial for the players. Eating a variety of foods is also useful for healthy digestive system as well. When it comes to powering your game for the long haul, it's important to eat healthy, balanced meals and snacks to get the nutrients your body needs. Vital vitamins and minerals are gaining calcium as well as iron, which is always essential for body. Lack of such things always caused severe problems which would definitely affect the performance.Water is essential for every cell, tissue and organs, body contain more than 70% water and is involved in many metabolic functions, including flushing out waste from body by lymphatic system and to maintain the body homeostasis..

Importance Of Water

Water is needed for most body functions, including to. Maintain the health and integrity of every cell in the body.Keep the bloodstream liquid enough to flow through blood vessels.Help eliminate the by-products of the body's metabolism, excess electrolytes (for example, sodium and potassium), and urea, which is a waste product formed through the processing of dietary protein. Regulate body temperature through sweating.Moisten mucous membranes such as those of the lungs and mouth. Lubricate and cushion all kinds of body joints, Reduce the risk of cystitis by keeping the bladder clear of bacteria. Aid digestion and prevent constipation the skin to maintain its texture and appearance.Serve as a shock absorber inside the eyes, spinal cord and in the amniotic sac surrounding the foetus in pregnancy.

Objectives

A large number of objective measurement approaches are available to quantify physical activity and energy expenditure of different populations. However, the accurate measurement of energy expenditure and physical activity in many groups, including children, is very challenging due to their intermittent and often sporadic movement. Because PA is a complex and multidimensional behavior, precise quantification can be difficult. A major challenge in physical activity and nutritional epidemiology is the choice of the most accurate and objective measure suitable for large populations. The choice of assessment approach for both PA and EE is influenced by numerous factors including affordability and participant burden. Additional factors include the age of participants, sample size, assessment time frame, the type of PA information required, data management options, and measurement error associated with the approach. Fundamentally, all measurement techniques have inherent strengths and limitations, and there is often value in using combined approaches. Meeting energy needs is the first priority of athletes for attaining optimum performance. Whether it is assessed in absolute terms or in comparison, to estimates of energy

requirements, the assessment of energy intake and energy expenditure of players is very important.

Most foods, even those that look hard and dry, contain water. The body can get about 20 per cent of its total water requirements from solid foods alone. The process of digesting foods also produces a small amount of water as a by-product which can be used by the body. Water sourced this way can provide around 10 per cent of the body's water requirements. The remaining 70 per cent or so of water required by the body must come from fluids (liquids).

Daily Need of water depends on function and mechanism as well as environmental condition of body. The aim of this review to know the metabolic process of water and water balance regulation. Day by day change of climatic condition, fluctuation of ambient temperature and intake of diet. This universal solvent plays a significant role in life process, to maintain the water balance in every body for different physiological process. Minute changes in plasma osmolality are the main factors thattrigger these homeostatic mechanisms. Less intake of water causes dehydration in body which shows many adverse effects. Water is the main constituent of cells, tissues and organsand is vital for life (Lang and Waldegger, 1997). Despiteits well-established importance, water is often forgottenin dietary recommendations, and the importance ofadequate hydration is not mentioned.Water is essential for cellular homeostasis because it transports nutrients to cells and removes wastes from cells (Ha¨ussinger, 1996).

Types Of Water

Tap Water: We always use tap water at our home for drinking. Now a day it is found that in villages people are still drinking plain tap water. When you think of drinking water, tap water is often one of the first options that come to mind. This is the water that comes directly from your faucet. It can come from groundwater like a well, river or stream. For public safety, this water should undergo the water purification process before it flows from the main supply to your thirsty mouth.

2. Mineral water: As per its name, mineral water contains lot of mineral, which is beneficial for prevention of diseases. These essential minerals have given mineral water a reputation as healthy drinking water. They also give this type of water it's characteristic salty taste.One important distinction of mineral water is that water suppliers can't add additional minerals to the water.

3.Spring or glacier water: As it comes from the underground, that's why it is very pure. These natural springs do not go through a community water system; however, water from these springs is safe to drink because it comes from underground.Many proponents of spring water enjoy its natural and refreshing taste. They also like that the water is mostly clean free of most contaminants without undergoing modern purification techniques.

4.Distilled water: Such type of water can be obtained by distillation process and remove salt as well as minerals from the water, which is most useful for our body of a patient. Depending on whom you ask, purified water could simply refer to tap water because it has undergone multiple processes to remove impurities and contaminants and prevent water pollution. Others say that purified water is water that undergoes another step of purification after it comes from the water plant.Under the stricter definition of purified water, it must go through an additional purification process to purify it and prevent contamination.

5.Purified water: As per the word, such type of water is totally purified. It refers to any water that has been mechanically processed or filtered to cleanse and purify it. Depending on whom you ask, purified water could simply refer to tap water because it has undergone multiple processes to remove impurities and contaminants and prevent water pollution. Purified water goes through so many additional steps that the process removes nearly all impurities and makes it clean and safe for you to drink it no matter where it comes from.

6.Alkaline water: Alkaline water is very useful in order to be cure for various patient and also useful for the performance of the players. The pH level measures how acidic or alkaline a substance is. This number ranges from 0 to 14, with 0 being very acidic and 14 being very alkaline. Standard drinking water has a neutral pH of 7, while alkaline usually has a pH of 8 or 9.In addition to its pH level, alkaline water must also have alkaline minerals and negative oxidation-reduction potential (ORP). The more negative the ORP value, the greater the water's ability to act as an antioxidant.

Types Of Food

There are seven main classes of nutrients that the body needs. These are carbohydrates, proteins, fats, vitamins, minerals, fibre and water. It is important that everyone consumes these seven nutrients on a daily basis to help them build their bodies and maintain their health.

Fruit: The fleshy or dry ripened ovary of a flowering plant enclosing the seed or seeds. Thus, apricots, bananas, and grapes, as well as bean pods, corn grains, tomatoes, cucumbers, and acorns and almonds, are all technically fruits. Botanically, a fruit is a mature ovary and its associated parts.

Oatmeal: As a great source of whole grains, oats contain a heart-protective starch called beta-glucan that can help to reduces high cholesterol and potentially help reduce the risk of certain cancers.

Starchy vegetables: Vegetables are nutritious and rich in fiber, vitamins and minerals. They also offer protection against a number of chronic illnesses, such as diabetes, obesity and heart disease.

Non-starchy vegetables: Vegetables are nutrientcontains vitamins, minerals, disease-fighting antioxidants and fiber. Fiber is an important nutrient when it comes to managing weight. Fiber helps to keep your heartwith less cholesterol and can help to regulate blood sugars by slowing down digestion. Types of Non-Starchy Vegetables: Artichoke.,Asparagus,Bamboo shoots,Bean sprouts,Brussels sprouts,Broccoli, Cabbage,Carrots,Cauliflower,Celery,Chicory,Chayote,Coleslaw,Cucumber,Dandelion,Eggplant,Greens,Hearts of palm,Kohlrabi,Leeks,Lettuce: endive, escarole, leaf, iceberg, Romaine,Mushrooms,Mustard greens,Okra,Onions,Pea pods,Peppers,Radishes,Rutabaga,Salad greens, Snow peas or pea pods, Scallion,Sprouts,Sugar snap peas,Swiss chard,String beans,Tomato,Turnips,Water chestnuts and Zucchini.

Whole grain bread or crackers: Classic General Mills Cheerios Are High in Fiber, Low in Sugar. For a healthy breakfast, consume to classic cheerio's. They contain a good amount of fiber and are low in sugar, all those things that we look for [in a healthy cereal],"The not-good-for-weight-loss grains are those, like whole-grain breads, whole-grain bagels, and whole-grain crackers and chips, in which the kernels have been ground into flour. When this processing happens, the product becomes very calorie dense.

High-fibres and non-sugary cereals: Increasing your fibres intake from nearly nothing to iDiet's recommended 40+ grams a day can seem like a daunting task, especially when you need both insoluble fiber (e.g., wheat bran, corn bran) and soluble fiber (e.g., whole grains, legumes, fruits, and vegetables) throughout the day. This is where High Fiber Cereal, (aka "HFC" or "fiber" to iDieters) comes in handy.

Quinoa: It is a gluten-free seed that can make a great substitute for rice and other grains. Learn more about its health benefits and uses here.It seems these days, quinoa is still all anyone talks about. Everywhere we turn there are quinoa salads, quinoa fried rice, and now even quinoa protein shakes.

Brown or wild rice: Both types of rice are great sources of fiber, antioxidants and nutrients like manganese, magnesium and phosphorus. Brown rice does have more B vitamins compared to wild rice (making it a great choice if you're on a meal free diet), so alternating between the two won't have any drawbacks. If you're diabetic or pre-diabetic, both wild rice and brown rice can reduce blood sugar.

Energy Source : The one main potential energy used in a football is gravitational potential energy. When a football is being held by a wide receiver or quarterback, the football has gravitational potential energy. The main types of used energy that are used in a football are kinetic energy and heat energy.For the performance, everyone has to gain energy from various sources for completing the task. All human beings as well as animals require energy to live a happy life. And also it has been already dependent on the sources which oneself wants to accomplish the task in proper time

Your body generally produces enough saliva with regular fluid intake. However, your saliva production may decrease as a result of age or certain medications or therapies. It helps to create saliva. If your mouth is drier than usual and increasing your water intake isn't helping, see your doctor. It regulates your body temperature.Staying hydrated is crucial to maintaining your body temperature. Your body loses water through sweat during physical activity and in hot environments. Your sweat keeps your body cool, but your body temperature will rise if you don't replenish the water you lose. That's because your body loses electrolytes and plasma when it's dehydrated. If you're sweating more than usual, make sure you drink plenty of water to avoid dehydration. It protects your tissues, spinal cord, and joints.

Conclusion:

Water plays a vital role in our body as a nutrient, it serve as a building materials for every cell, tissue and organ systems. It carries all nutrients and waste materials, maintain thermoregulation. The regulation of water balance is very precise and is essential for the maintenance of health and life. Water consumption helps lubricate and cushion your joints, spinal cord, and tissues. This will help you enjoy physical activity and lessen discomfort caused by conditions like arthritis. Food is the most essential to live a healthy life. But types of food should be according to the work as well as target as well. There are several nutrients that required to body. These are carbohydrates, proteins, fats, vitamins, minerals, fibre and water. It is important that everyone consumes these nutrients on a daily basis to help them build their bodies and maintain their health. Vitamins play a very important role in immune system of the body.The European Food Safety Authority has been recentlyasked to revise the existing recommended intakes ofessential substances with a physiological effect, includingwater, as this nutrient is essential for health and life. (EFSA, 2008).

Suggestions And Recommendations:

The study recommended that every human being and sports person to know how many daily calories required. The body has no way to store water and needs fresh supplies every day.The best source of fluids is fresh tap water. Every child will need different amounts of fluid, depending on their age and gender.Women should have about two litres (eight cups) of fluids a day, and men about 2.6 litres (10 cups).Women who are pregnant or breastfeeding need more fluid each day than other women.Dehydration can happen when the body's fluids are low. It can be life threatening, especially to babies, children and the elderly. Every person should take a balance diet which containcarbohydrates, proteins, fats, vitamins, minerals and fibre.

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An Observational Study of Health Status of Vegetable Vendors with Special Reference to Noise Pollution.

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Abstract :

Noise pollution affect the human body in three different ways physical ,physiological, psychological. Noise defined as 'unwanted sound is perceived as an environment stressor and nuisance[1]. Noise pollution from traffic in particular is considered by the World Health Organization to be one of the worst environmental stressor for human second only to air pollution[9]. Environmental noise can cause tinnitus, hearing impairment, hypertension, ischemic heart disease, annoyance and sleep disturbances[2]. The most commonly affected and less recognized group of workers are vegetable vendors. They seat in the market area where noise pollution is high. Also they did not have the knowledge of how the pollution is affecting their health. Therefore survey study is conducted by interacting with vegetables vendors to know the health problem they are suffering from. A questionnaire was prepared and data was collected. After analyzing data vegetables vendors are suffering from various auditory, neurological, respiratory problems etc. These study aims to access the health status of vegetables vendors and to make them aware about their health also to suggest the preventive measures accordingly.

Rationale of Study:- Sound is an important and valuable part of everyday life. But when sound becomes noise, it can negatively affect our mental and physical health. The realities of modern life mean the noises created in our world are not going to suddenly fall silent. Instead we need to recognize that noise pollution is a serious health concern worthy of our attention and find realistic and sustainable ways to manage and reduce it. Vegetable vendors are mostly are suffer from noise pollution and experiencing health related problem because of that. Therefore this study aims to educated the vegetable vendors about their health status and to prevent the hazardous effect of noise pollution on their health.

Aim:- To study the health status of vegetable vendor with special reference to Noise Pollution.

Primary Objective:-

1. To study the health status of vegetable vendor with special reference to Noise Pollution.

Secondary Objective:-

1. To explore the role of swasthavritta in disease related with Noise Pollution.
2. To educate the Vegetable Vendor about their health.

Hypothesis :-

Null Hypothesis (H0) - There is no significant effect of noise pollution on the Vegetable Vendor.

Alternate Hypothesis (H1) - There is significant effect of noise pollution on the Vegetable Vendor.

Methodology:- A survey was conducted to access the health status of vegetable vendor .A questionnaire was prepared to collect the information ,the questionnaire contain 15 questions. Direct interaction with vegetable vendor was done. Questionnaire was filled with consent of vegetable vendor.

Study Design:- Survey study.

Study Setting:- Subject was interviewed in the local vegetable market from sakkardhara

Study Population:- Sakkardara region of Nagpur district. Subject was selected as per the inclusion criteria.

Sample Size:- 30

Inclusion Criteria:- 1. Age group 35-50 year. 2. Subject of both the gender. 3. Selling vegetable from last 2 years.

Exclusion Criteria:- 1. Pregnancy 2. Physically disabled 3. Lactating mother

Conclusion: On the basis of survey study conducted to check the impact of noise pollution on the health status of vegetable vendors the following facts are obtained.

Symptoms	No of vegetable vendor affected (out of 30)	Percentage
Headache	8	26.66
Stress	4	13.33
Auditory Problems	5	16.66
Tachycardia, Chest pain.	7	23.33
Breathing difficulties		
Gas and bloating, Abdominal	6	20
pain		

Suggestion:-The data collected from the survey shows the long term exposure to noise can cause a variety of health effect including headache, stress, auditory problems, tachycardia, chest pain , breathing difficulties, gas bloating and abdominal pain [2].

Ayurveda aimed in prevention and care of physical and mental health. In Ayurveda *Dincharya* is one of the concept which help to fulfill this aim of Ayurveda[3], it suggests the some upakarma to be followed in day to day life that will decreases the the risk of above symptoms. The upakarma are as follows:-

Nasya:- Admistration of drug through nasal route is known as nasya, this karma offer significant relief in disease like bronchitis, dryness of nose , headache, shoulder pain etc[4].

Abhyanga:- A person should do oil massage daily, it enhances overall blood circulation and transport the potency of drugs to desire parts it regress the acupressure point which induces the release of endorphins which shows analgesic effects [5].

Physical Exercise (Asana): - In physical exercise increases the carbohydrates metabolism and causes the cytolysis of accumulated adipose tissue thereby causing abolishment of extra fat the perspiration takes out accumulated toxins from the body [6]

Swastikasana :- This the meditative posture which stretches the hips and thighs. The asana balances the lower body alignment, as the right knee and left knee come on the top alternately. This the great posture to induce calmness and meditativeness. And also reduces muscles strain which inturns reduces strain on heart[7].

Bhadrasana:- It helps in legs flexibility, improved digestion , strengths back bone ,things and hips[7].

Pranayama:- Pranayama is the main component of yoga this breath regulatation technique which promotes both mental and physical wellbeing. Many people use pranyama not only part of yoga but as an independent practice as well.

Enhancing and renewing the connection between mind and body main aim of this technique. Promotes healthy and high quality sleep, helps to lower stress levels, boosts u
daily mind fullness are the benefits of pranayama[8].

Meditation:- It is a simple, fast way to reduce the stress, it inexpensive technique also not
required special equipment[8]. And it give a sense of calm, peace and balance overall health which vegetable venders can do it and balance their stressful life.

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Influence of Pranayama Practices on Vital Capacity and Breath Holding Time Among Women Adolescence

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Abstract

The purpose of the study was to find out the influence of pranayama practices on vital capacity and breath holding time among women adolescence. To achieve the purpose of the study forty women adolescence were selected as subjects at random and they were divided into two equal groups (n=20), group I considered as pranayama group and group II considered as control group. Pranayama group underwent pranayama practices for six weeks in which control group did not practice any exercises. The following variables namely vital capacity and breath holding time were selected as criterion variables. All subjects were evaluated before (pre) and after (post). The collected data were statistically analyzed by using Analysis of Covariance (ANCOVA). Significant results have been observed on vital capacity and breathe holding time.

Key words: Pranayama practices, vital capacity, breathe holding time.

Introduction

Pranayama, the control of the breath leads to the control of the life force or prana. Here prana means the capacity to keep body alive by air i.e breath and Ayama means expansion, stretching or extension and control of breath. Thus pranayama means the art of controlling breath. (**Sharma, 1989**). The purpose of pranayama is to make the respiratory system function at its best. (**Joshi, 1999**). Pranayama is used to functioning of autonomic system improves the working of lungs, heart, diaphragm, abdomen, intestines, kidneys and pancreas. Pranayama strengthens the immune system. By pranayama practice all body organs gets more oxygen, toxins, are removed from body, therefore onset of various diseases is prevented. (**Iyengar, 1981**).

Training procedure

Pranayama practices were given to pranayama group respectively six weeks in the morning. Pranayama techniques are best practiced while sitting on the floor on a folded blanket and must be performed in empty stomach. The best time for practice is the early morning. The following pranayamas are given in the form of pranayama method Nadi sodhana pranayama, Shitali pranayama, Kapalaphati pranayama, Bhastrika pranayama and Bhramari pranayama.

Methodology

To achieve the purpose of the study forty women subjects drawn at random of school students. They are divided into two equal groups of 20 subjects each and named as pranayama group I and control group II. As variables vital capacity and breath holding time were selected. Vital capacity was measured by wet spirometer and breath holding time was measured by closing the noses with nose clip and the score was recorded in seconds with a stop watch. Pre test was conducted for all the forty subjects on selected physiological variables among women adolescence. The pranayama groups participated in their respective training programmes for a period of six weeks. After completion of training period the subjects of two groups were tested on variables used in the study as such in the case of pre test.

Statistical techniques

The data collected from the pranayama and control group were treated statistically. Statistical analysis of the data was performed for each groups using the mean and standard deviations. Paired sample't' test was used to compare the pre and post training values of both the groups. The differences between the two groups for the physiological variables were determined using analysis of covariance (ANCOVA). The $P \leq 0.05$ criteria was used for establishing significance P value of lesser than 0.05 was accepted as indicating significant differences between the compared values. The derived results are discussed as follows table.

Results

Table -1, Significance of mean gains/losses between pre and post test of experimental and control groups on Vital Capacity

Groups	Pre-Test Mean ± Standard Deviation	Post-Test Mean ± Standard Deviation	Mean. Difference	SEM	't'-ratio

Experimental Group	2.44 ± 0.42	2.67 ± 0.40	0.24	0.029	8.029*
Control Group	2.52 ± 0.46	2.50 ±0.44	0.015	0.018	0.825

*significant at 0.05 level of confidence

Table I reveals the descriptive aspects and differential analysis on vital capacity of women adolescence. The mean and standard deviation on vital capacity between the students of women adolescence pertain to experimental group and control group for pre-test 2.44 ± 0.42, 2.52 ± 0.46, and for post test 2.67 ±0.40, 2.50 ± 0.44 respectively.

Table-II, Analysis of covariance of adjusted post-test means of experimental and control groups on Vital Capacity

Test	Source of variance	Sum of square	Degree's of Freedom	Mean square	F-ratio
Pre-test	B / G	0.064	1	0.064	0.33
	W / G	7.37	38	0.194	
Post-test	B / G	0.76	1	0.76	4.23*
	W / G	6.79	38	0.18	
Adjusted post test	B / G	1.22	1	1.22	192.75*
	W / G	0.23	37	0.006	

*significant at 0.05 level of confidence

Table II reveals that the F-ratio on vital capacity are: 0.33(pre-test) and 4.23 (post test). The obtained F-ratio for pre and post test are found to be statistically significant at 0.05 level (4.098). Further when testing the adjusted post test means between the control group (2.50) and experimental group (2.67), on vital capacity, the obtained F-ratio was 192.75 and found to be significant at 0.05 levels (4.105). From the observed F-ratio, it was inferred that the pranayama practices has significant impact on vital capacity.

Table –III, Significance of mean gains/losses between pre and post test of experimental and control groups on Breath Holding

Groups	Pre-Test Mean ± Standard Deviation	Post-Test Mean ± Standard Deviation	Mean. Difference	SEM	't'-ratio
Experimental Group	0.37 ±0.084	0.41 ±0.079	0.042	0.003	15.15*
Control Group	0.39 ±0.086	0.39 ±0.074	0.001	0.005	0.206

* significant at 0.05 level of confidence

Table III reveals the descriptive aspects and differential analysis on breath holding time of women adolescence. The mean and standard deviation on breath holding time between the students of women adolescence pertain to experimental group and control group for pre-test 0.37 ± 0.084, 0.39 ± 0.086, and for post test 0.41 ± 0.079, 0.39 ± 0.074 respectively.

Table-IV, Analysis of covariance of adjusted post-test means of experimental and control groups on Breath Holding

Test	Source of variance	Sum of square	Degree's of Freedom	Mean square	F-ratio
Pre-test	B / G	0.001	1	0.001	0.18
	W / G	0.273	38	0.007	
Post-test	B / G	0.031	1	0.031	4.57
	W / G	0.261	38	0.007	
Adjusted post test	B / G	0.045	1	0.045	123.98
	W / G	0.013	37	0.000	

*significant at 0.05 level of confidence

Table IV reveals that the F-ratio on Breath holding are: 0.18 (pre-test) and 4.57 (post test). The obtained F-ratio for pre and post test are found to be statistically significant at 0.05 level (4.098). Further when testing the adjusted post test means between the control group (0.39) and experimental group (0.41),

on breath holding, the obtained F-ratio was 123.98 and found to be significant at 0.05 levels (4.105). From the observed F-ratio, it was inferred that the pranayama practices has significant impact on breath holding.

Conclusion

From the results, the following conclusion have been made.

It was concluded that the pranayama practices have resulted in significant improvement on selected variables of vital capacity and breath holding as compared to control group.

'Pranayam' is a Yogic technique in which breathing is controlled voluntarily. There are various methods of pranayam, mostly characterised by breath holding at the end of maximal inspiration or maximal expiration and slowing of the breath holding. Previous studies have been conducted on the effects of certain combined practices of yoga**.(Bhole MV. Kannbelkar PV. 1972)**.The present study however was undertaken to ascertain whether pranayama alone has any effect on the lung functions, which depend on compliance of lung and thorax, airway resistance and strength of respiratory muscles.**(Gopal KS. Bhamagar OP. Subramanian N. Nishith SD, 1973)**

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Can limited natural resources meet endless demand? A critical study of world population and natural resources

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Abstract:

The natural resources that once were sufficient to meet the living needs of animals are now failing to meet the luxuries of man. The United States has sought to establish world domination in the interests of establishing itself as a world leader. As a result, they are using the resources allocated by nature for their own enjoyment. Developing and least developed countries suffer the most when there is no balance between natural resources and world population. Therefore, malnutrition, poverty, crime is still prevalent in sub-Saharan countries.

Keywords: *world population, natural resources, biodiversity, inequality, developed nations.*

Introduction: Standing in the 21st century, it is seen that the developed countries have wrapped themselves in the cover of luxury and the developing countries are facing various challenges related to education and health, etc. On the other hand, least developed countries are being deprived of the basic necessities of life. There is a clear disparity between rich nations and underdeveloped nations in terms of natural resources. However, it is possible to provide basic necessities for all citizens irrespective of developed countries, developing countries, because mother nature has enriched the world so much that it is possible to satisfy the hunger of all.

Rationale of the study:

The growing human population is proving to be a threat to our ecosystem. As the human population grows, so does the loss of biodiversity. In addition, greenhouse gas emissions are putting the entire fauna in extreme danger. In general, it can be said that inappropriate agriculture practice does a lot of harm. In addition, there is widespread loss of natural resources due to low environmental awareness among the people. It is worth mentioning here that this study will shed light on the inequality between rich nations and developing nations. In addition, this study will analyze the negative effects of free movement of people on natural resources.

Objective of the study:

1. The main objective of this research is to analyze the disparities that exist in consuming natural resources.
2. One of the objectives of this study is to create awareness among the people about natural resources.
3. The objective of this research is to shed light on the need for sustainable development.

Hypothesis:

HO: Developed countries additionally consume natural resources and plunge developing and least developed countries into the darkness of deprivation.

H1: Due to the dictatorship of the rich nations of the world, most of the world population is deprived of the benefits of natural resources.

Methodology:

In this study, a qualitative approach has been taken to analyze the need for a balance between natural resources and world population. This study uses the work of several researchers who specialize in the environment, natural resources and world population. Various research papers have been used to find out the reasons for unequal distribution of natural resources.

Growing population and dwindling natural resources

Humans are considered to be the most intelligent species, humans have established an advanced civilization through their activities, but in order to meet the growing demand of this advanced civilization, the natural resources have been greatly reduced. As a result, it is imperative to implement sustainable development policies in the interest of ensuring the supply of the needs of future generations. As of October 31, 2011, the world's population was seven billion, according to a report presented by the United Nations. However, it may not be the exact population of the world. It is important to note that this calculation is based on a variety of factors, including the current population size of the geographical area of different countries. In the last century we have seen a massive increase in the world's population. In 1900 the world's population was 1.6 billion, which increased to about 6 billion in 2000. According to various reports provided by the U.S. Census Bureau and the Population Reference Bureau and the united nations the world's population grows by one billion every 12 years or 13 years. Through the work of various researchers, it has become very clear that the explosion of population will create inequality in the distribution of natural resources. Thomas Malthus argued in his famous article that the human population

grows so fast that it does not fit well with our ability to grow food (Malthus, 1798). Jeffrey D. Sachs also showed in his article that 800 million people living in the world fail to get the food they need (Sachas, 2008). On the other hand, enrich tried to warn the world through his famous The Population Bomb Theory that mass starvation by 1970 and 1980 would result in a massive increase in world population. In this case, it is particularly noteworthy that some events negatively affected the world population and natural resources (Enrich & Enrich, 2008). Will Steffen have called the last century the period of 'Great Acceleration' in the International Geosphere Biosphere Program. World War II had a devastating effect on the environment around the world. Also, a lot of people died as a result of this terrible war. So, World War II simultaneously damaged the world population and natural resources (Steffen, 2004). However, population growth has the most detrimental effect on agriculture, because it is not possible to increase food production by balancing with a large population. As a result, there is a shortage of food. The series 'The Future of Food', produced by National Geographic, highlights the issue of where the food of an additional 2 or 3 billion people will come from? where it is not possible to procure food for 7 billion people. It is important to note here that population should never be considered as just a number. In this case, Demographers have found three dimensions to examine the trends of the population, these are fertility, morality, and migration. In general, fertility refers to how many babies a woman can bears in her lifetime. On the other hand, morality refers to how many years they have lived. Migration basically highlights deeply on where they will live and where they will move. Various studies have repeatedly shown that sub-Saharan Africa has high fertility. Since 1970, there has been a decline in global fertility. In order to examine the population trends, the Demographers have simply explained the death rate versus the birth rate. In youthful nations like the Middle East and Africa, young people are more likely than older people to struggle for land, education, and housing, etc. According to Rachel Kyte, vice president of the World Bank, energy play a vital role in our lives, enabling us to manage hospitals properly. Also many functions of society depend on lights. Therefore, it can be said that economic growth is never possible without energy. If there is no economic growth, there will be no dynamism and opportunity in the society.

An unequal partnership between developed and developing countries

The population of the United States has almost doubled in the last sixty years, from 130 million in the past to 260 million todays ((NGS, 1995). Various researchers expect that this population will reach 520 million in the next sixty years. It is worth mentioning here that the total population of China and India is one third of the total population of the world. High consumption rates of human beings has imposed various restrictions on the availability of natural resources. Every U.S. citizen consumes about 23 times more goods and services than a citizen of a developing country (Pimentel, Huang, Cordova & Pimentel, 1997). Therefore, it can be said that it is virtually impossible for the people of a developing country to achieve the benefits of equal standard of living like a US citizen. Since the 1850s, Americans have focused on diverse energy more than human power in their food production (Wen and Pimentel, 1992). US citizens use fossil energy the most in industry, transportation and food production, etc. (Wen and Pimentel, 1984). In the field of agriculture and forestry, fossil fuels are used to meet the food needs of the people. In addition, fossil oil is also used for water pumping. It should be noted here that the developed countries of the world use about 80% of fossils energy every year. On the other hand, the remaining 75% of the world's population can consume only 20% of fossil energy (Pimentel and Pimentel, 1996). According to Stewart M. Patrick, in some developing countries, their natural resources have become a curse for them. In many cases, the vast reserves of oil and natural resources stored in developing countries can lead to violent conflict in those countries. He cites Nigeria, Angola, Burma, and Papua as examples of countries where violent conflict over natural resources has taken place. Various economic studies confirm that civil war is on the rise in countries associated with the export of primary commodities. First, the money raised by renting out the resources motivates the rebels. Second, the vast amount of wealth that can be gleaned from resources allows insurgent groups to conduct their various activities smoothly. Third, these countries are often plagued by widespread corruption, which sows the seeds of rebellion. (Patrick, 2012).

Conclusion:

The developed world should move forward in the interest of conserving natural resources. They can never impose responsibility on developing countries. But in reality the opposite picture can be noticed. It should be noted that former US President Donald Trump significantly reduced spending on green energy. According to the UN Food and Agriculture Organization (FAO), the world's richest nations consume 85 percent of timber production. In addition, they enjoy 72% of steel production. Therefore, it can be said that the inequality in the consumption of natural resources is responsible for poverty and various health problems.

Suggestions: There are some things that can be done to prevent the loss of natural resources. As a result, future generations can have a beautiful world.

Assurance of basic necessities

World leaders must strive to ensure that people in every corner of the globe are provided with the basic necessities of life. If this is not possible, the percentage of migration worldwide will increase. It is important to note that the people of Asia or Africa cannot enjoy the geographical advantage that the countries of Europe and America enjoy.

Implementation of sustainable development goals

The health and education of the people of African countries and other deprived countries of the world need to be enhanced through the implementation of the goals of sustainable development. In terms of population control, states need to ensure the provision of natural resources for future generations by enacting appropriate legislation.

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Biodiversity-Threats and Conservation-A Review

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Abstract:

Biodiversity is the variety of divergent life forms which are present on the earth, including different plants, animals, micro-organisms, the ecosystems they forms. More than half of the habitable surface of the earth has been disturbed by human activities. Therefore, this review highlights threats to biodiversity and conservation measures of biodiversity for future sustainability. Many scientists suggested that this planet's species are on the edge of mass extinction. Human activities affect biodiversity by: (1) Habitat destruction, conversion, (2) Over-exploitation of natural resources, (3) Introduction of invasive or exotic species, (4) Pollution of soil, water and atmosphere,(5) Global environmental change. This review also provides the information about in-situ conservation-protecting species in their natural habitats, ex-situ conservation-protecting species outside their natural habitats. The conservation of biodiversity has become global challenge due to rapid destruction of ecosystems and wild life.

Keywords: *Biodiversity, Threats, Habitat destruction, Conservation, Ecosystem.*

Introduction:

The term biodiversity (Bio means life, Diversity means variation) combination of two Greek words. It is a complex and balanced network of diverse species, which are interconnected each other. We, the human beings are completely dependent on the biodiversity for breathing air, food, fodder, fuel, fiber, shelter and medicine. Because man becomes an important component of biodiversity. United Nations Earth Summit in Rio De Janerio defined biodiversity as the variety and variability among the living organisms at all levels of biological systems i.e. terrestrial, marine and other aquatic ecosystems. The term biodiversity first coined by Walter Rosen in the year 1985. Biodiversity contains three different levels (1) Genetic diversity, (2) Species diversity, (3) Ecosystem diversity. Biological diversity has been greatly reduced by human activities such as destruction of forest ecosystem, polluting the air, soil and water through random using of chemicals such as herbicides, pesticides and insecticides, habitat loss are greatly affect biodiversity.

Threats to Biodiversity: Biodiversity is facing drastic threats from numerous factors that may be human induced and natural. The well known threats to biodiversity are listed below.

1) **Habitat destruction:** Habitat destruction is a wide-ranging category that can constitute most considerable threat to biodiversity as conservation. Over the past 100 Years billions of hectors of forests, grass lands and wood lands converted into commercial forests, crop lands and grazing lands. Tropical dry forests, tropical rain forests, wetlands, mangroves and grass lands are examples of threatened habitats.
2) **Habitat fragmentation:** It is also a serious problem. Roads, canals, fields, power lines divide habitat into small fragments. Habitat fragmentation also cleaves populations in to isolated groups. These isolated groups may not have enough breading adults to be possible even under normal circumstances.
3) **Over Exploitation:** The over utilization of plants, animals or natural resources threatens biodiversity. Billions of people depend on biological resources for food, medicine and other economic & daily needs. Over exploitation include hunting, logging, fishing reduce species numbers to the verge of disappearance.
4) **Pollution:** Pollution is a critical problem which impact ecosystems by causing diseases, other health and environmental problems in organisms and ecosystems. Thermal pollution is also another important threat to biodiversity. An organic pollutant in fresh water ecosystem gives rise to eutrophication, nitrous oxide emissions gives rise to global climate change. A large volume of pollution leads to environmental damage.
5) **Species Invasion:** Another threat to biodiversity is introduction of exotic/Aliens species (non-native) into an ecosystem. These Invasive species poses great threat to native flora, fauna and also causes biodiversity loss. The native species fail to compete with exotic species for recourses. Exotic species may turn into aggressive weedy invaders in anew habitat and change the genetic composition of the population. A few of the well known examples are Eupatorium, Lantana, Parthenium (congress grass) etc.
6) **Climate Change:** Due to the burning of fossil fuels, deforestation causes global warming. Global warming leads to climate change. Due to this climate change snow caps are receding, summer

temperature are increasing many coastal areas are going underwater. Scientists estimate that global warming has the potential to damage 35% of world's existing terrestrial habitat.

7) **Other Threats:** There are incalculable other threats that can effect biodiversity at different levels. They include over population, civilization, industrialization, deforestation, poaching, predator, usage of pesticides, insecticides are impact on biodiversity loss. Human activities are destroying the biodiversity.

Conservation of Biodiversity: The biodiversity conservation has become global concern. Conservation means saving life on earth in all its forms and also keeping natural ecosystems functioning and healthy. This encircles the preservation, maintenance, recovery, sustainable use and upgrade of the components of biological diversity. Where preservation- keep something without changing it, Conservation-sustainable use of resources and protection of exploitation. The biodiversity conservation only possible proper implementation policies or conventions. The most effective procedure for conserving biodiversity is to prevent further destruction of habitats by humans.

Conservation Measures of Biodiversity: There are two types of conservation methods they are (1) In-Situ conservation, (2) Ex-Situ Conservation.

1) **In-Situ Conservation:** This is the conservation of ecosystems in their natural habitats. The "in-situ" refers to protection of a group of typical ecosystem through a network of protected areas. It's indicating 4.69% of total geographical area in India has been marked for in-situ conservation of habitats and ecosystems. The areas which provide protections to biodiversity include: 1) Protected areas, 2) Biosphere reserves, 3) National parks, 4) Sanctuaries, 5) Sacred forests and sacred lakes.
2) **Ex-Situ Conservation:** It is the conservation of specified rare or endangered plants/animals in places outside their natural habitats or ecosystems. Germplasm banks or gene banks are established for ex-situ conservation of biodiversity. The botanical gardens, zoological parks, pollen grains, seeds, genetic resource centers, seedling, tissue culture and DNA banks are examples for Ex-Situ conservation. Among these zoological parks and Botanical gardens are the most common places for biodiversity conservation. Many of the Botanical gardens have tissue culture facilities, seed banks and other ex-situ technologies.

Conclusion and Recommendation: All the people are not familiar with the word "Biodiversity"**.** Only few people are familiar, remaining people are comfortably connected with biological diversity in their day-to-day life. People should understand and protect biodiversity. To protect biodiversity we need to understand what biodiversity is, where it occurs, what strategies to conserve it. The current mass extinction is nonrestrictive human's fault. There is a necessity to educate the future generation about conservation biology, how to conserve biodiversity and increase sustainability of life of the earth.

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The Importance of Environmental Protection and Sustainable Development

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Abstract

A healthy population is fundamental for financial turn of events. The least fortunate individuals in the world will in general experience the ill effects of the wellbeing impacts from openings to natural dangers like air contamination and polluted water. Thusly, illness and incapacity identified with dirtied conditions eases back and obstructs monetary turn of events. Notwithstanding its cost for human torment, sickness worries about a huge monetary concern as medical care uses and lost efficiency. For instance, unfortunate youngsters frequently can't join in or perform well in school, and undesirable grown-ups can't work or really focus on their families.

Introduction

Manageable improvement is a getting sorted out guideline for meeting human advancement objectives while at the same time supporting the capacity of normal frameworks to give the regular assets and environment administrations on which the economy and society depend. The ideal outcome is a condition of society where everyday environments and assets are utilized to keep on addressing human necessities without subverting the uprightness and steadiness of the normal framework. Practical advancement can be characterized as improvement that addresses the issues of the present without compromising the capacity of people in the future to address their own issues. Maintainability objectives, like the current UN-level Sustainable Development Goals, address the worldwide difficulties, including destitution, imbalance, environmental change, natural corruption, harmony, and equity. While the advanced idea of maintainable improvement is gotten for the most part from the 1986 Brundtland Report, it is additionally established in before thoughts regarding economical timberland the executives and twentieth-century natural concerns. As the idea of supportable advancement created, it has moved its concentrate more towards the financial turn of events, social turn of events and natural security for people in the future. The idea of practical improvement has been, and still is, subject to analysis, including the topic of what is to be supported in feasible turn of events. It has been contended that there is nothing of the sort as a reasonable utilization of a non-inexhaustible asset, since any certain pace of double-dealing will ultimately prompt the depletion of earth's limited stock.

How does financial advancement influence natural wellbeing?

Financial advancement has prompted enormous upgrades in individuals' prosperity, however frequently to the detriment of the climate. Industrialization has added to contamination of air and water, changing dietary examples, and moving examples of transportation and land use. Openings to air and water contaminations straightforwardly increment illness. Also, dietary changes and diminished degrees of active work, coming about because of transportation and other work and way of life changes, are adding to worldwide pestilences of weight, diabetes, and related sicknesses. Globalization and the huge geographic scale over which quick industrialization is happening make these ecological medical conditions worldwide medical issues.

Sustainable developments

Practical improvement is regularly characterized as advancement that addresses the issues of present ages without compromising the capacity of people in the future to address their own issues. As proof of the damage to wellbeing and prosperity from boundless ecological corruption and worldwide environmental change develops, networks and governments are setting more prominent accentuation on guaranteeing that monetary improvement is accomplished in a reasonable manner.

How could natural wellbeing be coordinated into supportable turn of events?

Ensuring and establishing solid conditions is a basic part of practical turn of events. Ecological wellbeing can be coordinated into supportable improvement by: Improving ecological quality for the least fortunate populaces with the best weight of natural sicknesses, by lessening openings to air contamination in homes and towns from biomass consuming, and giving clean water and disinfection Identifying endeavors to resolve ecological issues that can likewise give medical advantages. For instance, establishing conditions that support trekking and strolling for transportation decreases ozone harming substance and poisonous air contamination emanations (ecological advantage) and increments actual work (medical advantage).

Recognizing that a few arrangements, practices, and advances intended to advance maintainability and monetary improvement might have accidental unfriendly natural wellbeing impacts, and endeavoring to forestall or relieve these before they are executed.

1. Wellbeing is a significant contribution to economical turn of events. Without wellbeing, there is no economical turn of events; sound individuals are better ready to learn, work and contribute decidedly to their economies and social orders.
2. Economical advancement will deliver more wellbeing. More intelligent advancement in areas like transportation, lodging, energy, and horticulture, can produce more wellbeing co-benefits and less dangers, especially for Noncommunicable Diseases (NCDs). For instance, procedures that advance proactive tasks can prompt a decreased danger of stoutness.
3. In any case, just in case wellbeing is a critical basis for the determination of reasonable advancement strategies and plans. While there is an assumption that wellbeing will profit with reasonable advancement drives, this probably won't occur consequently. "Wellbeing in green economy" openings have not been completely taken advantage of by wellbeing and improvement areas. It is significant that the "green economy" focuses on intercessions that will advance wellbeing among the best conceivable number of individuals. This necessitates that the dangers and advantages of improvement procedures be unequivocal and that the financial area likewise consider them.
4. The wellbeing area can lead this interaction. It can produce proof on what arrangements are useful for wellbeing by estimating manageable improvement drives; it can likewise advance the reception of Health Impact Assessments (HIA)1 and help to lay out objectives, characterize pointers and screen how approaches executed by different areas are adding to wellbeing; besides, the wellbeing area can show others how its done by "greening" its own tasks and exercises.

Wellbeing and the Green Economy Mounting proof shows how the "green economy"5 can profit wellbeing. "Green" metropolitan vehicle, for instance, has been displayed to decrease the weight of Noncommunicable Disease (NCD) (WHO, 2012b). While transportation frameworks that depend on separately claimed engine vehicles can prompt traffic, contamination, wounds and stationary quality, examines have exhibited that public transportation frameworks can bring about less inactive ways of life, expanded active work, diminished natural pollution, diminished mishap rates, diminished paces of respiratory ailments, and expanded value (WHO, 2012b). In Shanghai and Copenhagen, cycling to work has decreased yearly death rates by 30%, in any event, when injury and contamination hazards were thought about (Anderson et al, 2000; Matthews et al, 2007). Moreover, bundles of quick travel and non-mechanized transportation measures have assisted with lessening imbalances and further develop admittance to fundamental administrations for poor people and defenseless, in especially for ladies, kids and the old (Dora and Phillips, 2000). The "green economy" can likewise assume a significant part in further developing value. Right now, three billion individuals cook utilizing biomass/coal fuel, which can bring about destructive wellbeing impacts. It is assessed that this training brings about 1,000,000 ladies biting the dust every year from persistent obstructive aspiratory sickness (COPD) or malignancy, and 1,000,000 kids kicking the bucket of pneumonia (Lopez et al, 2006). Notwithstanding significant wellbeing upgrades, giving the helpless admittance to clean cook ovens could produce advantages, for example,

■ Reduction of time spent get-together fuel;
■ Promotion of improvement and sexual orientation value;
■ Reduction of tension on timberlands

How Could the Health Sector Support Sustainable Development?

Think about the job of the wellbeing area taking into account the impending Rio+20 Conference. The wellbeing area can assist with defining objectives and measure progress and results. It can, for instance, give proof on the wellbeing effect of green economy systems, developments and advancements. Administration for reasonable turn of events, a major question in the Rio+20 conversations, should join markers that will consider such estimation of progress in wellbeing to occur. Guarantee that wellbeing is viewed as a result of any reasonable improvement strategy and advance the reception of wellbeing sway evaluation (HIA) as a component of solid public arrangement improvement.

Rio+20 give an interesting chance to advance the utilization of the "Wellbeing in All Policies" approach in a matter that likewise joins a quantifiable segment. Instances of regions for estimation and the advancement of markers that could be proposed include:

■ Sustainable Cities: % of metropolitan populace presented to air contamination that is over the WHO suggested Air Quality Limits.
■ Greener vehicle: % of metropolitan streets with devoted strolling and cycling offices.

■ Proportion of approaches going through a "wellbeing check" (for example HIA). This is quite compelling for the development of arrangements from areas other than wellbeing, to evaluate the effect of sectoral strategies on populace wellbeing.
■ Food security, sustenance and manageable farming: extent of populace with admittance to quality food sources; paces of coronary illness, diabetes, heftiness, colon malignancy.
■ Health care: % of offices with admittance to clean energy and water supplies.
■ Proportion of "green" positions that are sound positions: % of laborers that are presented to wellbeing dangers, infections and inabilities in "green" positions. Ends The Rio+20 Conference offers an extraordinary chance to feature the commitment and characterize the job of wellbeing in practical turn of events and, specifically, in supporting the "green economy." It is vital to feature the significance of widespread wellbeing inclusion as integral to supportable turn of events. Without wellbeing, admittance to wellbeing administration, or to the essential right to wellbeing, there can't be equity, value, or reasonable turn of events.

Conclusion

Economical advancement is a getting sorted out standard for meeting human improvement objectives while at the same time supporting the capacity of regular frameworks to give the normal assets and environment administrations on which the economy and society depend. The ideal outcome is a condition of society where day to day environments and assets are utilized to keep on addressing human requirements without sabotaging the uprightness and strength of the regular framework. Reasonable improvement can be characterized as advancement that addresses the issues of the present without compromising the capacity of people in the future to address their own issues. Maintainability objectives, like the current UN-level Sustainable Development Goals, address the worldwide difficulties, including neediness, disparity, environmental change, natural corruption, harmony, and equity.

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Effect of Logical Thinking on Performance of College Students in the Abstract Algebra

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Abstract

Logical thinking has been one of the equipment used in our each day existence's to resolve a few issues as it involves logical reasoning, interpreting, analyzing and evaluating statistics to allow one take reliable and valid selections. The motive of the look at is to examine the impact of logical thinking on performance in abstract algebra among college students in India. The study could gain college students and instructors by using promoting creativity in fixing mathematical problem. Multistage sampling had been implemented to generate a sample of 195 college students for the look at. Mathematics performance test had been used for the take a look at. Three hypotheses had been formulated and examined the use of analysis of covariance. The examined also located out that there was no significance gender distinction in mathematics performance test. Critical questioning talents turned into additionally a powerful approach of enhancing college students' knowledge of arithmetic concepts. It therefore encouraged that in coaching mathematics in colleges, critical thinking abilities have to be infuse within the curriculum of teachers training so one can enhance college students' overall performance in abstract algebra.

Keywords: *Logical Thinking, Thinking Skill, Abstract Algebra.*

1. Rationale of the study

The conventional way of teaching of abstract algebra in some Indian colleges are teacher-center method. In addition, those processes won't make the students to be logical in thinking because a number of them might find it tough to apply the knowledge received to resolve mathematical issues. The important thinking ability has been followed as one of the academic goals to make students creative. But, it has no longer been fully incorporated and given extensive recognition as one of the main standards within the school curriculum. Therefore the have a look at aim to investigate the impact of logical thinking on instructional overall performance in abstract algebra. Cognitive area principle states that studying manner includes corporation, restructuring, and company of stimuli factors into a significant entire or sample as a consequence of many interacting impacts within the environment of the learner. Therefore, we need to view getting to know from the perspective of problem solving. Infusion principle said that conventional curriculum cloth need to be restructured to integrate coaching for questioning into situation region so that scholars could be aware about the competencies, apprehend it, preparation and practice it in other context. This theory is applicable to this take a look at because it makes the students recognize and analyze the content material and problem better, interpret which means of concepts, recognize logical shape, come across improper arguments and enhance academic performance in abstract algebra.

2. Objective of the study

Curriculum developer and policy makers in the schooling enterprise might advantage by using supporting them to review the present academic policy and curriculum with the purpose of introducing essential questioning capabilities as a center aspect of higher thinking skills improvement in abstract algebra to enhance students' studying abilities. The information amassed in this take a look at would additionally assist instructors, institutions and researchers in training to have a higher understanding of essential questioning which could allow them evaluate college students' overall performance in abstract algebra greater appropriately.

3. Hypothesis

The subsequent three research hypotheses are formulated and tested:

1. There may be no enormous difference in put post-test rankings in arithmetic performance take a look at amongst college students uncovered to training on important questioning abilities and people within the manage institution.
2. There's no large difference in put post-test vital wondering capabilities rankings of college students exposed to training and people in the manage institution.
3. There may be no significant distinction in post-test ratings of arithmetic performance take a look at of students due to gender and experimental situations.

4. Methodology

4.1 Research design

The studies designs for this look at changed into quasi-experimental pre-test/ post-test manage organization design. It includes two experimental corporations. One organization exposed to training on logical thinking and the other institution not exposed to training.

4.2 Pattern and sampling method

Simple random sampling turned into used to select four colleges from Maharashtra where selected through Hat and Draw techniques. In deciding on the schools all of the colleges had been first stratified into three agencies: co-academic, boys' college and girls' college. From the four colleges, of them had been decided on via hat and draw approach for the education group, while the alternative two faculties had been used for the control organization. The stratified random sampling approach became used to acquire 195 college students which include 113 males and 82 females. The stratification becomes primarily based on college kind and gender.

4.3 Training for Thinking Skills

There have been experimental businesses namely: one training group and one control group. The researcher prepared lesson notes and infused vital questioning abilities on each of the subjects for the training organization and everyday lesson notice for the manage institution. Conferences were held with every institution two times a week for eight weeks. Each session lasted for 80 minutes.

Teachers introduce the subject to the participants using organized lesson notes with instructional materials and infuse vital wondering skills to educate the subjects. These competencies are: these skills consist of: interpretation, clarification, analysis, assessment, inferential and self-regulating skills.

Thinking Skills	**Objectives**	**Teachers Activities**	**Students Activities**
Inter-pretation skills	To develop talents in comprehending and expressing that means of information, policies, strategies, event and information.	Teacher allows college students to identify skills in deciphering questions, records, guidelines, processes, conditions, reviews and beliefs through (i)categorization (ii) decoding statistics and (iii) clarifying that meaning.	Students were capable of interpret information, questions and announcement on categorizing facts , decode information and clarifying meaning.
Analysis skills	To develop talents for specified examination of facts, questions, assertion and concepts. To broaden abilities in become aware of meant and real inferential courting among statements, question and concept.	Teacher assists the students in breaking down materials, statements, questions and concepts into factors or elements such that its organizational structure might genuinely be understood thru (i) examining ideas and (ii) detecting arguments.	Students were capable of reading mind and detecting arguments by using the use of displaying workings and steps in arriving at the answer.
Evaluation skills	To broaden skills in assessing or judging the credibility or cost of statements and strategies for given motive in relation to rules, standards and procedures.	Instructor helps the students to evaluate statistics, statements and questions through (i) assessing claims and (ii) assessing arguments. The trainer assessed the outcomes of the query asked with the aid of seriously searching at the approach, tactics use and whether or not it logically follows the policies guiding arithmetic development.	Students were capable of examine the question by using answering the questions raised by way of the trainer and observed steps with the aid of steps methods of arriving at the answer.
Inferential skills	To expand abilities in drawing reasonable conclusions from records, announcement, judgment, questions and ideas.	The instructor assists the students to take applicable decision the use of proof and conjecturing options. Teacher draw affordable conclusion by means of thinking about that the query changed into solved through systematic approach through that the end result acquired is justified.	The scholars had been capable of draw relevant end with the aid of following the system to reach at the answer.

Explanation skills	To broaden skills that assist college students country the consequences of 1's reasoning , justify the motives in phrases of evidential, conceptual and methods use in arriving at conclusions.	Teacher enables the scholars to interpret and analyze questions, statement and justify the motives and techniques of arriving at a end through (i) stating effects (ii) justifying tactics and (iii) supplying arguments.	The students had been capable of expanciate on the subject taught as well as techniques adopted for each of the subjects.
Self-regulation skills	To increase abilities on the way to make college students video display units one's cognitive sports with a view of and correcting one's self.	Teacher assists students to use competencies in reassessing one's judgment through (i)self-exam and (ii) self –correction.	The scholars had been capable of reassessed their work by means of go checking the tactics and the solutions they got.

Fig 1: Infusion of critical thinking skills

Post-test (Week 8):

The researcher revised the education technique of logical thinking with the members and later administered the contraptions for post-test.

4.5 Training for the Control Group

The contributors have been taught the equal subjects for the identical period because the experimental institution by means of the researcher however did no longer acquire the essential thinking. In addition, everyday weekly class exams were performed and within the eighth week, post assessments had been administered.

5. Data Analysis and Hypothesis Testing

Hypothesis 1:

Table 1: ANCOVA take a look at of difference in post-test performance between training and control group.

Source	Kind III sum of squares	df	Mean of Squares	F	Sig
Corrected mode	11704.50	2	5852.25	72.91	.000
Covariates	482.16	1	482.16	6.00	.015
Experimental Group	11283.73	1	11283.73	140.58	.000
Error	15410.54	192	80.264		
Corrected Total	27115.04	194			

The ANCOVA effects supplied in table 1 indicates that for the experimental circumstance, the F-value received turned into a 114.58 as p-value < 0.0.5, given 1 and 192 degree of freedom on the .05 level of significance. This therefore indicates that education on essential thinking was effective in improving the performance of the students. Consequently hypothesis 1 changed into rejected. This also confirmed that critical thinking schooling had impact at the participants than their manipulate institution opposite numbers.

Hypothesis 2:

There is no substantial difference in post-test a look at rankings of logical thinking capabilities take a look at amongst students exposed to the education and people inside the manage institution.

Table 2: ANCOVA take a look at of difference in post-test logical thinking abilities between training and control group.

Source	Kind III sum of squares	df	Mean of Squares	F	Sig
Corrected mode	1562.98	2	781.49	53.22	.000
Covariates	743.82	1	743.83	50. 65	.000
Experimental Group	683.47	1	683.47	46.54	.000
Blunders	2819.28	192	14.68		
Corrected Total	4382.28	194			

The ANCOVA results presented in table 2 suggests that for the experimental condition, the F-cal cost received become enormous at 46.54 as p-value is < 0.05, given 1 and 192 degree of freedom on the .05 level of significance. The hypothesis was rejected. This hypothesis shows that vital wondering talents training turned into effective in enhancing students' overall performance.

Hypothesis 3:

There is no substantial distinction in post-test overall performance ratings of students because of gender and experimental conditions.

Table 3: 2 x 2 ANCOVA tests of the effects of experimental circumstance and gender on post-test performance of college students.

Source	Kind III sum of squares	df	Mean of Squares	F	Sig
Corrected mode	11951.68	4	2987.92	37.43	.000
Covariates	481.71	1	481.71	6.03	.015
Gender	227.09	1	227.09	2.64	.093
Experimental Group	11031.43	1	11031.43	138.22	.000
Gender/Experimental	8.305	192	8.303	0.104	.747
Corrected Total	237115.04	194			

This shows that a calculated F-value of 2.64 for gender was not significant at 0.05 level of significance with degree of freedom 1 and 190 because P-value > 0.05, furthermore the calculated F-value of 0.104 for interaction impact become now not big at 0.05 stage of full-size with degree of freedom 1 and 190 because p-value > 0.05. However, f-value of 138.22 for experimental condition turned into significant at 0.05 with degree of freedom 1 and 190 on the grounds that p-value is < 0.05. Hypothesis 3 became consequently accepted. It became concluded that the post-test performance rankings of male and female college students inside the schooling and manage agencies does no longer significantly vary. This also confirmed that male students did no longer do better in arithmetic put up-exams tests than their girl opposite numbers.

6. Conclusion

The preceding discussions and summary of finding, the following conclusions may be drawn:

1. There was a tremendous difference in overall performance post-test a look at ratings a few of the experimental organizations.
2. There has been no significance difference because of gender in post-test rankings of arithmetic overall performance take a look at a number of the participants.
3. Important questioning skills became an effective method of improving students' information of mathematics principles because the skills has helped in interpreting, analyzing, comparing, and supplying date in a logical and sequence way.

7. Recommendation

Based at the findings of this study, the subsequent tips are put forward for attention:

1. Training in essential questioning abilities as confirmed through this have a look at are manageable method to beautify college students' success in arithmetic. This consequently, suggests that essential thinking abilities function a feasible way of enhancing low instructional overall performance in mathematics.
2. Because the country wide coverage on education blanketed logical thinking as one of the goals of training. The curriculum developers, implementers and educational evaluators and faculty heads have to put in force instructors to comprise important questioning abilities into subject curriculum and study room reviews. That is considered one of the choices which can produce a citizen as a way to be organized to solve the myriad issues of each day dwelling at man or woman and company ranges. The dream of making sure that Indians are capable of find meaningfully answers to clinical, technological, monetary, social and political problems confronting the state may be realized.
3. Ultimately, logical thinking need to be made compulsory and integrated in all college curriculum, scheme of labor, lesson observe, lesson plan and within the class room when teaching and mastering take region due to the fact the ideas serves as mastering and teaching aids and additionally makes the students apprehend the concept better.

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A study on service quality of the selected public and private sector banks in Tirunelveli District

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ABSTRACT

In today's competitive world service quality has become an important tool in determining the success or failure of the banking industry. The success of the bank mainly depends upon the goodwill they had earned from the customers. Satisfying and understanding customers are the two key factors which leading to the success of the banking sector. The purpose of this paper is to examine the factors influencing the selection of bank and to find out the relationship between the type of bank and customer satisfaction. For the purpose of the study the researcher had collected data from the 200 respondents in tirunelveli district by using simple random sampling method. The study try to assess if there is any relationship exist between the type of bank and customer satisfaction. The findings of the study indicated that there is a significant relationship between the type of bank and the customer satisfaction towards the service quality of the bank.

Keywords : *Customer satisfaction, Service quality, Public Sector banks, Private sector banks, banking industry.*

Introduction :

Service quality and customer satisfaction are two related constructs but researcher have considered them as single construct. The service sector like banking industry customer satisfaction appears to be prerequisite for success. Service quality is a yardstick used by the customer in evaluating the performance of the bank. Due to the privatization, globalization and liberalization of the bank had resulted in high customer demands. It has increased the competition between the public and private banks in order to gain competitive advantage and customer loyalty. Nowadays banking Industry has become more dynamic and competitive due to the entry of private sector banks. The success of the banking industry is determined by the proper understanding of their customers. It is very difficult to predict the behavior and attitude of the customers. As economic environment is rapidly growing, customers are very much demanded, it has become imperative for banks to identify the factors of the customer's selection process. Hence the researcher aims to study the service quality of the selected public and private sector banks in Tirunelveli District.

Statement of the Problem :

Banking sector plays a key role in the development of the Indian economy. A bank can build a longterm relationship and gain competitive advantage by rendering quality services. The bank rendered many financial services to the customers. In early days customers had no option other than public sector banks for their banking transactions. Many private sector banks have entered in to the market because of liberalization and privatization of the Indian banks. Due to this heavy competition banks are in a position to compete with each other they have to create new customers and to keep the existing customers. In this context the researcher has made an attempt to study the service quality of the selected public and private sector banks in Tirunelveli District.

Objectives of the Study :

1. To identify the factors influencing the customers for the selected of bank.
2. To study the satisfaction level of the respondents towards the service quality in public and private sector banks.

Hypothesis of the study :

Ho : There is no significant relationship between the type of bank used by the respondents and customer satisfaction towards the service quality of the bank.

Research Methodology :

Sample design :

The researcher had used both primary and secondary data. The primary data were collected from the 200 respondents residing in tirunelveli district. The secondary data were collected from the journals and websites. The researcher has used questionnaire for collecting data from the respondents who are the account holders of the selected banks. According to the RBI bulletin, the banks were selected on the

performance based on their advances, investments and deposits. Under public sector banks State Bank of India, Indian overseas bank, Indian bank, Punjab National bank, were selected and under private sector banks. Axis bank, ICICI bank, HDFC bank, City Union Bank were selected. Simple random sampling method was used to select the sample respondents. The statistical tools like percentage, Garrett ranking and chisquare test were used to arrive at better results.

Results and discussion :

Table 1, Demographic profile of the respondents

Category	Number of respondents	Percentage
Gender		
Male	120	60%
Female	80	40%
Age Group		
Between 18 – 25	59	29%
Between 25 – 35	80	40%
Between 35 – 45	47	24%
Above 45	14	7%
Education qualification		
Higher secondary	28	14%
Diploma	52	26%
Graduate	86	43%
Post Graduate	34	17%
Income		
Below 25000	68	34%
25000 – 50000	49	25%
50000 – 100000	48	24%
Above 100000	35	17%
Account		
Saving Account	146	73%
Current Account	34	17%
Recurring Deposit	12	6%
Term deposit	8	4%

Table 1 shows that 60% of the respondents belongs to the category of male, 40% of the respondents have the age group between 25 – 35, 43% of the respondents have completed their graduation, 35% of the respondents earned below 25000, 73% of the respondents have saving account respectively.

Table 2, Factors influencing the selection of bank

S No	Factors	Garrett Score	Rank
1.	Nearby location	65.70	II
2.	Higher Interest	56.80	IV
3.	Low service fees	49.50	V
4.	Bank Image	75.00	I
5.	Less procedures	59.60	III

From the table 2 it was found that bank image was ranked first with garrett score of 75. It was followed by nearby location with the garrett score of 65.70. Higher interest, less procedures and low service fees were ranked in the third, fourth and fifth position respectively.

Satisfaction towards the service quality of banks

The quality of customer service rendered by the bank and the customer satisfaction are interrelated. The findings of the study identifies how the quality of service affects the satisfaction level of the customer. For this chisquare test was used and the results were given below the Table 3.

Table 3, Type of bank and Customer Satisfaction

Factor	Calculated Value	Table value	D.F	Result
Type of bank and customer	8.88	7.815	3	Reject

satisfaction				

Chisquare test is used to find out the significant relationship between the type of bank used by the respondents and their satisfaction level towards the service quality of the bank. The results of the chisquare test indicated that the calculate value 8.88 is greater than the tabulated value of 7.815 at 5% level of significance. Hence the null hypothesis is rejected. Therefore it is concluded that there is a significant relationship between the type of bank and customer satisfaction towards the service quality of the bank.

Conclusion :

The success of the banking sector depends upon customer satisfaction. The service quality manager should monitor continuously the level of customer satisfaction if they want them to remain loyal customers of the bank. This study tried to assess the level of customer satisfaction towards the service quality of the bank. The study makes an effort to find out the relationship between the type of bank and customer satisfaction. Finally the results of the study revealed that there is a significant relationship between the type of bank used by the respondents and customer satisfaction towards the service quality of the bank.

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"Impact of Air Pollution on Health: A Comprehensive Review"

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Abstract:

Air pollution is one of the most common factors which affect the health and environment of human beings. Air pollution is caused mainly due to the activities of human such as industrial production, using of excessive automobiles, burning of fossil fuels etc. This study tries summarized the effect of air pollution on health from the various studies in different countries. The results of this study found out that in every study indicates the hazardous effect to health and environment due to air pollution. The study concludes that there is very much necessary to dig more about the causes of air pollution in Manipur, India, to find out the way to reduce it.

Key words*: Air pollution, health, environment, industries, automobiles and fossils.*

1. Introduction:

Air is one of the components which create an environmental health. The word environment indicates all the external factors may be living or non-living in which they surround the human. It includes, water, air, soil, housing, plants, animals, bacteria etc. In modern concept of environment, it includes not only the water, air and soil, but also includes the social and economic conditions such as customs, culture, habits, income, occupation, religions etc. And health is the most important aspect in the trending world and the most common theme in all cultures. According to WHO (1948), health is defined as "*a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity*". But in recent years, this statement has been amplified to include the ability to lead a *"socially and economically productive life."* So, combining this two terms, environmental health simply means the health condition of an environment of a specific area. Environmental Health is the branch of public health concerned with all aspects of the natural and built environment affecting human health. Air pollution is a huge factor which affects the environmental health of an area. In today's developing world many machines, technologies, domestic gadgets, automobiles, planes etc. are produced in the huge amount from countless factories and industries in all over the world since the Industrial Revolution in 18th century. From such factories and industries many toxic elements are emitted to the environments which caused air pollution. Not only from those factories and industries, the products which produces from those factories and industries such as automobile, refrigerators, space craft etc. also emitted toxic substances such as carbon monoxide, sulfur dioxide, chlorofluorocarbon, nitrogen oxides, hydrocarbons, particulate matter etc. which are primary sources of air pollution. Moreover, from domestic combustion of coal, wood or oil is a major source of smoke, dust, sulphur dioxide and nitrogen oxides. **The London disaster** of air pollution in 1952 in which thousands had died was due to the burning of domestic coal burning. Tobacco smoking, burning refuse, incinerators, pesticides spraying, natural sources (e.g. wind borne dust, fungi, molds, bacteria) and nuclear energy programs also produced toxic substances. Air pollution has great impact on degrading the health of individual. According to **WHO,** 7 million people die worldwide due to air pollution every year; one death out of nine in 2012 was caused by air pollution. In **HEI report (2019)** it was considered that Air pollution causes over 1.1 million deaths in 2017 in India, of which 56% was due to outdoor air pollution and 44% due to household air pollution. In 2017, **Lancet study** shows that one in eight deaths in India for a total of 1.24 million deaths was caused by air pollution.

2. Literature review on impact of air pollution on health

Air pollution is a single huge risk facing worldwide which impact on degrading the health of the population. Many researcher and scholar studied on the impact of air pollution on health**. Pandey, Anamika et al (2019)** conducted a study in the topic "Health and economic impact of air pollution in the states of India: the Global Burden of Disease Study 2019" in which they found 1·67 million deaths were due to air pollution in India in 2019; 17·8% of the total deaths in the country. According to **Ajay Singh Nagpure, Bhola Ram Gurjar, J. C. Martel (2014)** about 11 394, 3 912, 1 697 and 16 253 excess number of cases of total mortality, cardiovascular mortality, respiratory mortality and hospital admission of COPD respectively were observed for entire NCT Delhi in the year 2000. However, within a decade, in 2010, these figures became 18 229, 6 374, 2 701 and 26 525. In a study on "Human health risks in megacities

due to air pollution" by **B.R. Gurjar et al (2010)** indicates 3500 death per year in Delhi with cardiovascular mortality which was caused by air pollution. **Sutapa Agrawal (2012)** mentioned that higher risk of asthma to those women using biomass and solid fuels (primary causes of air pollution) are more than those living in households using cleaner fuels. From a study by **B R Gurjar & Manju Mohan (2003)** found out that there is correlation between the estimated risk results and the reported number of lung cancer cases and chronic liver diseases have been observed in different regions due to toxic contamination in the ambient environment. **Khilnani GC, Tiwari P (2018)** found that acute respiratory tract infections, asthma, chronic obstructive pulmonary disease, exacerbations of preexisting obstructive airway disease and lung cancer are proven adverse respiratory effects of air pollution. In the **Report of the Steering Committee on Air Pollution and Health Related Issues, August, 2015**, mention that the premature mortality of India in 1990 was 438,000 and in 2010 was 695,000 which was increase to a large number.

3. Objective of study:

The objective of this study is to analyze the impact of air pollution on health through different studies performed earlier.

4. Method:

In this study some of those recent studies were selected and analyzed thoroughly on their finding of their study about the effects of pollution to the human beings and environment which are conducted in different countries.

5. Conclusion:

After analyzing the selected studies about the air pollution and their impacts on health, it is found that in every study, air pollution has greatly affected the health causing many diseases such as cancer, cardiovascular dysfunction, respiratory related diseases, central nervous system etc. and even led to death of the people. Thus the study concludes that air pollution is hazardous to health and need to take up various mitigation measures as soon as possible. It is now or never.

6. Suggestion:

Among the most air polluted top ten cities of India in Air Quality Index (AIQ) of India, luckily Manipur state, in the North-East India was not included, but sadly it is also not included in the least air polluted top ten cities. This implies that our air quality is not satisfactorily clean and people get affected from air pollution. The total area of Manipur is only 22,327 Sq. Kilometer out of which the valley area is only about 2 327 Sq. Kilometer. Maximum populations of the Manipur state are inhabited and residing in this small valley area. As the population of Manipur is increasing day by day and increases deforestation, instead of tree plantation, there are high chances that Manipur become one of the most air polluted state among India. Thus it is very essential to initiate the steps and promote to reduce the use of the sources of air pollution. .

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Assessment of Health Related Physical Fitness among Different Professionals in Pune District

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Abstract

During past twenty years there has been a dramatic increase in public, private and professional interest in preventing disability and death through changes in lifestyle and participation in screening programs. Much of this interest in disease prevention and early detection has been stimulated by the epidemiologic transition from infections to chronic diseases as leading causes of death the aging of population, rapidly escalating health care cost and data linking individual behaviors to increased risk of morbidity and mortality (Grorge, 2009, p. 49)[i] During the last three decades the benefits of physical activity have been substantiated by scientific evidence linking increased physical activity and positive lifestyle habits to better health and improve quality of life.

Method - The study conducted on Panchayat Samiti office, Nagarpalica Office and Tahasil office staff of different talukas in Pune district. The Health Related Physical fitness was calculated using Dr.Beras Health Related Physical fitness Test.

Result- The mean difference value suggests that Panchayat Samiti professionals' Health Related Physical Fitness is better than other two professionals and Nagarpalica Professionalsl Health Related Physical Fitness is better than Tahasil Professionals.

Conclusion- Job specific health requirements are associated with the appraisal of work ability. This reflects on professional's poor dietary habits and inadequate physical activities, emotional stability, overall adjustment, autonomy, security-insecurity, self-concept, intelligence. Exercise can contribute to improvements in symptoms, including mood, alertness, concentration, sleep patterns and psychotic symptoms.

Key words - Health Related Physical Fitness, Assessing Professionals Fitness, HRPF Fitness

1.1 Health related physical fitness

Health related physical fitness is based on the assumption that an adequate level of body development is required for health. Physical activity has a positive influence on all the health related components' and body fitness. Lack of regular physical activities causes many disorders which are collectively known as hypo kinetic diseases. (H, Kraus; W,Raab , 1961)[ii]

The United states President council on physical fitness is the ability to carry out daily tasks with vigour and alertness, without undue fatigue, with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies. (Kansal, 1996, p. 112)[iii].Health related physical fitness have group of five components' namely muscular strength, muscular endurance, cardiovascular endurance, body composition and flexibility. (Silva, 2009, p. 229)[iv]

With reference to the literature on the subject, certain research related to the health related physical fitness of professionals has not yet received sufficient research attention. Physical fitness is affected by an increase in age during adolescence and where there is a relationship between mental health and life style. Adolescence is a critical period when unhealthy behaviors and hobbits can be easily acquired and continue to persist into adulthood and profession. The practice of physical exercise improves health related physical fitness, which is composed of contents such as morphological, neuromuscular and cardio respiratory fitness, which are great relevance to the professionals overtime, individual tension, fatigue increased their level of body mass index and decreased flexibility, muscle mass and aerobic power which has negative impact on their ability to work. (Swin, 2011)[v]

Lack of exercise: - A great deal of evidence suggests that there is link between exercise and health.

This study aims to estimate the Health Related Physical Fitness, for comparing Health Related Physical Fitness is use for guideline and this study also may helpful to assess the working capacity of different professionals in Pune district.

1.2 Aims and Objectives of the study.

- To assess the Health Related Physical Fitness among different Professionals.
- To compare the Health Related Physical Fitness among different Professionals.
- To Encourage the Professionals about form of lifestyle modification such as good eating habits, physical exercises aimed at reduce the overweight.

Method

This is Survey Vender Descriptive Research.

No of subject recruited in the Study.
Total 318 Professionals Participated in Study.
Study Site
Panchayat Samiti office, Nagarpalica Office and Tahasil office staff of different talukas in Pune district.
Sample size
All the Present Professionals who were Present at office during the study were included.
Inclusion Criteria
All the present male Professionals at workplace in Pune district.
Data Collection Tools.
Dr.Beras Health Related Physical Fitness Test.
Procedure of data collection The final data collection would take place at the various offices after talking permission of concern authorities. The Collected data will be further analyzed using statistical tools.
1.3 Statistical Analysis Descriptive statistics was used for obtaining mean and standard deviation. The descriptive statistics of collected score was done. The mean and median were calculated. Suitable factorial ANOVA along with Scheff's Post Hoc test will be employed to the record the comparison among the various professionals and Lifestyle.
Data Analysis
Table 1.1, Descriptive Analysis of Health Related physical fitness Test

HRFT	Nagarpalica	Panchayat Samiti	Tahasil
N	115	98	105
Mean	55.46	58.27	53.76
Median	58.00	60.50	56.00
Mode	58.00	66.00	53.00[a]
Std. Deviation	10.87	8.96	11.00
Minimum	27.00	36.00	27.00
Maximum	72.00	71.00	70.00
Sum	6378.00	5711.00	5645.00

Table No-1.1 Precise the descriptive analysis of health related physical fitness test; the number of professionals for health related physical fitness test of Nagarpalica, Panchayat Samiti and Tahasil were respectively 115, 98,105.

HRPF tests mean, mode, and standard deviation of Nagarpalica Professionals were respectively 55.46, 58.00, and 10.877.

HRPF tests mean, mode, and standard deviation of Panchayat Samiti Professionals were respectively 58.27, 66.00, and 8.963.

HRPF tests mean, mode, and standard deviation of Tsahalis professionals are respectively 53.76, 53.00, and 11.004.

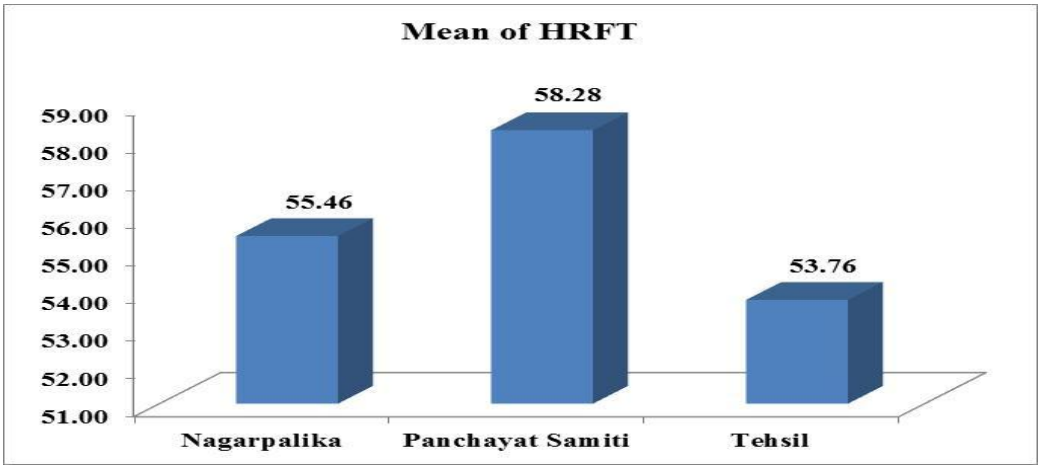

FIGURE -1.1 Mean of Health Related Fitness Test

Table 1.2, ANOVA for comparison of health related physical fitness between Nagarpalica, Panchayat Samiti and Tahasil Professionals

HRFT	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1049.597	2	524.799	4.880	.008
Within Groups	33877.183	315	107.547		
Total	34926.780	317			

Table No-1.2 Precise Health Related Fitness tests statistical results3×3 ANOVA technique analysis HRPF tests F score is 4.880 and P value is 0.008 which is significant at 0.05 levels, Hence it is concluded that significant difference occurs between three groups.

Table 1.3, Sheffe's Post hoc test of comparison for health related physical fitness between Nagarpalica, Panchayat Samiti and Tahasil Professionals

HRFT		Mean Difference (I-J)	Std. Error	Sig.
Panchayat Samiti	Nagarpalica	2.81464	1.42569	.144
Panchayat Samiti	Tahasil	4.51361*	1.45659	.009
Tahasil	Nagarpalica	1.69896	1.39980	.480

Table No 1.3- Precise the HRPF tests multiple comparison of Panchayat Samiti and Nagarpalica professionals mean difference is 2.814. The mean difference is not significant at the 0.05 level (P=0.144). Panchayat Samiti and Tsahalis mean difference is 4.513 the mean difference is significant at the 0.05 level (P=0.009). Tahasil and Nagarpalica a professionals HRPF tests mean difference is 1.698. The mean difference is not significant at 0.005 levels. (P=0.480)

The mean difference value suggest that Panchayat Samiti professionals Health Related physical fitness is better than other professionals and Nagarpalica professionals Health Related physical fitness is better than Tahasil Professionals

Discussion

Exercise is considered a type of physical activity that requires planned, structured and repetitive bodily movement to improve or maintain one or more components of physical fitness. The sedentary lifestyle does not provide the human body with sufficient physical activity to enhance or maintain adequate health. Actually our way of life is such a serious threat to our health that it increases the deterioration rate of human body and leads to premature illness and mortality. The variables selected for Health physical fitness were muscular strength, muscular endurance, body composition, agility, reaction time and flexibility. We can say that the above mentioned factors are very important factor for the success of any Profession. For this research descriptive survey method was used. (E.F.Lindguist, 1970)[vi] A survey research design was used in this study to collect the Health related physical fitness data of different Professionals from the Pune District of Maharashtra State. A pilot study was conducted for the selected tests of 12 male professionals in Nagarpalica, 12 of Tahasil and 12 Panchayat Samiti of Dund Taluka. For this study convenience sampling method was used to select the sample from the available population. (V.Young, 2010)[vii] The Professionals who were permanatally working in Nagarpalica, Tahasil office and Panchayat Samiti in different Taluka in Pune district.13 Talukas in Pune district

Results

Comparison between Panchayat Samiti, Nagarpalica, and Tahasil professionals, Panchayat Samiti professionals (2.814) Health related physical fitness is better than other professionals and Nagarpalica Professionals' Health related physical fitness is better than Tahasil professionals.

Conclusion

Job specific health requirements are associated with the appraisal of work ability. However physical and mental work ability associated with appraisal of over all work ability. Exercise can contribute to improvements in symptoms, including mood, alertness, concentration, sleep patterns and psychotic symptoms. Exercise can also contribute to improved quality of life through social interaction, meaningful use of time, purposeful activity and empowerment; findings of this study support the findings of previous foreign researches.

Application

This prescribed research is helpful for identified health status, stress level of different Professionals in Pune district. It is also helpful for to manage health issue and stress.

- It is also a guideline for an identified health status, stress level of different professionals in other district in Maharashtra.

- It is also helpful for different agencies who conduct health survey in our country.
- It is also useful for different NGOs those work on Indian Professionals health, and health issues.

Recommendations

This study has Identify the Physical fitness, Lifestyle and Mental health status of Panchayat Samiti, Nagarpalica, and Tahasil professionals and compared them along with. The findings of this study support the findings of previous foreign researches.

The research recommended similar study to be done in female category.

A similar study should be done in state and also entire country.

A similar study should be done in police department also.

A similar study should be done in both male and female category.

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Women's health through women's empowerment and Sustainable Development: An assessment

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Abstract

Women play a catalytic role to reach at the aim of Sustainable development, especially in developing countries. But gender discrimination is the main barrier in their life that bounded them for the limited access to the various field of society especially health, education, etc. Women's health is pivotal for sustainable Development, Whenever women remain physically and mentally healthy they can give birth to a healthy child. In developing countries, women are treated as second-class citizens of the society, and for that man can subjugate them under their authority because they have a low literacy rate, less decision-making power, less ingress in the workplace. This situation increases the dependency of women on men. The 2030 Agenda of UN for Sustainable Development and SDG 5 provides an unprecedented opportunity to transform the lives of girls and women towards Sustainable Development.

Key Words - *Women Empowerment, gender inequality, Women health, Sustainable Development.*

Introduction

Sustainable development is a burning issue at present of the 21st century world. It has three pillars that are Economical, Environmental, and social, and to attain success from this pillar eliminating the violence against women and women empowerment is necessary. Women are the backbone of Society because they play a crucial role from the family to society. According to the World population report in 2017, published by the UN, 49.6% are female of the total population but unfortunately, they faced discriminative attitudes of the society and could not give their best to progress the society. According to Rio Declaration "women have a vital role to play in environmental management and development and their full participation is essential to achieving Sustainable development"(UN,1992). So, Women are related to Sustainable development because they are the carriers of the social values, norms, and cultures from generation to generation. Developing countries like India, Bangladesh, Nepal, and others have various barriers to reach the aim of Sustainable Development as in these society women are the victim of violence, abuse, and unequal treatment at home, at work, and in their wider communities and sometimes they are compelled to face unhealthy lifestyle. Women's physical and mental health is important for the future generation to attain the goal of the SDG. So, it can say that women's health and women's empowerment is interconnected with each other.

Objective of the Study

1. To identify the major problems and challenges of the developing countries to attain women empowerment.
2. To raise the issue that women empowerment and Women's health are extremely related to ensuring Sustainable development.
3. To investigate some health issues that create an obstacle to sustainable development in developing countries.
4. To find out the major obstruction that suppresses the women's voice in the family, society, and workplace.
5. To recommend some useful suggestions to overthrow this problem by which Sustainable development effectively implement.

Methodology

This paper is written based on the secondary sources which were collected from the different sources of articles, books, research papers, various regionals organizations brief reports, government reports, magazines, etc. In this study, descriptive and explorative type methodology is used.

Women's empowerment and its link to Sustainable Development

Sustainable Development and Women empowerment are interconnected with each other because Sustainable Development relies on an equal distribution of resources for today and the future. It cannot get without gender equality and women empowerment and that is the key factor to achieve economic, social, and environmental sustainability. Indeed, Sustainable development is the policy that is formed by the government to save the environmental resources which meet the requirements of the present without compromising future generation's needs. Most of the developing countries women are closely related to the nature and environment and they play an active role in agriculture, water and forest fuel collectors, and animal maintenance. Besides, women are the main fosterer of the future generations on which the future development of a country is dependent. But every sphere of the society they faced obstacle and humiliation

for the gender discrimination. For that reason, the developing countries do not reach completely the goal of Sustainable Development. On another side, Women's empowerment is a pre-condition of women upliftment in which women can participate entirely in social, political, and economic spheres of life and control over their own lives. Women empowerment is possible in reality through education. Education helps them to be a self-reliant person Who can take their own decisions about politics, health, family, marital and other issues. But the reality is very stark, according to the UN Women's communications and advocacy section in New York almost 143 countries' constitutions guaranteed equality between men and women in 2014, another 52 had not taken this step. In many countries, gender discrimination is still inlaid through legal and social norms. The United Nations General Assembly on 25 September 2015 adopted 17 goals as the 2030 agenda for Sustainable Development as the successor to the Millennium Development Goals (MDGs). This goal ensures that sustainable development is a basic human right and all persons without any gender disparity can obtain these goals.

Women's empowerment that promotes women's healthy lives and Wellbeing

Women are the agents of social change for the development and well-being of Society. Women empowerment is a key that promotes the women for a healthy and hygienic life. But in developing countries, most of the women are neglected by their own families. They suffer sexual, mental torture, and gender discrimination only for they are female. A healthy life does not mean only a disease-free life rather than good health that promotes one's future potential. In developing countries, women are treated like a burden to the family and they have no right to talk about their bodies and health. In most of the developing countries, Women have been involved with the cheap source of labor, low skilled jobs that are designed to limit Women's economic mobility for this reason they remain unconscious about their physical and mental health. For example, early marriage and pregnancy are a direct threat to developing countries women and children. According to the WHO report, around six million girls aged 15-19 years give birth in the South-East Asia region every year. The maternal mortality rate remains highest in Sub-Saharan Africa and Southern Asia. The two major causes of maternal mortality in developing countries are hypertension and hemorrhage at the time of the pregnancy(UN,2010). In some rural and remote areas of developing countries, women have given birth to the child at the home without any skilled doctor. Besides this problem Women are faced other health problems are :

1. **Depression**: Most of the Women's common problem is depression because they are the victim of Family, Social, And workplace discriminative attitudes and they always faced a life of turmoil. Sometimes for this reason they attempt suicide. Only Women empowerment can release them in this situation because it makes them self-determined.
2. **Gender Inequality in reproductive health:** This is the main barrier to get Women's empowerment and Women suffered for this reason in every sphere of society and if they belong to poor and marginal sections of the society it created more hindrance in their life. Besides, women cannot get any right to decide their reproduction time and in this sphere man also dominate on her decision and as a result unwanted pregnancy, unsafe abortion hampered their reproductive health.
3. **Women's household activity**: This affects Women's health especially in rural areas where women cook the food by the timber, crop residues, and cow dung cakes as fuels, and its smokes not only affected women's health at also affected the environment. According to the International Energy Agency,2002 and UN 2006,70% of households in developing countries are use fuel from natural sources.
4. **Malnutrition:** Women are playing a pivotal role in addressing malnutrition for poor economical conditions. If pregnant women suffer from this problem then their children are also affected by the mother. So, to save the future generation women's health and women empowerment is a primary tool. In developing countries, sometimes women experienced negligence, rudeness, or discrimination during the child's birth and if the newborn child is a girl then the mother faces some better experience from her family and society. According to the Asian Development Bank report, 27.2% of women of the 15-49 aged in East Asia are the victim of the anemia disease in 2000 that increased 29.6% in 2016 and from 20.8% to 26.4% in North-East Asia.

Besides, Women for the biological factor confronted some sexually transmitted infections like HIV/AIDS, and other disease like asthma, cancers, heart disease.

NGOs and Civil Societies participation to ensure Sustainable Development through women's Empowerment

At present NGOs and Civil Society play a unique role in the Society to protect and promote women's health and Sustainable development especially for marginal women and girls. It is a voluntary organization

that mediates between the State, market, and other societal actors. Civil Society is like a 'Watchdog' of the Society. In the national and international sphere, NGOs takes various affirmative action for promoting women empowerment through the various conference, camps in the grassroots level and awareness building program by which they can enhance their capacity. Sometimes NGOs work collaborating with the government or as a private sector to develop Sustainability through Women's awareness about their health and hygiene, family planning. NGOs and CSO spread positive thinking in the women about their hidden potentiality. NGOs can make a connection beteeen the grassroot level women's prolem and national or international level policies. NGOs ensure women's participation in their empowerment and Sustainable development. Although, NGOs and Civil Society organizations taken various initiative for the upliftment of women but they do not expand their freedom and rights in society and family.

Recommendations

- The government of the developing countries should accept many initiatives and schemes with the non-governmental organizations (NGO) and Civil Society organizations to eliminate all harmful practices such as child marriage, sexual violence, Women's trafficking, and other types of social exploitation in the public and private sphere.
- Finance is a crucial source for the empowerment of women and the protection of women's health. So, the government should launch various training and program for women's economic empowerment and invest in women's health as a part of Sustainable development.
- Government should be made aware of the women about family planning, reproductive health, sanitation, and HIV and Sexually-transmitted disease by the health workers in the rural level.
- Women's involvement in the political field enhances the scope of women's empowerment in a democratic country because they can participate in the decision-making process that secures their rights.

Indeed, this effort should be made to ensure that women and men contribute equally to attain sustainable development.

Conclusion

women's health is an indicator of sustainable development because they are the protector of the environment and future generations. WHO, UN women and others international organization takes various misson and affirmative action for promoting Women's health end empowerment. sssBut in the COVID-19 pandemic situation came a threat to women's empowerment that is related to the health, education, and economic condition. This situation raised child marriage, unwanted pregnancy, divorce, gender-based violence in the family that deteriorate women's health condition.So,at last it can be said that to fulfill all the 17 goals of the SDG – 2030 UN agenda it shoud be needed to achive SDG goal-5 through gender equality and Empower all women and girls.

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Effect of Resistance Training On Selected Physical and Physiological Variables Among College Men Handball Players

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Abstract

The purpose of the study was to find out the Effect of Resistance training on selected physical and physiological variables such as cardio respiratory endurance, systolic blood pressure and diastolic blood pressure of college men handball Players studying various Arts & Science Colleges affiliated to Madurai Kamaraj University, Madurai District, were randomly selected as subjects. Thirty men students were selected as subject. The subject's age were ranged from 18 to 25 years. The selected subjects were divided into two equal groups of thirty subjects each at randomly, which were one experimental groups and a control group.Experimental Group underwent the resistance training programme.The training period of an experimental group was six weeks. control group did not undergo any training programme rather than their routine work. The data were collected on physical fitness variables namely cardio respiratory endurance, physiological variables namely systolic blood pressure and diastolic blood pressure for all the two groups before the experimental period (Pre-test), after six weeks of training period (Post -test) respectively. In order to test the effect of training, the collected data from all the two groups before, during and after experimentation on physical, physiological variables were statistically analyzed by using one-way factorial analysis of variance with last factor repeated measures. When the obtained't' ratio value in the simple effect is found significant, to determine which of the paired mean had significant differences. In all the cases the level of confidence is fixed at 0.05 to test the significance. The result of the study also revealed that there significantly improved in the cardio respiratory endurance , systolic blood pressure and diastolic blood pressure were significantly encourage due to resistance training among college men handball players after effect of resistance training on selected physical and physiological variables among college men handball players.

Key Words: *Resistance training, Cardio respiratory Endurance, Systolic Blood Pressure, Diastolic Blood* Pressure and Handball.

Introduction

Resistance training, also known as weight training or strength training, is for everyone. It is an important tool for achieving a complete healthy life. Resistance training is not only for athletes, but also for those who want to build or tone muscle, or those who are using resistance training to achieve a better looking body. One may also hear the terms weight training (or weight lifting) and strength training used to describe working the muscles with resistance. Resistance training is the term used to describe using weights, machines, and even one's own bodyweight to effectively work one's muscles. It is an umbrella term used to accurately describe all forms of resistance training, whether working with weights or not. Although strength training accurately describes what resistance training does, many people do not use the term because they think it only applies to those trying to become bigger and stronger when, in fact, all resistance training which is correctly done indeed increases strength, but does not necessary visibly increase size. Resistance training does improve the look and tone of the body but it is now known to be more than just a specialized exercise activity.

Methodology

The purpose of the study was to find out the effect of resistance training on selected physical and physiological variables such as cardio respiratory endurance, systolic blood pressure and diastolic blood pressure of college men handball players studying various Arts & Science colleges affiliated to Madurai Kamaraj University, Madurai District, were randomly selected as subjects. Thirty men students were selected as subject. The subject's age were ranged from 18 to 25 years. The selected subjects were divided into two equal groups of thirty subjects each at randomly, which were one experimental groups and a control group. experimental group underwent the resistance training programme. The training period of an

experimental group was six weeks. Control group did not undergo any training programme rather than their routine work. The data were collected on physical fitness variables namely Cardio respiratory Endurance, physiological variables namely systolic blood pressure and diastolic blood pressure for all the two groups before the experimental period (Pre-test), after six weeks of training period (Post -test) respectively. In order to test the effect of training, the collected data from all the two groups before, during and after experimentation on physical, physiological variables were statistically analyzed by using one-way factorial analysis of variance with last factor repeated measures. When the obtained't' ratio value in the simple effect is found significant, to determine which of the paired mean had significant differences. In all the cases the level of confidence is fixed at 0.05 to test the significance.

Table 1 - Analysis of 't'-ratio on pre and post-test for Control and Experimental Group on Cardio Respiratory Endurance

Variables	Group Name	Mean		Sd		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Cardio respiratory Endurance	Control	2206	2106	171.46	171.46	63.33		1.58
	Experimental	2200	2410	429.29	331.77	82.26	14	**2.55***

Significance at 0.05 level of confidence

The table 1 shows that the mean values of pre-test and post-test of control group on cardio respiratory endurance were 2206 and 2106 respectively. The obtained't' ratio was 1.58 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on cardio respiratory endurance were 2200 and 2410 respectively. The obtained 't' ratio was 2.55 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in cardio respiratory endurance. It may be concluded from the result of the study that experimental group improved in cardio respiratory endurance due to six weeks of resistance training.

Table 2 - Analysis of 't'-Ratio on Pre and Post-test for Control and Experimental Group on Systolic Blood Pressure

Variables	Group Name	Mean		SD		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Blood pressure	Control	124.4	124.93	8.5	6.58	1.34		0.39
	Experimental	125.07	120.67	9.72	4.28	1.68	14	**2.06***

Significance at0.05 level of confidence

The table 2 shows that the mean values of pre-test and post-test of control group on systolic blood pressure were 124.4 and 124.93 respectively. The obtained 't' ratio was 0.39 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on systolic blood pressure were 125.07and 120.67respectively. The obtained 't' ratio was 2.06 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in systolic blood pressure. It may be concluded from the result of the study that experimental group encourage in systolic blood pressure due to six weeks of Resistance training.

Table 3 - Analysis of 't'-Ratio on Pre and Post-test for Control and Experimental Group on Diastolic Blood Pressure

Variables	Group Name	Mean		SD		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Blood pressure	Control	86.66	87.2	5.31	3.93	0.91		0.58
	Experimental	86.8	84.06	5.44	3.43	0.78	14	**3.48***

Significance at0.05 level of confidence

The table 3 shows that the mean values of pre-test and post-test of control group on diastolic blood pressure were 86.66 and 87.2 respectively. The obtained't' ratio was 0.58 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on diastolic blood pressure were 86.8 and 84.06 respectively. The obtained 't' ratio was since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in diastolic blood pressure. It may be concluded from the result of the study that experimental group improved in diastolic blood pressure due to six weeks of resistance training.

Conclusions

On the Basis of the limitations and the statistical analysis of the data, the following conclusions were drawn from the result.

1. Estimated and calculated results shows that there is a systematic and significant improvement in cardio respiratory endurance and it further communicated that there is improvement in systolic blood pressure and slide in the diastolic blood pressure of the subjects because of resistance training among college men handball players.
2. The result of the reveals that resistance training would positively improve in the physical and physiological variables significantly among college men handball players.

Recommendations

The following recommendations have been made based on the result of the study.

1. Since the investigator has selected only forty subject's similar study may be undertaken by taking more subjects.
2. Further similar research may be undertaken considering female students.
3. Similar studies may also be conducted for other games.

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Imbalanced Environment and Agriculture Issues

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Abstract:

In India, Agriculture is an important field and it is very paramount in the development of the country. Agriculture is the mother of industries as well as it is the foremost basis of industrialization. Our country cannot obtain economic development until agricultural development leads towards advancement. But today we see imbalanced in environment. Imbalanced environment is a major issue in agriculture. It is because of untimely rainfall and hailstorm. Therefore, agriculture has a lot of problems, nay, a peasant has also faced number of hardships while doing agriculture. The farmers do not get profit as they make expenditure in the farm. Consequently, their families come into trouble. Sometimes a farmer commits suicide due to loss in the agriculture.

Keywords: *Imbalanced Environment, Agriculture production, Biotechnology, Agriculture Evolution, Livelihood, Grain production, Agriculture Research.*

Introduction:

It is called that India is a nation of agriculture, because maximum population live on agriculture. In India, around 80% people depend on agriculture or co-agricultural works. But it is observed that environment is imbalanced due to cutting the trees. Agriculture and environment are co-related, even they are the two sides of the same coin. If environment is balanced, it is beneficial for agriculture. Agricultural fertility and production level increase because of balanced environment. Due to imbalanced environment, agriculture comes to degradation, similarly, agriculture related industries are gone to down. Therefore, the population depend on agricultural face into economic issues. As a result people have produced prejudice against agriculture. The farmers are not interested in the farm so, it is a very negative sign that agriculture is going to degradation.

Objectives:

The following objectives are taken while writing a research paper on **"Imbalanced Environment and Agriculture Issues "**.

1) To understand the meaning of environment
2) To study the meaning of agriculture and its types
3) To analyze the co-relation between environment and agriculture
4) To discuss the imbalanced environment
5) To underline the issues related to agriculture
6) To suggest the remedies on agriculture issues

Research Methodology:

Descriptive research methodology is used for the research paper.

Data Collection:

For the present research paper, data collection is drawn from the written literature, newspaper and internet.

Meaning of Environment:

A definition of environment is a scientific, comprehensive and complex. Generally, environment means the co-relation, whatever we see around us like animate, inanimate, air and water, soil, plants and human being. The factors which existed in Atmosphere, Hydrosphere and Lithosphere that continuously support to the development of the animate, these all represent in environment. Environment is an atmosphere which is made of human beings and animate factors on earth. Environment is a concept which contains cause and effect of cultural, economic, political and rational work of human being. 'Environment', a word came from 'Environ' in French language. According to **C. Park**, environment is a general situation which includes human beings at specific time and specific place. In the word of **Jackie Smith**, environment is an atmosphere of natural, chemical and organic which experienced by the animate.

Meaning of Agriculture:

To grow the plants and bring up the animals under the watch of human being is called agriculture. Agriculture is the most and fundamental business of human being which contains sowing the seeds and animal husbandry. Agriculture gives various kinds of resources like food, cloth, shelter and so on. Hence agriculture depends on environment. It is also seen that, mankind has developed agriculture by using his skills. From the ancient times, the scope of agriculture has been changing over the time. In the primitive time human used to cut the forest and did agriculture. If the fertility of soil decreased, man was searching other land for agriculture, In modern time, with the help of latest technology man is taking production even in the deserted area by doing irrigation.

Natural environment, population and human needs are different country to country, hence, agriculture also has a different shade. It is observed that the agriculture production is being taken on business policy, on the other hand people do agriculture for their own livelihood. Agriculture needs a very suitable natural environment for production. Different kinds of agriculture are found in different countries.

Types of Agriculture:

Various types of agriculture are found as per quality of agriculture.

1) Agriculture for livelihood
2) Farm farming Agriculture
3) Food production Agriculture
4) Merchant policy mixed Agriculture
5) Merchant milk production Agriculture
6) Merchant vegetables production field
7) Food Production Agriculture

Environment and Agriculture - Co-relation :

The environment and agriculture are co-related . If environment is healthy, agriculture can be healthy. Agriculture development depends on balanced environment. Ground incense, water harvesting and production are associated with environment. Land fertility increases because of balanced environment. Hence, there need not be a feeling of shortage of water. Production efficiency can be grown. Polluted environment affects on agriculture, as it affects the human health. At the present time, water, soil and trees are found polluted. Therefore agriculture falls into danger. Balanced and relation between environment and agriculture are ruined. If it continues, agriculture can be gone towards degradation. Hence, to conserve and preserve the environment is a major and moral responsibility of every human being.

Imbalanced Environment and Agriculture Issues:

Human being has made imbalanced in environment by misusing natural resources. Notwithstanding, a number of issues are created in agriculture due to imbalanced environment. The Problems which are produced due to environment are as under –

1) Land Infertility :

The land becomes infertile due to imbalanced environment. Consequently, healthy food and grains are different to produce day by day. This is a very dangerous thing for human health.

2) Deficit in Products :

Infertile land is increasing due to polluted environment. The production is decreased despite of using seeds of higher quality. Hence people who work in agriculture have to face economic issues.

3) Decrease in water level :

Due to growth in temperature, natural seasons are uncontrolled. Hence it rained in little, therefore water level is decreased. Consequently irrigation issues are created. It is a dire need to stop cutting the trees for the balanced environment.

4) Prevention to Economy :

India is a country of agriculture; therefore Indian economy is completely depends on it. Agriculture is a backbone of Indian economy. Imbalanced environment affects the production as well as economy of the country. Due to less production in agriculture the entire economy can be collapsed.

Conclusion:

The following conclusions are drawn after a detail study of a research paper on **"Imbalanced Environment and Agriculture Issues."**

1) It is observed that environmental pollution is the biggest issue of agriculture.
2) It is seen that imbalanced environment created a lot of issues for the production in agriculture.
3) It is found that the population that depends on agriculture is caught in economic problems due to imbalanced environment.
4) It is observed that farmers are not interested in agriculture because of less production.
5) It is studied that agriculture falls into risk due to imbalanced environment.
6) It is observed that imbalanced environment affects the agriculture.
7) It is seen that the economy is affected due to less production and imbalanced environment.

Remedies:

The following remedies can be suggested after having studies the present research paper.

1) Multi Production System :

Multi production system can be used to get maximum production.

2) Agriculture Extension System :

To increase the agricultural production it is important to make capable the agricultural extension system.

3) To increase micro nutrients in soil :

It is important to analyze the law and increase the micro nutrient factors in soil.

4) To less use of Nitrogen Fertilizer :

The farmers use nitrogen fertilizer for getting extra production. But, in doing so the soil fertility is spoiled. Therefore the farmer should use the less nitrogen fertilizer in agriculture.

5) Agriculture Research :

It is important to revive the research in agriculture for the better development in it, by the help of scientific advancement.

6) Awareness :

Central as well as state government has made many laws for preventing environmental pollution. Hence it is necessary to make awareness among the farmers about these laws.

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Contribution of Physical Education Programmes towards Global Environmental Health and Sustainable Development

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Health defined:

In 1948 for the first time Health was defined by WHO as "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

Later on in 1986 it was modified as "A resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities."

At last in 2009 it was re-defined as "Health as the ability of a body to adapt to new threats and infirmities". In a nutshell Health is optimal well-being that contributes to quality of life with high-level mental, social, emotional, and spiritual wellness.

Physical Education defined:

The word physical refers to the body. It is often use in regard to various bodily characteristics such as physical strength, physical development, physical health and physical appearance. It refers to the body as contrast to the mind. Therefore when the word 'education' is added to the word physical it becomes physical education. It refers to the process of education that concerns with activities that develop and maintain human body.

PE improves motor skills and increases muscle strength and bone density, which in turn makes students more likely to engage in healthy activity outside of school. Furthermore it educates children on the positive benefits of exercise and allows them to understand how good it can make them feel.

Physical Education is "education through the physical". It aims to develop students' physical competence and knowledge of movement and safety, and their ability to use these to perform in a wide range of activities associated with the development of an active and healthy lifestyle.

Sustainable development defined:

The concept of sustainable development was described by the 1987 Bruntland Commission Report as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Clean air, water, plants, and food supplies are essential for our personal health and wellbeing. Therefore, just as our actions and choices affect the environment, the health of the planet influences our own personal health and wellbeing, as well as our communities, families, and economies.

Sustainable development means improving the quality of life within carrying capacity of ecosystems. The health sector has an important role linking environmental with economic development; surveillance systems could monitor health status and the impacts on ecological and economic sustainability.

Criteria of a sustainable system:

Sustainability is certified by the performance in Social, Environmental, and Economic principles which are listed below:

1. Pollution., 2. Global warming. 3. Deforestation. 4. Waste disposal. 5. Ocean acidification.
6. Loss of biodiversity. 7. Water pollution. 8. Climate change.

Interdependency between sustainable development and health:

"Health is vital for sustainable human development, both as an inalienable human right and an essential contributor to the economic growth of society. Health is an important factor of the progress of nations in achieving sustainable development. Sustainable health is a personal commitment to maintain own health and maintaining a healthy and balanced state of mind.

Necessity of sustainability:

Sustainability improves the quality of our life, protects our ecosystem and preserves natural resources for our future generations.

Contribution of Physical Education for Health and Sustainable Development:

Health and Sustainable Development is achieved through Physical Education Programmes in the following manner:

1. Health related activities for mass participation, mass health and mass fitness.

It improves our memory and brain function. Protects against many chronic diseases. Aids in weight management. Lowers blood pressure and improve heart health. Improves our quality of sleep. Reduces feelings of anxiety and depression. Combats cancer-related fatigue. Improves joint pain and stiffness. Maintains muscle strength and balance. Increases life span.

2. By educating common public about the importance of small family and happy family.

It is very good to live in a small family because these families have better management of resources. It consists of small number of people. Members of the small family know one another very well. There is love and harmony in small family size. Any problem that arise in a small family is quickly resolved because of its manageable size. A small family can better care for their children in education, health, and recreation than a large family. The benefits of having a smaller family are experienced by children. Children of smaller families receive more attention of higher quality from their parents, resulting in higher achievements. Studies have shown that children with one or no siblings perform better in education, for instance.

3. By educating the society about the importance of cleanliness for mass health and sanitation.

Maintaining personal hygiene and sanitation is important for several reasons such as personal, social, psychological, health, etc. Proper hygiene and sanitation prevent the spread of diseases and infections.

Well-being: Providing a clean work environment helps in maintaining the well-being of employees. In a workplace where litter and waste is disposed of correctly and surfaces are cleaned regularly, employees take fewer days of sick leave, which results in improved overall productivity

4. By making aware of Global warming which has become a big threat to humanity.

Global warming, the gradual heating of Earth's surface, oceans and atmosphere, is caused by human activity, primarily the burning of fossil fuels that pump carbon dioxide (CO_2), methane and other greenhouse gases into the atmosphere.

The primary way to solve global warming is to eliminate the role of fossil fuels in modern society wherever possible. This means transitioning to renewable and carbon-free energy sources such as solar, wind, and hydro which cause less than 3% of the greenhouse gas emissions of fossil fuel energy sources.

5. By inculcating the habit of Waste disposal.

Recover through Recycling. Dump in a Sanitary Landfill. Composting, etc. Waste disposal, the collection, processing, and recycling or deposition of the waste materials of human society. Refuse, or municipal solid waste (MSW), is nonhazardous solid waste from a community that requires collection and transport to a processing or disposal site. Refuse includes garbage and rubbish. For the purposes of this review these sources are defined as giving rise to four major categories of waste: municipal solid waste, industrial waste, agricultural waste and hazardous waste. Recover through Recycling. We start with arguably the most advantageous form of waste disposal. Dump in a Sanitary Landfill. Composting: Creating rich humus for your garden and lawn. Thermal Treatment: Incineration.

6. Educate the public on Earth Day or environmental event about ocean acidification. Inviting experts on ocean acidification.

World Environment Day is Earth Day that is celebrated every year on the 22nd of April and Earth Hour that is celebrated every year on the last Saturday of the month of March from 8:30 p.m. to 9:30 p.m. While Earth Day is an event that is celebrated every year on 22nd of April to gather support for protection. Host clean-ups of local bodies of water and their shores. Fight air and water pollution. Plant trees and install community gardens. Protect habitats under threat of getting developed.

4. By making aware of Water pollution which has become a big threat to humanity.

Water pollution occurs when harmful substances often chemicals or microorganisms contaminate a stream, river, lake, ocean, aquifer, or other body of water, degrading water quality and rendering it toxic to humans or the environment.

Water is uniquely vulnerable to pollution. Known as a “universal solvent,” water is able to dissolve more substances than any other liquid on earth. It’s the reason we have Kool-Aid and brilliant blue waterfalls. It’s also why water is so easily polluted. Toxic substances from farms, towns, and factories readily dissolve into and mix with it, causing water pollution.

When rain falls and seeps deep into the earth, filling the cracks, crevices, and porous spaces of an aquifer (basically an underground storehouse of water), it becomes groundwater—one of our least visible but most important natural resources. Nearly 40 percent of Americans rely on groundwater, pumped to the earth’s surface, for drinking water. For some folks in rural areas, it’s their only freshwater source. Groundwater gets polluted when contaminants—from pesticides and fertilizers to waste leached from landfills and septic systems—make their way into an aquifer, rendering it unsafe for human use. Ridding groundwater of contaminants can be difficult to impossible, as well as costly. Once polluted, an aquifer may be unusable for decades, or even thousands of years. Groundwater can also spread contamination far from the original polluting source as it seeps into streams, lakes, and oceans.

Eighty percent of ocean pollution (also called marine pollution) originates on land whether along the coast or far inland. Contaminants such as chemicals, nutrients, and heavy metals are carried from farms, factories, and cities by streams and rivers into our bays and estuaries; from there they travel out to sea.

Meanwhile, marine debris particularly plastic is blown in by the wind or washed in via storm drains and sewers. Our seas are also sometimes spoiled by oil spills and leaks big and small and are consistently soaking up carbon pollution from the air. The ocean absorbs as much as a quarter of man-made carbon emissions.

Closing Remarks:

A healthy population is essential for good economic development. The poorest people tend to suffer most from the health effects from exposures to environmental hazards like air pollution and impure water. Economic development has led to tremendous improvements in people's well-being. Industrialization has contributed to pollution of air and water, changing dietary patterns. Exposures to air and water pollutants directly increase disease. Similarly, dietary changes and decreased levels of physical activity, resulting from transportation and other work and lifestyle changes, are contributing to global epidemics of obesity, diabetes, and associated diseases. Improving environmental quality for the poorest populations with the greatest burden of environmental diseases, by reducing exposures to air pollution in homes and villages from biomass burning, and providing clean water and sanitation. Recognizing policies, practices, and technologies designed to promote sustainability and economic development may have unintended adverse environmental health effects, and attempting to prevent or mitigate these before they are implemented.

Study of Self Control and Impulsiveness of Sports Person and Non Sports Person

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Abstract
In the present study, an attempt has been made to compare the Self control and Impulsiveness level between Sports person and Non sports person male players at university level. The study was carried out on 48 male players (24 each). The data was collected by different coaching camps. The age of the selected subjects ranged from 17 to 24 years. Only those players were selected who had attended the inter-college competition at K.U.K University. Only Self control and Impulsiveness level were selected for the study. The data was collected through (Self-Control Scale (SCS): SCS by Prof. A. K. Singh and Dr. A. S. Gupta 1971) to measure Self control and IS by Dr.S. N. Rai and Dr. Alka Sharma1988) Impulsiveness test to measure Impulsiveness level. The data was analyzed by t-test. The Investigator observed that Non sports person male players having more self control and impulsiveness level then the Sports person male players at university level.

Keywords: *Physical fitness, Self control, Impulsiveness, Sports person, Non sports person.*

Introduction

Self-control, an aspect of inhibitory control, is the ability to regulate one's emotions, thoughts, and behavior in the face of temptations and impulses. As an executive function, self-control is a cognitive process that is necessary for regulating one's behavior in order to achieve specific goals. self-control as the differential tendency of individuals to avoid criminal acts independent of the situations in which they find themselves. Individuals with low self-control tend to be impulsive, insensitive towards others, risk takers, short-sighted, and nonverbal. About 70% of the variance in questionnaire data operational zing one construct of Self-Control had been found to be genetic Impulsiveness is a personality trait characterized by the inclination of an individual to initiate behavior without adequate forethought as to the consequences of their actions, acting on the spur of the moment. Impulsiveness is often defined as a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to negative consequences of these reactions to themselves or others (Moeller et al. 2001). Some other definitions describe impulsiveness in terms of a 12 number of personality traits. Impulsivity is a multidimensional construct with implications for understanding the etiology and treatment of multiple forms of psychopathology. It is characterized by an inability to inhibit thoughts 13 and actions, as well an inability to delay reward. Impulsive action tends to lack forethought or planning and often carry the connotation of being negative in that they are inaccurate or maladaptive.

Purpose of the Study

Study of self control and impulsiveness of sports person and non sports person

Methodology

In the present study, an attempt has been made to compare the Self control and Impulsiveness level batween Sports person and Non sports person male players at university level. The study was carried out on 48 male players (24 each). The data was collected by different coaching camps. The age of the selected subjects ranged from 17 to 24 years. Only those players were selected who had attended the inter college competition at K.U.K university. Only Self control and impulsiveness level were selected for the study. The data was collected through Only Self control and Impulsiveness level were selected for the study. The data was collected through (Self-Control Scale (SCS): SCS by Prof. A. K. Singh and Dr. A. S. Gupta 1971) to measure Self control and IS by Dr.S. N. Rai and Dr. Alka Sharma1988) Impulsiveness test to measure Impulsiveness level. The Researcher found that Non sports person male players having more self control and impulsiveness level than the Sports person male players at university level.

Result and Discussion

Table 1: To compare the sports person and non sports person on Self control at University level

Category	No.	Mean	SD	SED	T value
Sports person	24	2.22	19.20	3.91	0.96
Nonsports person	24	2.20	18.35	3.74	

Significant at 0.05 level

The mean value in the case of self control between sports person and non sports person is 2.22 and 2.20 respectively and S.D is 19.20 and 18.35 and their SED is 3.91 and 3.74. The 't' value obtain was 0.96,

there is no significant at 0.05 level. This table shows that sports person having more self control level than the non sports person at the university level.

Table 2: To compare the sports person and non sports person on Impulsiveness at university level

Category	No.	Mean	SD	SED	T value
Sports person	24	30.04	7.41	1.51	7.80
Nonsports person	24	27.70	7.37	1.50	

Significant at 0.05 level

The mean value in the case of Impulsiveness level between sports person and non sports person is 30.04 and 27.70 respectively and S.D is 7.41 and 7.37 and their SED is 1.51 and 1.50. The 't' value obtain was 7.80, there is no significant at 0.05 level. The table shows that sports person having more impulsive than the non sports person at university level.

Conclusion

It is evident from the table that sports person having more self controlled and impulsive level then the non sports person.

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Role of Indian Judiciary to Protect the Right to Health: An Evaluation

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Abstract: *Health is wealth. Health is one of the basic needs of human beings. Nowadays India is facing the problem of deteriorating of health. The Constitution of India is the supreme law to govern the entire country and its guarantees availability, accessibility and affordability of primary healthcare. Despite various health plans and policies, the health condition is getting worse day by day. The Supreme Court is conducting the noble ceremony for the interpretation of the provisions of the Constitution. The framers of the Indian Constitution have correctly included various provisions regarding the health of the public. Apart from this the role of the Supreme Court of India is important in protecting the health of the people at large with the help of various judgments. Effective implementation of laws made on the basis of constitutional provisions will control the present problem. This paper has explored the Constitutional provisions regarding right to health and analyse various judicial decisions in making the right to health as a fundamental right.*

Keywords: *health, policies, court, provisions.*

Objective of the Study:

To study the Indian Constitutional provisions and duty of the state to protect health of the people.
To analyse several decisions of Supreme Court.

Hypothesis: How much important role played by Indian judiciary regarding right to health and duty of the State.

Methodology: The study has mainly used both primary data such as Indian Constitutional provisions, several AIR and secondary data like various journals, internet sources, legal provisions, judiciary cases regarding on health. In this present paper, descriptive and exploratory methods have been used.

Introduction: According to the World Health Organisation (WHO), Health means much more than the absence of disease and a state of complete physical, mental, and social well-being[1]. The constitution of the WHO defines health as the enjoyment of highest attainable standard of health. In seventeen goals of sustainable development, Health has a central place in SDG 3 "Ensure healthy lives and promote well-being for all at all ages". Health is an important indicator of human development and human development is a fundamental component of economic and social development. Right to health is not a new phenomenon. In India, the right to health care and protection has been recognized, since the earliest times. The fundamental right to health has not been explicitly recognized in the Indian Constitution. However, Article 21 of the Constitution of India guarantees the fundamental right to life and personal liberty. The expression life in this article means life with human dignity and not mere existence or animal existence. It has a very broad meaning which includes the right to a livelihood, a better standard of living, clean conditions at work and leisure. It is an important right without which no person can exercise his basic human rights. The government is bound to protect the health of the people because there is a close relationship between health and the quality of life of an individual. There are various provisions under the Constitution of India that pertain to the health of the public at large. The Indian judiciary is playing an important role in interpreting the provisions of the Constitution. The decisions given by the judiciary about health, healthy environment, prevention of environmental pollution, public health maintenance and improvement of nutritional value for the all shows that they are very concerned. The founders of the Indian Constitution rightly incorporated the Directive Principles of State Policy (DPSP) to protect the health of the public at large. Following are the important provisions in the Constitution of India for the protection of the right to health.

Health and Directive Principle of State Policy: The Provisions (part-IV) under DPSP of the Constitution of India provides regarding health care of the citizens. If we look only at those provisions, we find that some of those provisions are directly or indirectly related to public health. These are non – justifiable. It directs the state to take measures to improve the health care status of the people. In this regard article 38 imposes an obligation on the State to secure a social order promoting the welfare of the people including public health, because without public health the welfare of the people is practically meaningless. Article 39 spell out that "the State shall, in particular, directs its policy towards securing – (e) that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength; (f) that children are given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity and that childhood and youth are protected against exploitation and against moral and material abandonment." Article 41 minutely says that "the state shall within the limits of its economic

capacity and development, make effective provisions for securing the right to work, to education and to public assistance in case of unemployment, old age, sickness and disablement, and in other cases of undeserved want" Article 42 states that it is the primary responsibility of the state to protect the health of infant and mother by means of maternity benefits. Article 47 states the duty of the state to raise the level of nutrition and the standard of living of its people as a primary responsibility. Article 51A(g) under Part IV – A of the Constitution says that "it shall be the duties of every individual to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures." Entry 6 of List II (State List) refers to public health and sanitation; hospital and dispensaries. Further, Entry 29 of List III (Concurrent List) empowers the State as well as the centre to make laws for Prevention of the spread of infectious or contagious diseases affecting human, animals or plants from one State to another.

Role of Judiciary: The Preamble of Indian Constitution aims to secure to all its citizen justice and equality which means that the Constitution guarantees availability, accessibility and affordability of healthcare as reconcile under Alma-Ata Declaration for primary healthcare. The provisions under fundamental rights that support equality of opportunity in education, employment and freedoms guaranteed have direct bearing on the health outcomes. Article 21 has been interpreted to accommodate the right to health as a fundamental right where the state is bound to provide essential health services to its citizens. The Indian judiciary played a very active role in examining the social, economic and environmental conditions of the oppressed, poor and downtrodden people through Public Interest Litigation under Article 32 of the Constitution. The right to health as extended under Article 21 deals with the maintenance and improvement of public health, improvement of the environment etc. The Supreme Court in Consumer Education and Research Centre vs. Union of India[2], 20 held that right to health, medical aid to protect the health and vigour of a worker while in service or postretirement is a fundamental right under Article 21. In Bandhua Mukti Morcha vs. Union of India & Ors[3], the Supreme Court addressed the types of conditions necessary for the enjoyment of health and held that the right to live with human dignity also includes the right to 'protection of health'. Neither the Central Government nor any State Government has the right to take any action which deprives any person of the enjoyment of this basic essential. The Supreme Court in Virender Gaur & Ors vs. State of Haryana & Ors[4], held that environmental, ecological, air and water pollution, etc., should be regarded as amounting to violation of right to health guaranteed by Article 21 of the Constitution. The Supreme Court, in Paschim Banga Khet Mazdoorsamity of Ors vs. State of West Bengal & Anr[5], while expanding the scope of Article 21 and the responsibility of the government to provide medical aid to every person in the country, held that in a welfare state, the government's primary duty is to secure the welfare of the people. Providing adequate medical facilities to the people is an obligation undertaken by the government in a welfare state. The government discharges this obligation by providing medical care to the persons who wish to avail of those facilities. The Supreme Court, in its landmark judgment in Pt.Parmanand Katara vs. Union of India & Ors[6], ruled that every doctor whether in a government hospital or otherwise has the professional obligation to extend his service with appropriate expertise for protecting life, whether the patient is be an innocent person or a criminal liable to punishment under the law. No law or state action can interfere to avoidance or delay, the discharge of the paramount obligation imposed on the members of the medical profession. The Court in Mahendra Pratap Singh vs. State of Orissa & Ors[7], held that "in a country like ours, it may not be possible to have sophisticated hospitals but definitely villagers within their limitations can aspire to have a Primary Health Centre. The government is required to assist people, get treatment and lead a healthy life. Thereby, there is an implication that the enforcing of the right to life is a duty of the state and that this duty covers the providing of right to primary health care." In C.E.S.E Ltd. Etc vs. Subhash Chandra Bose &Ors[8], the Supreme Court held that, the health and strength of worker is an integral aspect of the right to life. The objective of fundamental rights is to create an egalitarian society which can free all citizens from the coercion or restrictions of society and provide freedom to all. In Occupational Health and Safety Association vs. Union of India and Ors[9], the Supreme Court, For Protection of health of workers and humane conditions of work 13 held that when the workers are engaged in hazardous and risky works or occupations, the responsibility and duty on the state becomes twofold. In Unnikrishnan, J.P. & Ors vs. State of Andhra Pradesh & Ors[10], the Supreme Court held that the maintenance and improvement of public health is the duty of the State to fulfil its constitutional obligations cast on it under Article 21 of the Constitution. In Vincent Panikurlangara vs. Union of India & Ors[11], it was held that a healthy body is the basis of all human activities. Therefore in a welfare state, it is the duty of the state to ensure the creation and the sustaining of conditions congenial to good health.

Epilogue: From the foregoing discussion, it is clear that the right to life includes the right to health and therefore the State and its instruments are bound to provide health care facilities and services to all its citizens with non-discrimination. The word 'right to health' is nowhere mentioned in the Indian Constitution, yet the Supreme Court has interpreted it as a fundamental right under the 'right to life' enshrined in Article 21. This is an important view of the Supreme Court which was first interpreted under Right to Health, Part IV that is Directive Principles of State Policy and noted that it is the duty of the State to look after the health of the people at large. In the broader interpretation of Article 21, it was held by the Supreme Court that the 'right to health' is a part of the 'right to life' and therefore one of the fundamental rights provided under the Indian Constitution. The court has played an important role in the enforcement of affirmative obligations as authorities to maintain and improve public health.

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Study of Self-Esteem and Locus of Control among Basketball andJudo Players of M.D.U Rohtak

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Abstract

This research aims to study self-esteem and locus of control of MDU University students. According to the results obtained from a study using purposive survey method on 200 students [Basketball and judo players (boys and girls)] it was observed that there exists no significant difference in self esteem and locus of control among basketball and judo players of M.D.U., Rohtak. It means that various categories belong to the same population with regard to their means. So it can be concluded that judo players of different institutions taken for the study do notdiffer significantly. Whereas, total locus of control of basketball players of M.D. University, Rohtak was found to be significantly different from the judo players of M.D. University, Rohtak.However, judo girls players of M.D. University, Rohtak did not differed significantly with
M.D.U. Rohtak basketball girls players.

Keywords: *Self-esteem, locus of control. Basketball, judo.*

Introduction

Self-esteem has long been considered an essential component of good mental health and has drawn many researchers' attention in recent years. Self-esteem is composed of person's self assessment and a combination of his/her self- concept of characteristics and abilities (Pope and McHales, 1988. Flouri et al., 2006 & Osborn, 1997). Our self-esteem develops and evolves throughout our lives as we build an image of ourselves through our experiences with different people and activities. Experiences during our childhood play a particular large role in the shapingof our basic self-esteem. When we were growing up our successes (and failures) and how we were treated by the members of our immediate family, by our teachers, coaches, religious authorities, and by our peers, all contributed to the creation of our basic self-esteem (Yaratan and Yucesoylu, 2010). According to Cooper Smith's studies more than 30 years ago, persons who feel insufficiency and worthlessness, assume themselves as to be unimportant and unable to produce internal sources for improving their situation. These people believe that they are unsuccessful and unhelpful while they don't achieve their goals despite a lot of effort to improve the situation and this belief is as a result of poor self-esteem (Daglas, 2006). As far as Pope, Mchale and Craighead are concerned self-esteem is composed of 5 domains including social, academic, family, body and global scales. The present research has focused on surveying student's self-esteem based on these 5 domains. One of the factors associated with self-esteem is
locus of control. The concept of locus of control is derived from Router's social theory and from the individual interpretation made on their control level over events of life (Serin, 2010).

This research with a focus on studying the locus of control for the students has appraised three types of locus of control accordingly: Internal locus of control, external locus of control and chance locus of control. Individuals with internal locus of control believe that they themselvesare in charge of their own lives and activities while having their output reliant upon their own personal performance (Flory, 2006). In 1974, Levenson reported that people differ in the way they view unpredictable life from those having faith in authority and implication of persons or other locus in life. Based on such difference, the concept of external locus of control is extended to two types of external locus of control and chance (Wilkinson, 2007). Kopera–Frye (1991) concluded that having an external locus of control, or the view that success/failure is negatively related to academic achievement (Smith, etal.1998). Therefore owing to significance of internalized locus of control of the students in the Iranian system of education, meaning that the position taken gives rise to sense of self-belief and capability of thinking, research, scientific production as well as academic achievement in the country; hence, it is necessary that strides be made to identify this position taken for locus of control and measures for internalization of such psychological component. Since student's self-esteem plays an important role in producing self- belief and capability to think, research, scientific production and educational achievement, it's essential to step forward to evaluate and increase this psychological component.

Hypothesis

In order to achieve the aim of the study, the following hypotheses were formulated:

1. There would be no significant difference in Self esteem among basketball and judo players of M.D.U. Rohtak.
2. There would be no significant difference in Locus of Control among basketball and judo players of M.D.U. Rohtak.

Methods

The present research is typically analytic and descriptive one. In this research, firstly, M.D University Rohtak has been randomly picked out of other great universities of Haryana, and then a number of three faculties have been picked in random, cluster and class types. Afterwards, theywere handed questionnaires to fill. Finally, filled questionnaires data and demographic information was used for analysis.

Sample

Out of many M.D University Rohtak students, some male and female students recognized to be fit for research from the subject faculties, have been considered. Random selection is made with the samples taken in several phases and classes.

Measures

1.Self esteem Manual was used developed by Dr. Santosh Dhar and Dr. Upinder Dharin 2008. It consists of 23 items to be enclosed in basis of 5-point Likert scale format. This can be self administered or can be verbally answered also. Items are such that they do not cause any embarrassment to the subject in the presence of others. This scale is available in Hindi language too. Test-retest reliability was measured by spearman Brown prophecy formula and reliability coefficient was found to be 0.87. And all items of the scale are related to self esteem, the scale has high contents validity. The later has indicated high validity on account of being 0.93.

2.Locus of Control Scale (LCS) 1992: The Locus of Control Scale (LCS) developed by N. Hasnain and D.D. Joshi in 1992 depends on Rotter's original I-E scale. This scale has 36 items in total, among them there are 16 positive items, which reveal internal locus of control and 20 negative items, which reveal external locus of control. The test- retest reliability of scale is 0.76 and the validity of scale is 0.76.

Data analysis

Data collection tools are applied to the players in the playing hours. For analysis of data Analysis of Variance (One Way ANOVA) was applied between the groups.

Results

In order to achieve the first objective of study, i.e., "To assess whether there is any significant difference in self-esteem among basketball and judo players of M.D.U. Rohtak." differential analysis has been applied and results are displayed in table. 1

Table : 1 Mean, Standard Deviation scores of self-esteem among basketball and judo players of M.D.U., Rohtak

Variable	Category		N	Mean	Standard Deviation
self-esteem	Basketball players	Boys	50	50.40	19.57
		Girls	50	50.90	24.42
	Judo players	Boys	50	48.42	22.04
		Girls	50	51.50	22.31

Table 1.1: ANOVA Table of self-esteem among basketball and judo players of M.D.U., Rohtak

	Sum of Squares	df	Mean	Square F	Sig.
Between Groups	267.655	3	89.218	0.182	0.909
Within Groups	96223.5	196	490.936		
Total	96491.16	199			

The Table 1.1 shows that mean score of variance of between groups and within groups are found to be 89.218 and 490.936 with df 3 and 196 respectively. The obtained 'F' ratio is 0.182 and it is found not to be significant. Thus, the null hypothesis of the present study, i.e. "There would be no significant difference in Self esteem among basketball and judo players of M.D.U. Rohtak" stands accepted. It means that various categories are belonged to the same population with regardto their means.

In the order to achieve the second objective of study, i.e., "To assess whether there is any significant difference in locus of control among basketball and judo players of M.D.U. Rohtak." analysis of variance (ANOVA) has been applied and results are displayed in table. 2

Table : 2 Mean, Standard Deviation scores of locus of control among basketball and judo players of M.D.U., Rohtak

Variable	Category		N	Mean	StandardDeviation
Locus of control	Basketball players	Boys	50	229.30	37.44
		Girls	50	208.70	48.15

	Judo players	Boys	50	209.90	36.31
		Girls	50	194.90	41.85

Table 2.1: ANOVA Table of locus of control among basketball and judo players of M.D.U. Rohtak

	Sum of Squares	**Df**	**Mean**	**Square F**	**Sig.**
Between Groups	30012.000	3	10004.000	5.892	.001
Within Groups	332790.000	196	1697.908		
Total	362802.000	199			

The Table 2.1 shows that mean score of variance between groups and within groups are found to be 10004.000 and 1697.908 with df 3 and 196 respectively. The obtained 'F' ratio is 5.892 and found to be significant at 0.01 level. It means that various categories do not belong to the same population with regard to their means. The significant mean difference in total emotional intelligence among various categories i.e., basketball and judo players of M.D.U. Rohtak has been calculated by using post-hoc test and presented in Table no.2.2

Table 2.2: Post-hoc analysis of variance of emotional intelligence of basketball and judo players of M.D.U. Rohtak.

	N	**Subset for alpha = 0.05**	
		1	2
Basketball boys	50	194.9000	
Basketball girls	50	208.7000	208.7000
Judo boys	50	209.9000	209.9000
Judo girls	50		229.3000
Sig.		.267	.63

From the Post hoc comparison it can be concluded that in regard to total locus of control, basketball boy's players of M.D. University, Rohtak were found significantly different from the judo boy's players of M.D.U. Rohtak. However, basketball girls players of M.D.U. Rohtak did not differ significantly with judo girls players of M.D.U. Rohtak. Hence, the null hypothesis framed earlier, "There would be no significant difference in Locus of Control among basketball and judo players of M.D.U. Rohtak" is partially accepted and partially rejected.

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Impact of Covid-19 on Health in Post Recovery Phase

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Abstract

An on-going circumstance of coronavirus by and large has aggravated the condition of post covid-19 patients. It reflects symptoms like psychosocial stress, hair fall, loss of appetite and many more. Existing research work is focused on the general health issues faced by the individual who suffered from Covid-19. The study was conducted through the responses received from online questionnaire of 21 patients who were suffering from covid-19 andrecovered from the deadly disease with leaving behind some post covid-19 symptoms. The finding shows that the effect was on general health but the result on hair fall and insomnia were significant. Healthy hair is a build upon deep-rooted overall personal well-being. Hair has a unique framework, which is so sensitive and bears a peculiar impact on any individual due to many reasons and stress is one of the predominant readings to trigger of Telogen Effluvium and Insomnia.

Keywords: *Telogen Effluvium, Stress and Insomnia*

Rationale of the study

Globally each and every individual is affected by virus. It has completely dominated the news agenda for the past 2 years. Country-wide lockdowns has taught people to switch to virtual learning, maintain social distancing and restrictions on travelling. Spectrum of disease has a wide range of sign, symptoms, and severity. Getting educated is the need of an hour so that early symptoms can be treated at the first stage itself and helps healthcare professionals diagnose and treat the disease without the risking the life of the patient.

Introduction

Patients have reported series of problem after rehabilitation from the life-threatening coronavirus disease. However, cutaneous sign and symptoms of disease have also been described and may significantly impact patients.[1] One of the most significant problem facedby the post covid-19 patients were hair fall which is in three phase among them the last phaseis called as Telogen Effluvium.

Telogen Effluvium

Hair is composed of a protein called Keratin. A hair follicle is a pillar of the scalp; blood vessels feed the cells in the hair bulb and carry hormones that repair hair growth. There are three phase of hair which the patient experience during unwell. Active growth of hair follicles takes place in Anagen phase which is in the hair shaft. Next stage is Catagen phase which is a short transitional period where the hair growth slows down and last phase is Telogen, hair growth is no long observed and the old hairs is pushed out and new anagen hair takes place in the scalp. Asghar F, et al. (2020). The telogen phase lasts approximately 3 months, after excessive hair loss ensues.[2]. Normally, an individual can lose up to 100 hair per day, butdue to Telogen Effluvium hair fall can rise up to 300-400 per day. As a result, the hair didnot receive any nutrition and enters the telogen phase.[3] Telogen effluvium (reactive hair loss) is particular gives the indication of post Covid -19 effect. Nowadays, this topic is actively studies and discussed in the dermatological community. [4]

Insomnia

Another factor is Insomnia has occasionally interpreted as carrying a highly risk factor for damaging the functioning of normal body, intake bad substance, depression, other mental disorder, chronic physical suffering, and a range of other medical circumstances, including overweight, high blood pressure, heart related problem and dementia. While the recommended first-line treatment for insomnia is cognitive behavioural therapy for insomnia,
[5] most patients will prefer to take an aid of medical executive for the treatment of their insomnia.

Stress

Stress which crop up due to a psycho-emotional strain or a drained out condition due to fever and heavy dose of medication. Increased psychosocial stress can have an impact on the course many common "stress-sensitive" skin conditions that lead to actual or perceived exacerbation of the disease.[6] Healthy routine is a key to take charge of stressful situation and

negative thoughts will channel wrong effect on the body system so the best way is to re- establish the thinking process.

Objective of the Study

The objective of this research paper is to understand the impact of Covid-19 on some health related components of the individuals recovered from Covid-19 with the help of customised online questionnaire.

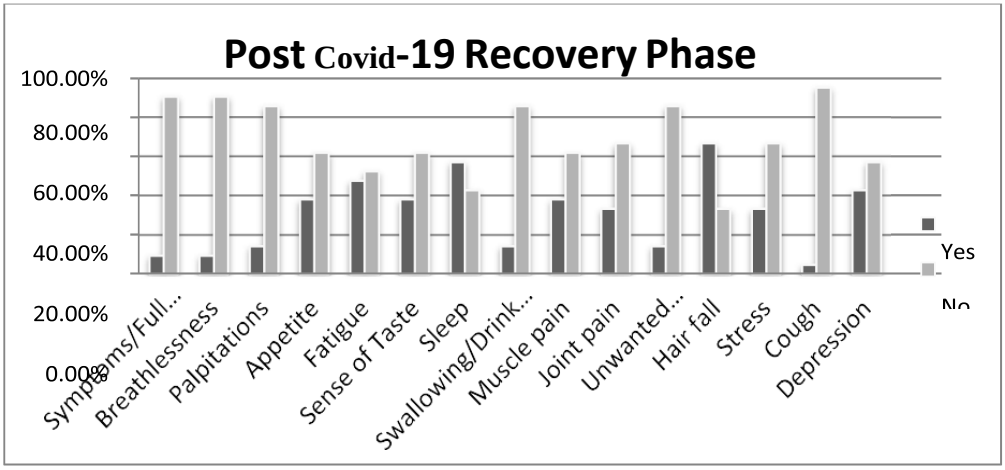
Research Methodology

The study was conducted by using a self-customised online questionnaire. Demographic aspect of each individual who participated in the online questionnaire such as their personal detail were assured to be kept confidential like name, age, gender and occupation. In view of this, post Covid-19 infected and recovered 21 patients were considered from which 11 female and 10 male and data was collected through online questionnaire. The patients had no historyof hair loss, any health issues, and age ranging from 25 to 50. All 21 patients had laboratory report showing COVID-19.

Data Analysis:

The Data collected by using self-customised online questionnaire is represented in the histogram given below.

Figure No.1



1. From the histogram it is evident that 90.5% of the population under study are fullyrecovered but 9.5% of the population showed symptoms of covid-19.
2. From the histogram it can be interpreted that 90.5% of the population considered under study were not feeling breathlessness but 9.5% of the population showed symptoms of Breathlessness.
3. From the histogram it can be understood that 85.7 % of the population considered under study were not having palpitation problem but 14.3 % of the population showed symptoms of palpitations.
4. From the histogram it can be inferential that 61.9% of the population considered under study were not having any change in the appetite but 38.1% of the population showed change in appetite.
5. From the histogram it can be interpreted that 52.4% of the population considered under study were not having fatigue but 47.6% of the population showed symptoms of fatigue.
6. From the histogram it can be clear that 61.9% of the population considered under study were not having the sense of taste but 38.1% of the population showed symptoms of loss of taste.
7. From the histogram it can be interpreted that 42.9% of the population considered under study were not having insomnia problem but 57.1% of the population showed insomnia symptoms.
8. From the histogram it can be understood that 85.7% of the population considered under study were not having swallowing/drinking problem but 14.3% of the population showed difficulties in swallowing/ drinking.
9. From the histogram it can be interpreted that 61.9% of the population considered under study were not having muscle pain but 38.1% of the population showed symptoms of muscle pain.
10. From the histogram it can be made clear that 66.7% of the population considered under study were not having severe joint pain but 33.3% of the population showed symptoms of severe joint pain.
11. From the histogram it can be interpreted that 85.7% of the population considered under study were

not having symptoms of unpleasant/ unwanted memories of illness but 14.3% of the population showed symptoms of unwanted memories of illness.

12. From the histogram it can be inferential that 66.7% has shown a tremendous hair fall symptoms but 33.3% of the population showed no symptoms of hair fall.
13. From the histogram it can be understood that 66.7% of the population considered under study were not having sign of stress but 33.3% of the population showed symptoms of stress.
14. From the histogram it can be interpreted that 95.2 % n of the population considered under study were not having any sign of cough but 4.8% of the population showed symptoms of coughing.
15. From the histogram it can be made clear that 57.1% of the population considered under study were not having symptoms of depression (negative thoughts) but 42.9% of the population showed symptoms of depression (negative thoughts).

Overall view of the study was the population experience Telogen Effluvium/hair loss, insomnia, negative thoughts, stress, coughing, loss of appetite, loss of taste, joint pain, muscle pain and unwanted thoughts within weeks to month during recovery phase. But the result shows that the Telogen Effluvium/hair loss and insomnia were significant.

Conclusion

Post Covid-19 patients are facing insomnia which can be treated effectively by simple daily routine to keep insomnia at bay. Stay away from media, scheduled bedtime routine, avoid caffeine to hamper sleep, intake activities like meditation and walk. Hair loss continues for few months and later growth reappears to the normal condition. Covid victim after the negative report goes through severe mental stress which is one of the reasons of hair fall. Atthe same time, need to track the exact factor responsible for the hair-fall. Reasonable hair fall can be under control with the help of proper intake of diet, mild workout, pranayama and meditation, adequate sleep etc. A few months post recovery, baby hairs growing tends to grow on the patients hairline again, this is an indication that body is restabilising to normal. It is challenging to retain a healthy lifestyle when people are in the centre of a dilemma of Covid-19. Healthy routine and positive attitude will do wonders to handle this situation.

Recommendation

No massage and oiling of the hair is recommended to the patient who complaining of hair loss. If the case is serious consult the dermatologist so that proper pharmacotherapy taken. Stress-related hair loss can lead to external stressors in addition to illness. Insomnia patients need to be with their near and dear ones. Surrounded by people will have no room for negative thoughts. Well-balanced diet plays an important role especially iron, biotin andvitamin D for budding of new hair.

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Climate Change - Act Now

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Abstract:

During the Paris Agreement in 2015, the United Nations has set 17 permanent goals to achieve International cooperation in solving economic, social, cultural, natural types of international problems. This article focusses on the sustainable development goal no 13 'Action to combat climate change'. Here is a discussion on how climate change has increased due to high carbon dioxide emissions in recent decades and its further impact on various ecosystems. Suggestions including the use of various non-renewable energy sources and following campaign such as 'Act Now' organized by the United Nations to combat climate change are discussed.

***Keywords** : Sustainable Development Goals, Climate Change, Green House Gases (GHGs), Renewable Energy Sources, Act Now Campaign*

Introduction

UN :United Nation is an international organisation , founded in 1945. It currently has 193 members states (1). Its central mission is to maintain the international peace and security .UN does this by working to avoid conflict between countries, helps to maintain peace . UN takes actions for the issues like peace, security , climate change, sustainable development , human rights, terrorism, health emergency, gender , equality , food production etc. One of the main priority of United Nation was to "achieve international cooperation in solving international problems of economic, social , cultural or humanitarian character and encouraging respect for human rights and for fundamental freedoms for all without distinction of race, sex, language or religion. The global understanding of development has changed over the years . Countries have agreed Sustainable development is Development that promotes prosperity , economic opportunity, greater social well being and protects the environment and gives the best path to improve the lives of people everywhere(2). The Sustainable Development Goals are universal action to end the poverty, protect the planet and improve the lives and prospects of everyone everywhere. These 17 goals were adapted by all UN Member States in 2015 as part of 2030 Agenda for Sustainable Development which is 15 years plan to achieve the goals. These goals are (3) :

1. No Poverty
2. Zero Hunger
3. Good Health & Well being
4. Quality Education
5. Gender Equality
6. Clean water & sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry innovation and infrastructure
10. Reduced inequalities
11. Sustainable city and communities
12. Responsible consumption and production
13. Climate action
14. Life below water
15. Life on land
16. Peace , justice and strong institutions
17. Partnership for the goals

In recent decades World has witnessed shifting weather patterns that has affected the food production, and rising of sea levels which has increased the risk of flooding. Why this is happening :

Green house gases :

The primary green house gases in Earth's atmosphere are water vapour, carbon dioxide, methane, nitrous oxide and ozone. Rising levels of greenhouse gases in the atmosphere is primarily from burning of fossil fuels. Fossil fuels are burnt for electricity ,industry and transportation. Thus more green house gases are emitted in the atmosphere. Earth receives its primary Energy form solar radiation. Some solar radiation is reflected by earth's surface . Some of the infrared radiation passes through atmosphere. Some is absorbed and re emitted in all direction by green house gas molecules. This leads to warming of earth's surface. Weather becomes hotter and hotter. Extreme weather event occur due to shift in climate. Even

small change in the global average temperature can cause major and dangerous change in climate and weather.

Earth has experienced cycles of warming and cooling even in the past. But expert believes current warming trend is proceeding at a rate that is unprecedented in the past 1300 years. On the basis of paleoclimate data , scientists estimate that when ice ages have ended in the past, it has taken about 5,000 years for the planet to warm between 4 and 7 degrees Celsius. The warming of the past century— i.e 0.7 degrees Celsius—is roughly eight times faster than the ice-age-recovery warming on average(4).

Along with fossil fuel burning, even deforestation i.e. cutting down trees on large scale for fuel , land and other purposes leads to more green house gases as more trees are burnt and very few remain on the ground to absorb the excess carbon. Due to rise in atmospheric temperature glaciers melts at unusual speed and its water is added into ocean. This has lead to sea level rise .Ocean absorbs the carbon dioxide and produces carbonic acid. Since 19th century, oceans have become 30 percent more acidic . Greater acidity prevents the molluscs , shellfish from building the healthy skeleton. Coral reef ecosystem is dying(5).

But after 150 years of industrialisation , deforestation and large scale agriculture, quantities of green house gases in the atmosphere have risen to the new record which were not seen in three million years. World is on the path to raise global average temperature by more than 3 degree Celsius in this century. UN's intergovernmental panel on Climate Change warned against danger of climate change . According to 5th Assessment report of UN's Intergovernmental Panel on Climate Change (IPCC) (6) :

- From 1882 to 2012 , average global temperature raised by 0.85 degree Celsius. When one degree Celsius rise happens, grain yield decreases by 5 percent) . Maize , wheat and many other crops showed significant decrease in the yield due to warmer climate.
- From 1901 to 2010 global average sea level rose by 19 cm . Oceans are expanded due to warming and ice melting.
- From 1979 Arctic ice started shrinking with 1.7 million kilometre square ice loss every year.
- It is predicted that average sea level will rise by 24 to 30cm by 2065 and 40 to 63 cm by 2100.

Many ecosystems like Amazon rainforest, Arctic Tundra , Coral Reefs are suffering irreversible change. Most aspects of climate change will persist even if the emissions stops. Global carbon dioxide emission has increased by almost 42 percent since 1990 to 2010 (7). It is possible to limit increase in the global mean temperature by using many technological measures and changes in the human behaviour.

The Paris Agreement (2015):-

During Paris agreement – 2015 ; International Community made agreement to keep global average temperature below 2 degree Celsius above preindustrial period (1850 -1900).

There are 195 countries in the world today.193 are members of states of United Nation . 2 countries - Holysee and state of Palestine are non member observer(8) .

UN Weather Agency ' World Meteorological Organization (WMO) in its report on state of Global Climate in 2019 has documented various physical signs of climate changes such has increasing land and ocean heat, increase in sea level and melting of ice . It has elaborated its effect on socio- economic development , human health, migration and displacement , food security and land and marine ecosystem.

UN Chief 'Antonio Guterres' warned that the world is currently ' Way off track ' to meet 1.5 to 2 degree rise target that Paris agreement calls for.

Several heat records were broken in recent years . January 2020 has been warmest recorded so far. 2019 was second warmest year and 2010 – 2019 was the warmest decade on record. Still many countries are not fulfilling their commitments made at Paris agreement in 2015. There are chances of increase in temperature by 4 to 5 degree Celsius by the end of this century(9).

Few Climate change incidences of 2019 -20:

- According to NASA , year 2020 has been the warmest year on record. Globally average temperature was 1.02 degree warmer than the baseline year (1951-80)(10).
- On going warming in Antarctica has resulted in large fractions of ice melt. This has laid to increase in sea level rise and carbon dioxide emission.
- Australian bushfires lead to global Carbon dioxide increase. Australian 2018-19 summer was hottest ever of 41.9 degree Celsius recorded temperature. More than 1 billion mammals, birds, reptiles lost their lives in blazes, around 25000 Koalas were feared dead as 30 percent Koala habitat is wiped out. 25.5 million acres has burned (11).
- Several European country like France, Germany, United Kingdom , broke the temperature records. Nordic country like Finland has high of 33.2 degree Celsius.

- Several high altitude regions like Siberia , Alaska saw high level of fire activity.
- Green house gas emission has lead to increase ocean heat . This leads to increase in sea level , change the ocean currents, melting floating ice shelves and dramatic changes in marine ecosystem
- Increased acidification and deoxygenation , leading to negative impact on marine life and has affected people who are dependant on marine ecosystem.
- Rainfall above long term average in India , Bangladesh , Myanmar and flooding took loss of 2200 lives. South America was hit by flood in jan 20.
- Other regions suffered severe lack of water. Australia has 2019 as driest year on record.South Africa, central America and parts of south America received abnormally low rain.
- 2019 showed above average number of tropical cyclones. 72 in northern hemisphere and 27 in southern hemisphere. Idai cyclone in Mozambique , east coast of Africa, Dorian cyclone in Bahama, Hagibis cyclone in Japan.

Does climate change affect the transmission of Corona Virus ?

There is no direct evidence of climate change influencing spread of Covid 19. Deforestation has lead to habitat loss worldwide. Loss of habitat forces animals to migrate.This creates opportunity for pathogen to get new host. Large livestock farms also increases chance of infection from animals to people. Sustainable animal husbandry will decrease risk and lower the green house gas emissions(12).

Covid 19 Pandemic :

Covid 19 pandemic has lead to 6% drop in the green house gas emission (5.5 to 5.7%). This has lead to short term cooling. Scientist estimated pandemic driven response is negligible with cooling of temperature by around 0.01 Degree Celsius (13).

According to Petteri Taalas , once global economy begins to recover from new Corona Virus ,World Meteorological organisation (WMO) expects emission to return to normal. He says This is temporary fall in the emission due to coronavirus pandemic . Carbon dioxide gas remains in the atmosphere and oceans for centuries. Unless the World can mitigate the climate change, it will lead to persistent health problems especially hunger, inability to feed, growing population of world. It will lead to massive impact on economics. Climate change is affecting every country , every continent(14).

What is our Goal??

Goal no 13 : Take an urgent action to combat climate change and its impacts.

What if we don't taken the action ?

If left unchecked, climate change will cause average global temperature to increase beyond 3degree Celsius. It will affect every ecosystem. Climate change can lead to increase in disasters and leading to food and water scarcity which can lead to conflict. So we have to take an action that will lead to more jobs, great prosperity and better lives for all while reducing green house gas emission and building climate resilience.

Act Now :

Act Now is United Nation's global call to individual action on climate change (15). Act Now recommends daily action to reduce our carbon footprints like travelling sustainably , saving energy , eating less meat.

- 5 minute shower
- Carry your own bag
- Drive less
- Switch off the lights
- Use local produce
- Have Meat free meals
- Recycle
- Refill and Reuse
- Unplug the electric connections
- Follow Zero waste fashion.

Warmer Future :

- Rain storms, severe draughts, cyclones, extreme heat waves.
- Sea level rise (projected to rise from 1 to 4 feet by 2100)
- Displacement of nearly half of the world's population
- Flooding in the coastal area and swallowing the entire world.
- Population of animals dying out.

Vulnerable age group i.e children, elderly, poor are at high risk from stress , air pollution , extreme weather events. Do we want our next generation to be their in the living world devastated by climate crisis ? Or shall we be the generation who has courage to act and rose to solve the greatest challenge humanity ever faced.

Choice is ours !

Conclusion :

We have to increase our efforts. We have to increase our investment in the renewable energy sources. World must transform its energy , industry, agriculture and forestry system to ensure temperature rise to below 2 degree Celsius or may be even to 1.5 degree by the end of this century. Public private sector investment needs to be there in the renewable energy sources . Hence onwards various sources of renewable energy like solar energy, wind energy , hydro energy, tidal energy, biomass energy have to be utilised for sustainable production of energy. This will help to build climate resilience and ensure cleaner air, great food security , more liveable cities and better health.

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Study of Impact of Covid19 Pandemic on Fitness Goals of Various Gym members from Goa

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Abstract
The aim of this study was to find out the impact of Covid-19 pandemic lockdown on gym members fitness goals due to long term closure of gyms. The study tried to examine the changes in body statistics i.e.: Body Weight, Fat % and Basal Metabolic rate. Data of 120 members was collected randomly from various gyms in Goa in which 52 members were males and 68 were females. The data regarding body weight, Fat % and Basal metabolic rate was measured and recoded using Omron body statistics measuring scale before and after lockdown of gyms. After obtaining the descriptive statistics it was seen that there are significant changes in the measurements of body statistics of gym members. Thus, due to covid-19 pandemic lockdown and gym closure, the gym members failed to do weight training in which they failed to maintain the level of fitness and adequate physical personality. So, weight training is very important and one of the best methods to maintain and improve the level of fitness along with healthy life style.
Keywords: Covid-19 pandemic, Lockdown, Body weight, Fat %, Basal Metabolic Rate

Introduction

The Covid-19 pandemic, a massive health crisis that has hit the entire world in recent times and brought the entire planet to a halt (Bavel, et al, 2020). The only way to remain safe during this pandemic was to remain indoors and maintain social distancing. The exponentially high growth in covid-19 cases led to lockdown in most of the parts of the world. The imposed lockdown resulted in closure of business activities, travel activities, public places, sports activities, fitness centers and most of the similar other activities.

Although lockdown was used as the preventive measure to stop the spread ofcovid-19, it led to many negative effects on the lives of people. The announcement of lockdown brought a drastic change in lifestyle of the people (Jiménez-Pavón et al., 2020). It also affected mental health of people in the form of stress, depression and anxiety due to reduced movements and activities and also lack of social interactions (Chtourou et al., 2020). In one of the studies it is reported that, home confinement during covid-19 resulted in decreased levels of physical activities and increase in unhealthy sleeping patterns and unhealthy food consumption (Ammar et al., 2020). Although this sudden changes affected almost every individual, it majorly also includes the people who regularly practiced fitness activities like going to the gym, practicing sports etc.The closure of gyms forced gym going people to stay home which led to sedentary lifestyle that in turn led to increased mortality rate (Bentlage et al., 2020).

Physical activities and exercising is known to keep us physically and mentally healthy as well as make our bodies strong to fight against any threats (Jiménez-Pavón et al., 2020). It has been also known to help our body respond to any diseases such as cardiovascular diseases and it consequences positively. In one of the studies it is stated that exercising leads improved levels of cardiorespiratory fitness in people of all age groups (Carl J. Lavie et al., 2019). Thus, closure of gym and fitness centres led to lack of resources for people to participate active lifestyle which in turn affected the health of people in various ways.

When fitness centres and sports activities are closed during this pandemic situation, it is very difficult for people to meet their desired fitness goals. Thus, through this study researcher wishes to study the impact of the covid-19 pandemic on the changes in body statistics i.e.: Body Weight, Fat % and Basal Metabolic rate of the gym members.

Methodology

Participants and Procedure

With the help of convenient sampling technique data of 120 gym members in which 52 males and 68 females from various gyms in Goa was taken for study.

Before beginning with the study, the gyms were identified who keep the records of body statistics of their clients on regular basis. The study was explained with regards to the benefits to the gym owners as well as members and the consent was taken to collect and use the data.

Tools:

The data regarding the body statistics was already recorded in the gym members cards. The measurements are recorded by measuring it with the help of Omron body statistics measuring scale.

Research design and statistical analysis

A descriptive survey method was used to determine the impact of covid-19 pandemic on the fitness goals of gym members.

The data was analyzed using SPSS 20 to compute descriptive statistics and data is presented in the form of Mean and Standard deviation. Further in order to identify the differences in the measurements of body statistics before and after lockdown, paired sample t test was employed.

Results/ Findings

Paired Samples Statistics

Gender	Fitness Goals	Any other physical activity			Mean	N	Std. Deviation
male	Weight Loss	P.A. yes	Pair 1	Body weight before lockdown	67.55	12	7.82
				Body weight after lockdown	72.33	12	7.52
			Pair 2	Fat % before lockdown	22.05	12	3.19
				Fat % after lockdown	23.59	12	3.07
			Pair 3	BMR before lockdown	1303	12	115.60
				BMR after lockdown	1256	12	112.36
		P.A. no	Pair 1	Body weight before lockdown	65.64	11	15.44
				Body weight after lockdown	74.54	11	15.95
			Pair 2	Fat % before lockdown	19.62	11	3.51
				Fat % after lockdown	21.76	11	3.95
			Pair 3	BMR before lockdown	1413	11	151.41
				BMR after lockdown	1288	11	140.89
	Weight Gain	P.A. yes	Pair 1	Body weight before lockdown	70.37	10	10.89
				Body weight after lockdown	49.43	10	23.59
			Pair 2	Fat % before lockdown	14.97	10	1.98
				Fat % after lockdown	13.85	10	1.67
			Pair 3	BMR before lockdown	1582	10	87.19
				BMR after lockdown	1493	10	109.25
		P.A. no	Pair 1	Body weight before lockdown	55.62	19	12.16
				Body weight after lockdown	52.48	19	12.18
			Pair 2	Fat % before lockdown	12.65	19	1.63
				Fat % after lockdown	11.95	19	1.18
			Pair 3	BMR before lockdown	1528	19	142.67
				BMR after lockdown	1452	19	164.37
Female	Weight Loss	P.A. yes	Pair 1	Body weight before lockdown	59.03	21	6.92
				Body weight after lockdown	61.63	21	6.31
			Pair 2	Fat % before lockdown	21.39	21	2.22
				Fat % after lockdown	23.84	21	2.52
			Pair 3	BMR before lockdown	1245	21	88.13
				BMR after lockdown	1150	21	253.73
		P.A. no	Pair 1	Body weight before lockdown	66.58	11	6.59

				Body weight after lockdown	72.95	11	6.96
			Pair 2	Fat % before lockdown	24.88	11	1.85
				Fat % after lockdown	30.49	11	2.52
			Pair 3	BMR before lockdown	1276	11	153.20
				BMR after lockdown	1210	11	155.01
	Weight Gain	P.A. yes	Pair 1	Body weight before lockdown	57.86	14	4.17
				Body weight after lockdown	56.70	14	4.37
			Pair 2	Fat % before lockdown	23.10	14	2.99
				Fat % after lockdown	22.60	14	2.89
			Pair 3	BMR before lockdown	1575	14	52.73
				BMR after lockdown	1552	14	64.59
		P.A. no	Pair 1	Body weight before lockdown	52.57	22	4.40
				Body weight after lockdown	52.26	22	4.66
			Pair 2	Fat % before lockdown	20.15	22	2.22
				Fat % after lockdown	19.87	22	2.23
			Pair 3	BMR before lockdown	1525	22	123.35
				BMR after lockdown	1466	22	120.17

Table 1: Descriptive Statistics of Body Weight, Fat % and Basal Metabolic Rate of Gym members before and after lockdown of Gyms from Goa.

Paired Samples Test

					Paired Differences					
Gender	Fitness Goals	Any other Physical Activity			Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
male	Weight Loss	P.A. yes	Pair 1	Body weight before lockdown - body weight after lockdown	-4.78	1.31	.38	-12.59	11	.000
			Pair 2	Fat % before lockdown - Fat % after lockdown	-1.54	.49	.14	-10.82	11	.000
			Pair 3	BMR before lockdown - BMR after lockdown	46.75	10.28	2.97	15.74	11	.000
		P.A. no	Pair 1	Body weight before lockdown - body weight after lockdown	-8.90	2.13	.64	-13.89	10	.000
			Pair 2	Fat % before lockdown - Fat % after lockdown	-2.15	1.04	.31	-6.86	10	.000
			Pair 3	BMR before lockdown - BMR after lockdown	125.46	60.43	18.22	6.89	10	.000
	Weight Gain	P.A. yes	Pair 1	Body weight before lockdown - body weight after lockdown	20.94	27.29	8.63	2.43	9	.038
			Pair 2	Fat % before lockdown - Fat % after lockdown	1.12	.70	.22	5.03	9	.001

			Pair 3	BMR before lockdown - BMR after lockdown	89.40	48.01	15.18	5.89	9	.000
		P.A. no	Pair 1	Body weight before lockdown - body weight after lockdown	3.14	1.68	.38	8.18	18	.000
			Pair 2	Fat % before lockdown - Fat % after lockdown	.70	.85	.19	3.59	18	.002
			Pair 3	BMR before lockdown - BMR after lockdown	76.58	45.03	10.33	7.41	18	.000
Female	Weight Loss	P.A. yes	Pair 1	Body weight before lockdown - body weight after lockdown	-2.60	1.54	.34	-7.72	20	.000
			Pair 2	Fat % before lockdown - Fat % after lockdown	-2.45	.81	.18	-13.87	20	.000
			Pair 3	BMR before lockdown - BMR after lockdown	94.29	215.95	47.13	2.00	20	.059
		P.A. no	Pair 1	Body weight before lockdown - body weight after lockdown	-6.37	1.67	.50	-12.69	10	.000
			Pair 2	Fat % before lockdown - Fat % after lockdown	-5.61	.99	.30	-18.84	10	.000
			Pair 3	BMR before lockdown - BMR after lockdown	65.46	89.01	26.84	2.44	10	.035
	Weight Gain	P.A. yes	Pair 1	Body weight before lockdown - body weight after lockdown	1.16	.85	.23	5.11	13	.000
			Pair 2	Fat % before lockdown - Fat % after lockdown	.50	.35	.09	5.33	13	.000
			Pair 3	BMR before lockdown - BMR after lockdown	22.86	27.30	7.29	3.13	13	.008
		P.A. no	Pair 1	Body weight before lockdown - body weight after lockdown	.31	.88	.19	1.66	21	.111
			Pair 2	Fat % before lockdown - Fat % after lockdown	.27	.30	.06	4.21	21	.000
			Pair 3	BMR before lockdown - BMR after lockdown	59.77	34.31	7.32	8.17	21	.000

Table 2: Paired sample test showing paired differences in body statistics of compared groups before and after lockdown of gyms in Goa.

The measurements of Body Statistics of gym members before and after lockdown of gyms due to covid-19 pandemic were analyzed using SPSS 20. Paired sample t test was employed in order to identify the differences in body statistics measurements. From the table it can be seen that in case of Males with a fitness goal of "Weight loss" who use to do other physical activities in lockdown had a mean body weight of 67.55 with fat % 22.04 and BMR rate of 1303 before lockdown whereas after lockdown the mean of body weight was 72.33 with Fat % of 23.59 and BMR rate as 1256 with t value of body weight as -12.59, Fat % as -10.82 and BMR as 15.74 which was found to be significantly different at 0.05 level ($p<0.05$), similarly in case of Males with a fitness goal of "weight loss" not doing any other physical activities in lockdown showed a mean body weight of 65.63 with Fat % 19.61 and BMR rate 1413 before lockdown whereas after lockdown the mean body weight became

74.53 with fat % 21.76 and BMR rate 1288 with t value of body weight as -13.89, fat % as -6.86 and BMR as 6.89 which was also found to be significantly different.

In case of males with fitness goals of "Weight Gain", doing other physical activity in lockdown shows a mean body weight of 70.37 with fat % of 14.97 and BMR as 1582 before lockdown whereas after whereas after lockdown the mean of body weight was 49.43 with Fat % of 13.85 and BMR rate as 1493 with t value of body weight as 2.43, Fat % as 5.03 and BMR as 5.89 which was found to be significantly different at 0.05 level ($p<0.05$), similarly in case of Males with a fitness goal of "weight gain" not doing any other physical activities in lockdown showed a mean body weight of 55.62 with Fat % 12.65 and BMR rate 1528 before lockdown whereas after lockdown the mean body weight became 52.47 with fat % 11.95 and BMR rate 1452 with t value of body weight as 8.18, fat % as 3.59 and BMR as 7.41 which was also found to be significantly different.

In case of females with a fitness goal of "Weight loss" who use to do other physical activities in lockdown had a mean body weight of 59.03 with fat % 21.39 and BMR rate of 1245 before lockdown whereas after lockdown the mean of body weight was 61.63 with Fat % of 23.84 and BMR rate as 1150 with t value of body weight as -7.72, Fat % as -13.87 and BMR as 2.00 which was found to be significantly different at 0.05 level ($p<0.05$),), similarly in case of Females with a fitness goal of "weight loss" not doing any other physical activities in lockdown showed a mean body weight of 66.58 with Fat % 24.88 and BMR rate 1276 before lockdown whereas after lockdown the mean body weight became 72.95 with fat % 30.49 and BMR rate 1210 with t value of body weight as -12.68, fat % as -18.84 and BMR as 2.44 which was also found to be significantly different.

In case of Females with fitness goals of "Weight Gain", doing other physical activity in lockdown shows a mean body weight of 57.86 with fat % of 23.10 and BMR as 1575 before lockdown whereas after whereas after lockdown the mean of body weight was 56.70 with Fat % of 22.60 and BMR rate as 1552 with t value of body weight as 5.16, Fat % as 5.33 and BMR as 3.13 which was found to be significantly different at 0.05 level ($p<0.05$), similarly in case of Females with a fitness goal of "weight gain" not doing any other physical activities in lockdown showed a mean body weight of 52.57 with Fat % 20.15 and BMR rate 1525 before lockdown whereas after lockdown the mean body weight became 52.26 with fat % 19.87 and BMR rate 1466 with t value of body weight as 1.66, fat % as 4.21 and BMR as 8.17 which was also found to be significantly different.

Discussion

As we know that lockdown was announced as preventive measure of covid-19 pandemic in most of the places around the world, it affected a high population of people in various ways. Lockdown had a huge impact on fitness industry in which many sports and fitness clubs, sports and fitness activities were stopped. The closure of gyms for longer period of time has affected the owners as well as the members in terms of health and fitness goals.

Fitness is said to be temporary and doing regular fitness activities is must in order to maintain the health and fitness. As there are many methods and types of fitness activities, the weight training has been already proven to be most effective for fitness and to achieve fitness goals faster like weight loss, weight gain, develop strength and endurance (Clark, D. R. et al., 2020). It has been also proven in many studies that break in weight training or complete break in physical activities can result in loss of fitness in terms of muscle loss, fats gain, loss of strength.

This study was undertaken in order to study the impact of covid-19 lockdown on gym members' fitness goals due to closure of gyms. The data of the members before and after lockdown was collected and analyzed, which revealed that there is significant difference in the body statistics of gym members i.e.: Body weight, Fat % and Basal Metabolic rate due to a break in the weight training activities. The changes were seen in all the gym members wherein some of them were doing some other physical activities during the period of lockdown and some were not doing any activities at all.

As weight training burns calories faster and more than any other activity and is very effective in losing weight, people failed to continue same amount of training in lockdown which can be the reason people failed to maintain their fitness goals. Again, the fluctuation in body composition is also due to lack of weight training in gym. In one of the studies "Strength training increases resting metabolic rate and norepinephrine levels in healthy 50- to 65-yr-old men" (Pratley, R., et al, 1994) it is already proven that weight training helps in increasing BMR, this study also shows that due to break in weigh training the BRM of gym members changed significantly and became low.

Conclusion

The present study successfully conclude that the Covid-19 pandemic has drastically impacted the gym members' fitness goals from Goa. The finding revealed that there is significant difference in body weight, Fat % and Basal metabolic rate of gym members after lockdown when compared with the measurements before lockdown. Thus, weight training is very effective in achieving and maintaining fitness level and the break in weight training can adversely affect fitness of the gym members.

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Health and nutritional status of Women in Tribal Area of Odisha: An Overview

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Abstract:

India is a diversified country with people living in urban, rural, and tribal areas. The Tribes live in almost all states except Punjab, Haryana, Chandigarh, Delhi, and Pondicherry. About 715 tribal groups and 75 primitive tribes live in India, with over 8.6 percent population. Odisha occupies a unique position in India's tribal map, with 62 scheduled tribes, including 13 primitive tribes constituting 22.8% of the state's population as per the 2001 Census. Tribal communities are considered the most vulnerable, marginalized, and disadvantaged groups in terms of socio-economic conditions, educational indexes, and health development. Their poor health indicators and status furthermore complicate their backwardness. Health is an essential factor in social development. It seems that the benefits and development have not reached this section of society properly. The tribal community's health condition is in a state of pathetic situation. The widespread poverty, illiteracy, malnutrition, absence of safe drinking water and sanitary conditions, poor maternal and child health services, ineffective coverage of national health and nutritional benefits, etc., are the major contributing factors for dismal health conditions in the tribal communities of Odisha. It is prevented by timely intervention, health awareness and, Information Education and Communication (IEC) skilled activities. The objective of this paper has been made to compile the reports from different sources on the health status of girls in a tribal area in Odisha concerning their sex ratio, age at marriage, fertility, mortality, life expectancy, nutritional quality, maternal and child health care practices, sexually transmitted diseases, genetic disorders, etc. It also covers the major determining factors to the increased incidents of disease burdens and the availability of health care infrastructure facilities in and around Odisha's tribal areas.

Keyword: Women Health; Remedial measures; Tribal area.

Introduction

The state of Orissa, the most picturesque state in Eastern India, occupies a unique position in the tribal map of India, having 62 scheduled tribal communities, unevenly distributed in forest and hilly areas, including 13 primitive tribes with 22.8% of the population of the state as per 2011 Census. According to the WHO (World Health Organization), health is a state of mental, physical, and social well-being and not merely the absence of any disease. The health status of any community is influenced by the interplay of socio-cultural, demographic, economic, educational, and political factors. The shared beliefs, traditional customs, myths, practices related to health and disease, in turn, influence the health of people who lives in the tribal area (Balgir, 2004). Health is an important component of the well-being of humankind and is a prerequisite for human development. The health status of tribal populations is inferior and worst of primitive tribes because of the isolation, remoteness and is largely unaffected by the developmental process in India and Odisha. The paper discusses the health status of the tribal women concerning sex ratio, age at marriage, fertility, mortality, life expectancy, nutritional quality, maternal and child health care practices, sexually transmitted diseases, genetic disorders, etc.

Profile of tribal women of Orissa

In India, the tribals are both the indigenous and the inhabitants. They constitute a disadvantaged sector of Indian society. The total categories of tribals are 62 in Odisha. Out of them, 15 are the main categories. The name of these tribes is Bhathudi, Bhotada, Bhuiya, Bhumiji, Gondo, Kharia, Khand, Kisan, Kolha, Munda, Oran, Paraja, Santala, Sabara, and Shavar. The tribal people, for historical reasons, have remained socially and economically backward. According to the 2011 census, the total strength of the tribal population is approximately 9 million, which constitutes 22.19% of the state's total population in Odisha. The whole tribal population of Odisha is 95902756, out of 4727732 male tribal people and 4863024 female tribal populations.

Health Status of Tribal Women

Odisha is also one of the high focus states for improving maternal health, with an MMR is of 222 deaths per 100,000 births, compared to India's 167 deaths for India. Tribal women in Odisha are 2.5 times more likely to bear a child by age 19 years and 2.7 times more likely to have more than four children. Tribal mothers are 1.3 times more likely to be underweight and anemic. While 85% of all women in Odisha deliver in health facilities, only 73% of tribal women deliver. Health problems and health practices of tribal communities have

been profoundly influenced by complex social, cultural, educational, economic, and political interplay. Studying the health culture of tribal communities belonging to the most impoverished strata of society is highly desirable and essential to determine their access to different health services available in a social setup.

The study finds that the tribal women of Orissa are in a vulnerable condition. They are disadvantageous from the non-tribal women within the state and the tribal women of all India. The disadvantage ratios for almost all indicators are unfavorable for Orissa tribal women. The indicators are the lowest wealth stratum, non-exposure to mass media, began childbearing by age 19, birth order 4+, not receiving two or more TT injections during the pregnancy, and knowledge about HIV/AIDS. Also, malnutrition is pervasive, with a high prevalence of anemia among tribal women. All these have an adverse long-term impact on their health and well-being and on that of their children. Tribal children, in comparison to non-tribal children of Odisha, were 2.6 times less to receive any vaccination, 1.4 times more anemic, 1.6 times more underweight, and had a 1.3 times higher risk of infant mortality 1.8 times higher risk of under-five mortality. The health status of tribal people is poor because of the isolation, remoteness and being largely unaffected by the developmental process in India. Most respondents are not conscious about the health programs as they are less educated and suffer diseases due to their poor socioeconomic conditions.

The primitive tribes of Orissa and their health scenario present various communicable and non-communicable disease profiles, keeping in pace with their socio-economic development. Among these, some communities still depend primarily on hunting and food gathering as the primary source of livelihood. The widespread poverty, illiteracy, malnutrition, absence of safe drinking water and sanitary conditions, poor maternal and child health services, ineffective coverage of national health and nutritional benefits, etc., have been found as possible contributing factors of dismal health conditions prevailing amongst the primitive tribal communities of the country. These can be prevented by timely intervention, health awareness, and IEC activities. The non-communicable diseases like diabetes and hypertension are conspicuously absent, indicating that the primitive tribal communities are still far from modern civilization and developments. Despite the tremendous advancement in preventive and curative medicine, the health care delivery services in these primitive tribal people are still lacking. They need to be strengthened to achieve the goal of Health for all in the country.

Remedial Measures

Attention should give to the health of tribal women realistically To achieve holistic development. Their health status can be improved significantly by scientifically executed intervention with target-appropriate educational material and techniques. There is an urgent need for the educational empowerment of tribal women in Orissa. The health care system should be designed and develop effectively to cater to the specific needs of the tribal women during pregnancy and childbirth by ensuring their involvement. Second, the 'Information Education and Communication' should reach all tribal women to enhance knowledge of H I V / A I D S, and 'Behavioral Change Communication' should be strengthened to utilize more health care services. Health interventions must focus on medical training of the tribal women and an advanced health care system that caters to the needs of tribal women.

Tribal women in Odisha had specific problems. Therefore, to improve the health status of the tribal women, the health care delivery should be designed for each particular tribal group in such a way to cater to their specific needs and problems by ensuring their involvement.

Summary and Conclusion

The above discussion reveals the differential in the health care and health condition among the tribal and non-tribal women in Odisha. The findings show that in each socio-economic, demographic, and health parameter, the tribal women are inferior to non-tribal women. Malnutrition is common among tribal women in Odisha. There is also a prevalence of anemia among the tribal women in Odisha. Maternal health care is also significantly less among the tribal women than non-tribal women in Jharkhand. The use of the modern methods of contraception is also markedly less among tribal women than non-tribal women. All these will be likely to have an adverse long-term impact on their children's health and well-being. In India, the National Health Services have neglected the tribal people and tribal women. In addition to the factors contributing to the low health status of the tribal women, cultural factors might also play a role.

The interventions for improving the health status of women under the Government of India's Child Survival and Safe Motherhood Program have not significantly improved the services for women, especially in the tribal areas of Odisha. So there is essential to create awareness among the tribal women. Health interventions must

focus on tribal culture, medical training of the tribal people, and a knowledgeable health care system in the tribal area catering to the needs of tribal women and the child.

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Studies on growth of *Macrophomina phaseolina* fungal pathogen with effect of methanolic leaves extract of *Datura metel L.*

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Abstract:

Macrophomina phaseolina (Tassi) Goid is a soil borne fungus causes root rot diseases to Sarpagandha (Rauwolfia serpentina). The fungus infects the root and lower stem of over 500 plant species and is widely distributed in the United States (Wyllie, 1988). ***The efficacy of Datura metel methanolic leaf extract*** *against growth of Macrophomina phaseolina was studied by using Methanol as solvent at different concentrations i.e., 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 % for their antifungal efficacy.*

Key words *- Macrophomina phaseolina, Sarpagandha,* ***Datura metel L.*** *Methanol, etc*

Introduction:

Macrophomina phaseolina (Tassi) Goid is a soil borne fungus causes root rot diseases to Sarpagandha (*Rauwolfia serpentina*). The fungus infects the root and lower stem of over 500 plant species and is widely distributed in the United States (Wyllie, 1988). **The fungal pathogen** *Macrophomina phaseolina* (Tassi) Goid was isolated **from the** *Rauwolfia serpentina* **roots collected from medicinal plant garden, M. A. University, Parbhani and Medicinal plant garden,** M. P. K. V., Rahuri **showing typical root rot symptoms i.e. black conductive tissue. The infected roots were sterilized with 0.5% sodium hypochlorite solution. The sterilized root were used for isolation of fungal pathogen i.e.** ***Macrophomina phaseolina*** The Locally available Datura plant leaves were used **for preparation of** Methanolic leaf extract. The Methanolic leaf extract was used to study their efficacy against *Macrophomina phaseolina* by poisoned food technique in vitro as used by Shiva et.al, (2008) and Francis Borgio, et.al, (2008) to know their inhibitory effect on the growth of *Macrophomina phaseolina*..The different concentrations used were as 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 percent. The methanol extract was tested against growth of *Macrophomina phaseolina* for 7 days incubation at room temperature and results are expressed as percent inhibition.

Materials and Methods:

Preparation of Methanolic plant part extract:

Healthy fresh Datura plant leaves was taken, washed thoroughly with fresh water and finally rinsed with sterile distilled water and dried Fifty grams dried leaves of Datura (***Datura metel L)*** were cut into small pieces and grinded in a grinder to make fine powder and then extracted in 50 ml Methanol. Extracts thus obtained were filtered through double layered muslin cloth in 150 ml flasks and plugged. The extracts then autoclaved at pressure 15 lbs for 20 minutes. Potato Dextrose Agar (PDA) medium was prepared and sterilized at 15 lbs pressure for 20 minutes. The sterilized extract was considered as standard plant extract and used for the testing their antifungal activity. The different concentrations were prepared i.e. 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 percent. The 10 ml extracts of different concentrations were individually added in 10 ml melted, cooled and sterilized PDA at the time of pouring in the petriplates and allow solidifying. After solidification a 5 mm disc of actively growing 7 days old pure culture of ***Macrophomina phaseolina*** **was inoculated aseptically in the centre of plate.** Three repetitions were made for each treatment. Medium without phytoextracts served as control. The fungal growth in diameter were observed and recorded and percent growth inhibition was also calculated as per the procedure given by Syeda Fakehha et.al. (2012).

Table -1: Effect of methanol leaves extract of *Dhatura metal L.* on growth of *M. phaseolina.*

Incubation Period (Days)	Control (methanol)	Percent inhibition									
		Concentration (%)									
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
1	7.15 (4.64)	08.97 (5.14)	09.22 (5.28)	12.52 (7.19)	14.00 (8.04)	17.25 (9.93)	21.87 (12.63)	25.80 (14.95)	29.81 (17.34)	29.97 (17.43)	30.58 (17.80)
2	9.25 (5.30)	12.90 (7.41)	13.37 (7.68)	15.90 (9.14)	19.73 (11.37)	24.89 (14.41)	29.36 (17.07)	36.27 (21.26)	45.48 (27.05)	45.55 (27.09)	46.42 (27.65)
3	12.10 (6.94)	14.22 (8.17)	17.00 (9.78)	21.28 (12.28)	27.38 (15.88)	34.63 (20.25)	37.17 (21.81)	46.45 (27.67)	51.15 (30.76)	55.36 (33.61)	57.22 (34.90)
4	15.35 (8.82)	14.95 (8.40)	19.17 (11.05)	24.57 (14.22)	31.78 (18.52)	38.89 (22.96)	48.14 (28.77)	55.90 (33.98)	62.27 (38.78)	67.17 (42.19)	69.65 (44.14)
5	18.44	16.77	20.93	26.69	33.84	42.86	56.28	64.00	70.26	71.10	75.00

	(10.62)	(9.65)	(12.08)	(15.54)	(19.86)	(25.37)	(34.24)	(40.04)	(44.63)	(45.31)	(49.19)
6	21.56 (12.45)	18.48 (10.64)	21.17 (12.22)	27.52 (15.97)	35.90 (21.03)	46.93 (27.98)	63.24 (39.51)	71.46 (45.97)	78.42 (52.43)	82.86 (57.17)	87.52 (63.13)
7	22.75 (13.14)	21.50 (12.42)	22.10 (12.76)	29.90 (17.39)	38.72 (22.77)	49.00 (29.49)	69.00 (44.03)	77.89 (51.15)	86.75 (60.17)	88.45 (63.93)	92.25 (67.32)
S.E ±	0.42	0.51	0.51	1.30	1.33	2.13	2.511	2.52	2.76	3.90	3.64
C.D at 5%	1.30	1.59	1.59	4.00	4.11	6.57	7.72	7.73	8.50	12.01	11.22

Figures in parenthesis are ARCSIN transformed value.

Experimental results and discussion:

The effect of *Datura metel L*. leaves extract against *Macrophomina phaseolina* with Methanol as solvent was tested at different concentrations i.e., 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 % for their antifungal property with the help of standard poisoned food technique. ***Datura metel*** efficacy of methanolic leaf extract from 1 to 7 days incubation period was recorded at different concentration. At 1 % concentration shows **08.97** to **21.50** %, at 2% concentration gives **09.22** to **22.10** %, at 3 % concentration shows **12.52** to **29.90** %, at 4 % concentration gives **14.00** to **38.72** % , at 5 % concentration gives **17.25** to **49.00** %, **at 6**% concentration shows **22.45 to 59.14**, at 7% concentration gives **26.27 to 72.00**, at 8 % concentration gives **29.81 to 86.75**, at 9% concentration shows **29.97** to **88.45** and at 10 % concentration gives **30.58 to 92.25** inhibition of the growth *Macrophomina phaseolina*. The efficacy of ***Datura metel methanolic leaf extract*** at 10 % concentration gives maximum inhibition of *Macrophomina phaseolina* growth with increase in incubation period as mentio**ned in table-1.**

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Impact of GST on Hotel and Restaurant Business in India: A Theoretical Prospective.

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Abstract:
The goods and services tax (GST) is a comprehensive tax on sales, manufacturing and consumption of goods and services throughout the India. The research paper is focused on the concept of GST and its impact on hotel and restaurant business in India. In VAT regime final price of the goods and services was increased due to the many more tax was paid on the base price of the goods and services such as VAT, luxury Tax, Services tax, etc., the burden of excess tax is on the final consumer. GST is uniform tax that is one market one tax. Under the GST regime cascading effect of tax is eliminated (i.e. tax on tax). With the introduction of GST it is positively impacted on the hotel and restaurant business in India because GST has reduced the tax burden on final consumer and it is also reduce the cost of hotel and restaurant room rents. With the implementation GST in India it has positively impacted on tourism and hospitality business.

Keywords: *Indirect Tax, VAT, GST, CGST, SGST, IGST, UTGST.*

Introduction:

The first major change in the history of India was the change in the tax system, i.e. the old tax system was changed and the new tax system GST was introduced on 1st July 2017 .The GST tax system replaced many indirect taxes, such as Central sales tax, central VAT, central service tax, central excise tax, state VAT, state sales tax, state entertainment tax, and luxury tax, etc. GST is one country one tax system or so it can be said that GST is one market one tax system. Under the indirect tax regime, the Indian hospitality and tourism industry was responsible for paying many indirect taxes such as VAT, luxury tax and service tax etc. But with the introduction of the GST regime, the Indian hospitality and tourism industry is expected to benefit from a standardized and uniform tax rate across the country. The industry is also reaping the benefits of better use of input tax credits. GST is expected to reduce the burden of additional taxes on consumers, reduce the cost of goods and services, improve taxes and helps to reduce business costs. The Indian economy is rapidly going through a phase of raising awareness about urbanization, Western lifestyle, and women empowerment. The result was an increase in disposable income rather than helping the growth of the hotel and restaurant business. The implementation of GST is expected to boost the hotel and restaurant business in the near future.

Review of Literatures:

Dr. S.K. Khatik and Dr. Amit Kumar Nag (March 2019) in his paper entitled on 'Impact of GST on Indian Hotel and Restaurant Business' concluded that the GST regime, both consumers and restaurant owners give reasons to express happiness. Customers will be happy to reduce the amount of payment now due to pamper their taste buds. Hotel and restaurant owners, on the other hand, can celebrate because they can now easily claim an input tax credit. But the hotel charges Rs. 7500 fare per night people will definitely feel the pain of GST as they will see a decrease in the number of tourists visiting their property as they will have to pay 28% GST.

Dr. B. Mahammad and Prof. Arunjyothi (February 2020) in his paper entitled on ' The Impact of GST (Goods and Services Tax) in India- A Special Reference to Restaurant Business in India' concluded that The introduction of GST rate in the hotel was completed by the resistance of the hotel. However, most hoteliers expressed confidence in the system after the tax rate was revised. GST is a transparent and uniform tax across the country which can reduce tax evasion and bring more revenue to the government. Companies that focus on food and beverages have been found to be the most important beneficiaries in the hospitality sector (budget hotels benefit), while hotels with a tariff range of 18-28% have been hit hard. In contrast, the new GST rate structure will have a positive impact on the cloud kitchen and food delivery business of smaller restaurants as they will charge less than AC food establishments and high-end restaurants.

CA Savita A. Desai (March 2020) in her paper entitled on 'Impact of GST on the business of Hotel Industry in Maharashtra' concluded that GST is not difficult to understand for customers but the customers attitude toward GST is not favourable. They found that GST implementation in India is effective and GST is not affecting the business of hotel industry. GST has positively affecting on the hotel industries.

Dr. Devendra Kumar Sharma (March 2020) in his paper entitled on 'Impact of GST on Hotel Industry – A Case Study of Hotel Arya Niwas Jaipur' concluded that The implementation of GST is a major step by the Government of India. The hospitality industry is a versatile field that includes accommodation and leisure services, food and beverages, event management and all guest satisfaction. There were many tax systems

and tax overtax in this industry. The introduction of GST in the hospitality sector has helped reduce many tax systems and tax overtax. The hotel's VAT rate on rooms is 8.4% - 14.5% plus luxury tax 10% and service tax 2.5%. The effect of GST will be positive and the tax will be reduced by 12% to 18% respectively. It will be difficult to get all the receipts / receipts for inbound and outbound supply as they have to be uploaded in the system.

Objectives of the Study:

1. To study the Goods and Services Tax and its impact on hotel and restaurant business in India.

Hypothesis:

1. There is positive impact of GST on hotel and restaurant business in India.

Research Methodology:

For the study data has been collected from various published sources i.e. online as well as offline, such as newspapers, articles, different research journals and different websites.

Background of GST in India:

The Kelkar Task Force on the Implementation of the Financial Responsibility and Budget Management (FRBM) Act, 2003 had pointed out that although India's indirect tax policy has been steadily advancing towards VAT since 1986, the existing system and services of goods taxation still suffer from many problems. The tax base is broken between the center and the states. Services are not properly taxed for half of GDP. In most cases, there is a cascading effect on the existing tax structure. These problems bring about various distortions in the economy as well as increase the GDP ratio of low taxes. Kelkar Task Force has proposed that Comprehensive Goods and Services Tax (GST) are based on VAT. Value Added Tax (VAT) is a modern progressive system of sales tax. This leads to self-assessment of the system by increasing transparency and mutual trust. It is charged and compiled by the dealers at the price paid by the customer. The Empowered Committee published a White Paper on VAT on January 17, 2005. This was a uniform basis tax created by the states, to avoid competition between states. VAT changes sales tax on January 4, 2005. An Empowered Committee (EC) set up by the Government of India provides the basic framework for uniform VAT law in the states but states have the freedom to determine their own assessment for VAT levied in their respective territories. The 2006-2007 Union Budget speech saw the first attempt to introduce a new tax system. Former Finance Minister Shri. P. Chidambaram criticized that the India is the largest country in the world and its needs to move towards GST. At the national level GST that must be shared between the centre and states. He proposed the date of implementation of GST on April 1, 2010. The present rates of service tax and CENVAT, which are very close to the global rate of GST, and the continuous steps taken in phases outside the Central Sales Tax (CST), are clear indications of the Government of India's efforts. Subsequently, an Empowered Committee (EC) of state finance ministers agreed to work with the central government to prepare a roadmap for the implementation of GST at the national level from April 1, 2010. In May 2007, in consultation with the Central Government, an Empowered Committee of State Finance Ministers (EC) set up a Joint Working Group (JWG) to recommend the GST model. The order of the working group is as follows:

1. The GST should be structured in such a way that it will keep the revenue between the Center and the states neutral.
2. The interests of special categories, north-eastern states and union territories should be kept in mind.
3. The group will examine different models and ensure that the power of revenue collection, collection and appropriation must be delegated to the Center and the State through pros and cons.
4. Different models have to make sure to avoid double taxation.
5. The proposed models should take into account the difficulties encountered in interstate transactions and potential revenue loss.
6. Emphasize treatment of zero-rate goods and services and non-VAT goods.
7. The interests of the Center, the States, trade, industry, agriculture and services will be adequately represented.

Within months of the November 2007 incident, Joint Working Group (JWG) submitted its report on GST to an Empowered Committee. The report on GST submitted by the Joint Working Group (JWG) has been accepted by the Committee. The Committee has sent its recommendations to the Government of India in the form of the 'Model and Roadmap for the 'Goods and Services Tax' dated 30 April 2008, which outlines the proposed GST design. In order to get a proper response to the committee, the views of the Empowered Committee (EC) are being scrutinized in the Ministry of Power to facilitate further proceedings.

The recommendations of the Joint Working Group on Goods and Services Tax are as follows:

1. GST should have two components, central tax and uniform state tax across the country.
2. GST and higher taxes can be levied on states, tobacco, petroleum and alcohol.

GST may have a quadruple tax structure instead of a dual VAT structure. It can have four components:

1. A central tax on goods and extending up to the retail level;
2. A central service tax;
3. A state – VAT on goods, and
4. A state – VAT on services.

Given four fold structure there can be at least four rate ranges - one for each of the above components. In this system the taxpayer is required to calculate the tax liability separately for different rates of tax.

Concept of GST:

GST is a value added tax imposed on the manufacture, sale and use of goods and services. GST offers a comprehensive and uninterrupted series of tax credits from retailers or from manufacturer's points or service providers at prices added at each stage of the supply chain. The supplier at each stage is get to take credit for the GST paid on the purchase of goods and services and this credit can be given to supplier for the GST payable on supply of goods and services. Thus, the final consumers are bear the GST, which is charged by the last supplier in the supply chain, with set of benefits at all the each previous stages. Since the value added at each stage is taxed under GST, cascading of taxes under GST i.e. there is no tax on tax and it does not differentiate between goods and services and thus, the two are taxed at a single rate.

Framework of GST:

Given the federal structure of the country, India has adopted a double GST model. As a result, the Center and the State simultaneously imposed GST on the taxable supply of goods or services or both in the State or Union Territory. Now, the central government as well as the intra state and state governments have the power to levy taxes. Tax services are also enabled. GST is spread all over India including the state of Jammu and Kashmir. The Center now has the power to levy tax on intra-state sales and the states are also empowered to provide tax services. GST includes supply and services of taxable goods under CGST, SGST and UTGST which are subject to Integrated Goods and Services Tax (IGST). IGST is approximately the total CGST and SGST / UTGST and is levied by the Center on all interstate supplies.

Types of GST:

A] Central goods and services tax (CGST):

CGST refers to Central Goods and Services Tax imposed by Central Government on any transaction of goods and services tax and these transactions are completed in a state it is one of the two taxes which is charged on goods and services of intra state transaction. One is CGST and the other being SGST or UTGST. CGST replaces all central indirect taxes. The rate of CGST and SGST are equal and both taxes are charged on the cost price of the product. Let's understand with an example: Rajesh sales goods to Amit amounted to Rs. 10,000 in the same state (Maharashtra), the tax rate of GST is 18% i.e. 9% GST is applicable to CGST and 9% GST is applicable to SGST, these taxes is computed on the cost price of goods i.e. on amount of 10,000. We compute 9% CGST and 9% SGST. The final price of goods is Rs. 11,800. It means total amount of GST is Rs. 1,800. This GST is distributed between Center and State equally i.e. Rs. 900 is CGST and Rs. 900 SGST.

B] State goods and services tax (SGST):

SGST refers to State Goods and Services Tax Imposed by State Government on any transaction of goods and services tax and these transactions are done in a state. It is one of the two taxes which is charged on goods and services of intra state transactions. One is SGST (State GST) and another is CGST (Central GST). SGST replaces all State indirect tax such as State VAT, State Sales Tax, State Entertainment Tax, State Luxury Tax, State Cess and Surcharge. Let's understand this with an example: Mr. Sumit from Maharashtra wants to sell goods to Prashant in Maharashtra. The goods original cost is Rs. 10,000, will attract GST at 18% rate comprising of 9% CGST rate and 9% SGST rate. The State GST amount is Rs. 900 (i.e. 9% on 10,000) which is fully claimed by the Maharashtra State Government.

C] Integrated goods and services tax (IGST):

Integrated Goods and Services Tax is applicable on Interstate transactions (i.e. transactions take place between two states) of goods and services as well as import of goods and services. Integrated GST will be collected by the Central Government and then distributed among respective states. Let's understand IGST with an example: Arvind is a manufacturer in Maharashtra who sold goods of Rs. 20,000 to Ganesh in Gujarat, since it is an interstate transaction, IGST will be applicable here; let's assume here GST rate is 18% for the particular goods so the IGST charged 18% on Rs. 20,000, the IGST will be Rs. 3,600. This Rs.

3,600 is distributed between Central Government at 9% CGST rate i.e. amounted to Rs. 1,800. Remaining 9% GST is distributed between the state of Maharashtra and State of Gujarat i.e. Rs. 900 SGST claimed by Maharashtra State Government and Rs. 900 SGST claimed by Gujarat State Government.

D] Union territory goods and services tax (UTGST):

The GST applicable on the transactions takes a place in any of the seven union territories of India out of which two union territories with the legislature including Puducherry and Delhi, remaining five union territories are without legislature including Andaman and Nicobar Island, Dadar and Nagar Haveli, Daman and Diu, Chandigarh. UTGST is only applicable to five Union Territories of India. The reason why the separate GST is implemented in Union Territories is that common state GST cannot be applied in a Union Territories without legislature. Puducherry and Delhi Union Territories already have their own legislature, in both Union Territories SGST is applicable. UTGST will be charged in addition to CGST explained above. For any transactions of goods and services within a Union Territories may charge CGST + UTGST.

Input tax credit:

Input Tax Credit refers to ITC it means at the time of paying tax on output, business owner can reduce the tax which was already paid on inputs and paid the remaining balance of tax to Government. The basic concept of ITC is to avoid the cascading effect of tax i.e. to eliminate tax on tax system.

Hotel and Restaurant Business:

The Indian tourism and hotel and restaurant business has emerging key driver of growth in the service sector in India. Considering the rich cultural and historical heritage, the diversity of the environment, the terrain and the natural beauty spans spread across the country, the tourism sector has significant potential. Tourism is an important source of foreign exchange in the country as well as a potential job creation. In PY 20, the tourism sector generated 39 million jobs, accounting for 8.78% of the country's total employment. About 53 million jobs are expected by 2029. According to the WTTC, India ranks 10th out of 185 countries in terms of total contribution of travel and tourism to GDP. The contribution of Indian tourism and hospitality to GDP was 8.8% of the total economy, Rs. 13,68,100 crore.

Impact of GST on hotel and restaurant business in India:

Under the previous VAT regime, the hospitality industry had to pay many taxes like other sectors of the Indian economy, such as VAT, Service Tax and Luxury Tax. The cascading effect under VAT resulted in an increase in the final price because the consumer has to bear the tax paid on the values, including taxes. Hotel taxes and hospitality businesses did not receive any input tax credit for the taxes they paid, as central taxes such as service taxes could not be levied against state taxes (VAT).

VAT Regime:

Sr. No.	Room Rent Per Night	VAT	Luxury Tax	Service Tax	Swachh Bhart Cess.	Krishi Kalyan Cess.
1	Below Rs. 5,000/-	8.40%	10%	2.50%	0.2%	0.2%
2	Above Rs. 5,000/-	14.50%	10%	2.50%	0.2%	0.2%

Let us understand this with an example:

1) If a customer's bill is Rs. 4,000, then customer has to pay all tax on his bill. The bill is Rs. 4,000 plus 8.40%VAT plus 10% Luxury Tax plus 2.50% Service Tax plus 0.2% Swachha Bhart Cess plus 0.2% Krishi Kalyan Cess. The cascading effect under VAT resulted in an increase in the final price because the consumer has to bear the tax paid on the values, including taxes Rs. 4,952/-.

2) If a customer's bill is Rs. 10,000, then customer has to pay all tax on his bill. The bill is Rs. 10,000 plus 8.40%VAT plus 10% luxury tax plus 2.50% service tax plus 0.2% Swachha Bhart Cess plus 0.2% Krishi Kalyan Cess.. The cascading effect under VAT resulted in an increase in the final price because the consumer has to bear the tax paid on the values, including taxes Rs. 12,740/-.

GST Regime:

Under the Goods and Services Tax, the hospitality sector appears to have benefited from a standardized and uniform tax rate and easy and efficient use of input tax credits. Only when the end price of the user is low is it expected to attract more local and foreign tourists than before this would ideally add to the government's revenue. The new tax rules have many positive provisions that can boost the growth of the industry in the long run. For example, complimentary breakfasts were taxed separately under VAT, but will now be taxed as a combined service with accommodation under GST. GST rates for hotels based on hotel tariff are as follows (till 30.09.2019)

Old GST Rates for hotels business:

Sr. No.	Room Rent	GST Rate
1.	Rs. 0 to Rs. 1,000 per day	Exempted

2.	Rs. 1001 to Rs. 2,499 per day	12% with full ICT
3.	Rs. 2.500 to Rs. 4,999 per day	18% with full ICT
4.	Rs. 5,000 per day and above	28% with full ICT

Old GST rates for restaurant business:

Sr. No.	Room Rent	GST Rate
1.	All stand – alone restaurants without air conditioning or anything else.	5% Without ITC
2.	Food parcels	5% Without ITC
3.	Restaurants in the hotel area charge Rs. The fare is less than 7500 per day per unit.	5% Without ITC
4.	Room rates of Rs 7500 and above per unit per day in restaurants in the hotel area (even for one room)	18% With ITC
5.	Outdoor catering	18% With ITC

The above rate was criticized by all stakeholders in the hotel and restaurants sector. Riaz Amalani, president of NRAI (National Restaurant Association of India), said heavy taxation and regulations would lead to revenue leakage and it is serious for the tourism and hospitality industry. Policies regarding hotels and restaurants should be given special attention as they provide a lot of revenue to government and employment opportunities to peoples. The GST Council finally considered revising hotel and restaurant rates. The final rate structures for hotels and restaurant business applicable on 01st October 2019 are as follows:

Present final GST rates for hotels business:

Sr. No.	Room Rent	GST Rate	Under Section
1.	Rs. 0 to Rs. 1,000 per day	Exempted	Section 9963 (Accommodation, food and beverage services)
2.	Rs. 1001 to Rs. 7,500 per day	12% with ICT	
3.	Rs. 7,501 per day and above	18% with ICT	

Present final GST rates for restaurant business:

Sr. No.	Room Rent	GST Rate	Under Section
1.	All stand – alone restaurants without air conditioning or anything else.	5% Without ITC	Section 9963 (Accommodation, food and beverage services)
2.	Food parcels	5% Without ITC	
3.	Outdoor catering services other than in restaurant premises having daily fare for accommodation of Rs. 7,501 and below per unit per day	5% Without ITC	
4.	Catering Services within restaurant premises having daily fare for accommodation of Rs. 7,501 and above (only single room)	18% with ITC	
5.	Indian Railways Catering and Tourism Corporation Ltd	5% Without ITC	
6.	Catering Services within restaurant premises having daily fare for accommodation of Rs. 7,501 and above	18% with ITC	

Let us understand this with an example:

1) If a customer's bill is Rs. 4,000, then customer has to pay all tax on his bill. The bill is Rs. 4,000 plus 12% GST. The cascading effect under GST is eliminated resulted in a decrease in the final price. Final price of bill including GST is Rs. 4480/-.

2) If a customer's bill is Rs. 10,000, then customer has to pay all tax on his bill. The bill is Rs. 10,000 plus 18% GST. The cascading effect under GST is eliminated resulted in a decrease in the final price. Final price of bill including GST is Rs. 11,800/-.

Conclusion and Findings:

Under the previous VAT regime hotel and restaurant rooms' final price is increased duty cascading effect of tax. With the help of above example in VAT regime the cost of hotel room including tax is Rs. 4,952/-, in GST regime GST has eliminate cascading effect of tax means tax on tax so cost of

hotel room including GST is Rs. 4,480. Hotel and Restaurant business was faced multiple tax regimes and a victim of tax over tax. GST helps to reduce the multiple tax system and introduce uniform tax system and it will boost the to the Hotel and Restaurant business in India. In the above examples hotel and restaurant VAT on rooms was 8.40 to 12.50 plus 10% Luxury Tax, plus 2.50% Service Tax Plus 0.2% Swachh Bhart Cess Plus 0.2% Krishi Kalyan Cess, the effect of GST is positive leading to a considerable reduction in taxes i.e. 12% to 18% and 5% to 18% hotel and restaurant business respectively in India. Hotel and restaurant sector is a priority of the government hotel and restaurant business including tourism contribution 6.23% of national GDP and 8.78% total employment in the country. Hotel and restaurant business helps to building the nation and is going beyond the border.

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Positive Environmental Effects of Covid-19 Pandemic

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Abstract-
On late December 2019 in Woohan city, in China an unusual pneumonia was noticed with a link to an animal market that sells poultry and other animals to the public.This event was soon reported to the World Health Organization (WHO).The casual microorganism had been identified as a novel coronavirus that was named Covid-19. Covid-19 soon spread to other parts of the World. The World Health Organization has declared the situation a Pandemic. The review article shows that the lockdown has induced numerous positive impacts on the environment also clearly benefited to other sectors which must be considered as the spotlight for the permanent revival of the global ecosystem.

Keywords – *Covid-19 benefits, Environment, Air Pollution, Noise ,Water ,Energy ,Wildlife.*

Introduction-

Coronavirus disease (Covid-19) is an infectious disease caused by a recently identified coronavirus. Most people infected with the Covid-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical co-morbidity like cardiovascular disease, diabetes, chronic respiratory diseases and cancer are more likely to develop serious illness.During this pandemic major International and domestic flight have been cancelled, transport system including railway services bus, truck and vehicle transport have been suspended, Except good-trains and emergency vehicles. Educational,Commercial sport and Spiritual institutions were closed , social gathering were restricted and people wear advised to stay at home. Manufacturing Industries, Power plant stop their production except those related to essential services. This induced a sharp drop in industrial, social and economic activities. Nonetheless Lockdown also induced a strong reduction in air and water pollution.

Impact of Covid-19 lockdown on Environment-

Air Quality-

Before the start of Covid-19 pandemic, the air around us had been deemed very toxic to breathe in due to amount of greenhouse gases that had been emitted over the century. The Earth faced rising temperature which in terms lead to the melting of glaciers and rising sea levels. Environmental degradation was happening fast due to the depletion of resources. After the lockdown was put in place in many countries, there was lesser traveling done by people, whether it be by their own cars or by trains and flights. An industries were closed down and not allow to functions. This in turn led to the pollution in the air dropping significantly, as there was a mark decline in nitrous oxide emission.

Water Quality-

Since there were no boats, whether they be fishing or pleasure ones, playing on the rivers and waterways, the water has cleaned up. The water become so clear that the fish could be seen and there was better water flow. No doubts, because of the lesser human footfall even the oceans are recovering and marine life is thriving Because of reduction in both traffic, sediments have settled resulting in the reduction in turbidity. Banning tourist during lockdown has also reduced water pollutants released by tourist. This clear water has enabled other creatures such as fish , dolphins and swans to come back to these canals and waterways. The other advantages are nationwide lockdown is the improvement of the water quality in some Indian rivers which are normally exposed to polluted industrial and human effluents.

Reduction of Noise Pollution-

Noise pollution is generally elevated sound levels that may leads to adverse effect in humans or other living organisms. According to World Health Organization, sound levels less than 70 dB are not damaging to living organism, regardless of how long our consistent the exposure is. Exposure are far more than 8 hours too constant noise beyond 85 dB may be hazardous. If you work for 8 hours daily in close proximity to a busy road or highway, you are very likely exposed to traffic noise pollution around 85 dB. Noise generated from different human activities (e.g. machines, construction work) which may lead to adverse effect in human and other living organisms. However the quarantine and lockdown measures mandate that, People stay at home and reduced economic activities and communications worldwide, which ultimately reduced noise level in most cities. As a result, city dwellers are now enjoying the chirping of birds, which usually range from 40 to 50 dB. Moreover due to travel restriction vehicular movement and the number of flights have drastically reduced around the world which have ultimately reduced the level of noise pollution.

Effect on Wildlife –

Again where fish is concern, the lockdown has seen a decline in fishing which means that the fish biomass will increase after overfishing almost depleted, apart from that animals have been spotted moving about freely where once they would not dare to go. Even turtles has been spotted returning to areas they once awarded to lay their eggs, all due to the lack of human interference.

Effect on Vegetation-

Plants are growing better because there is cleaner air, water and because of again there is no human interference. They grow and produce more coverage and oxygen.

Effect on Energy -

A substantial decline in energy was observed in countries that followed complete or partial lockdown. For example in India where lockdown was implemented quite stringently, peak power demand dropped to 134.89 gigawatts in 2020 as compared to 168.62 gigawatts in 2019. A similar trend was also observed for coal consumption of both fossil fuels and electrical energy has been dramatically reduced in the industry, public (offices/oices), education sectors and private organizations.

Conclusion-

Covid-19 has imparted many positive changes in a chemical composition of the environmental worldwide. Covid-19 induced lockdown have resulted in reduction air pollution, water pollution. There is fear that once people starts traveling again or go back to doing what they have been doing, all the positive impact will be disappear. Covid-19 has created enormous positive effects on environment which must be considered as spotlights for better management of the environment in the future.

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Vulnerability of Drinking Water: A Case Study in the Grampanchayats of Patharpratima Block of Sundarban In West Bengal

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Abstract:
The Indian Sundarban lies in the tide dominated southern part of deltaic West Bengal and support of 44262259 strong population covering the area of 4260 sq.km (2011). Freshwater is a scarce as fixed resource in the Sundarban through it is netted by numerous tidal-salted Creeks, Gangs, Khals and rivers from Bay of Bengal to the interior of islands. Scarcity of fresh water above and below the ground during the dry season, increasing siltation leading to reducing depth of channels, high salinity of soil and water along with drainage congestion make it very difficult for the people to secure their livelihood. The present paper assesses the demand and availability in respect to vulnerability of drinking water during storm and flood period among the Grampanchayats of Patharpratima Block in the district of South 24 Parganas in Westbengal Sundarbans. In addition to these factors, tropical cyclone induced storm surge and saltwater intrusion also induce potential risks to the quality of the coastal aquifers. Spatial distribution maps were also generated to identify highly vulnerable groundwater locations. We have served the present scenario of the drinking water vulnerability in the Grampanchayats of Patharpratima blocks through analysis of several indices i.e. HRDI, DWBI,DWDI, DWVI, Storm vulnerability by Creek area and Dependency ratio of Population and Spot sources of Drinking water respectively.

Key words: Tidal-Salted Creeks, vulnerability, coastal aquifers, HRDI, DWBI,DWDI, DWVI.

Rationale of the study:
Water is under stress due to its limited supply and increasing demand all over the world (Rudra 2009). Rivers around the world are highly variable and unpredictable. Ground water is also vulnerable due to over exploitation and the rain water is most unpredictable over time and space (Bhadra 2013). Climate variability and continual occurrence of cyclones, flood and storm surge have greater implications on fragile ecosystem of Indian Sundarban Biosphere Reserve (SBR). In this perspective the present study analyses the -region, on the south western tidally active edge of the Ganges-Brahmaputra delta. Freshwater is not available in plenty in Sundarban though it is traversed by numerous creeks and rivulets. The present study attempts to assess the vulnerability of drinkable freshwater in the Grampanchayats of Patharpratima Block of South 24 Parganas.

Objective of the study: The Objectives of our study are:
A. To assess the Human Resource Development in the Grampanchayats of the Patharpratima Block.
B. To determine the Dependency Ratio between Population and Spot sources of Drinking Water in the Grampanchayats of the Patharpratima Block.
C. To assess the Drinking Water Development Indices in the Grampanchayats of the Patharpratima Block.
D. To Determine the Storm indices in the Grampanchayats of the Patharpratima Block.
E. To Evaluate the Vulnerability in respect to Drinking water in the Grampanchayats of the Patharpratima Block.

Methodology: The Primary and secondary data have been collected from Grampanchayat office and B.D. Office and Census of westbenfgal-2011 which are classified, calculated and tabulated in the following statistical techniques i.e.
a) Standardized data by Z-Score= (Actual-Mean)/Standard Deviation
b) All Z-Scores of Component multiplied by their weightage values and sum as Weighted Composite Indices and at last
c) The Dimension of Index is calculated by the formulae i.e. (Actual Value-Minimum value)/(Maximum Value-Minimum Value). Finally the spatial indices maps have been finished using all the indices values in the Grampanchayats of Patharpratima Block by Quantum GIS 3.18 software.

The Study Area:
The distributaries of the Hoogli-Bhagirathi which criss-cross this land include Baratala, Saptamukhi, Thakuran, Kalchera, Gobadia, Mridanga-Bhanga, Matla, Gosaba, bidya, Hatania-Duania, Herobhanga etc. They are fed by sea tides twice a day.Sea water enters more than 100 km through these estuaries and inundate the low-lying plains. The Patharpratima Block is the extreme south facing block of western Sundarban of South 24 parganas district extending from 88.17degree East to 88.55 degree East and 21.53 degree north to 22.08 degree north. The Pathar Pratima block comprises with 15 Grampanchayats from north to south i.e. Dakhin, Gangadharpur, Dakhin Roypur, Srinarayanpur Purna Chandrapur, Digambarpur,

Ramganga, Durbachati, Gopalnagar, Patharpratima, Banasyamnagar, Achintyanagar, Lakshmi-Janardanpur, Herambagopalpur, Sridharnagar, Brajaballavpur, G-Plot.

LOCATION OF THE STUDY AREA-2021

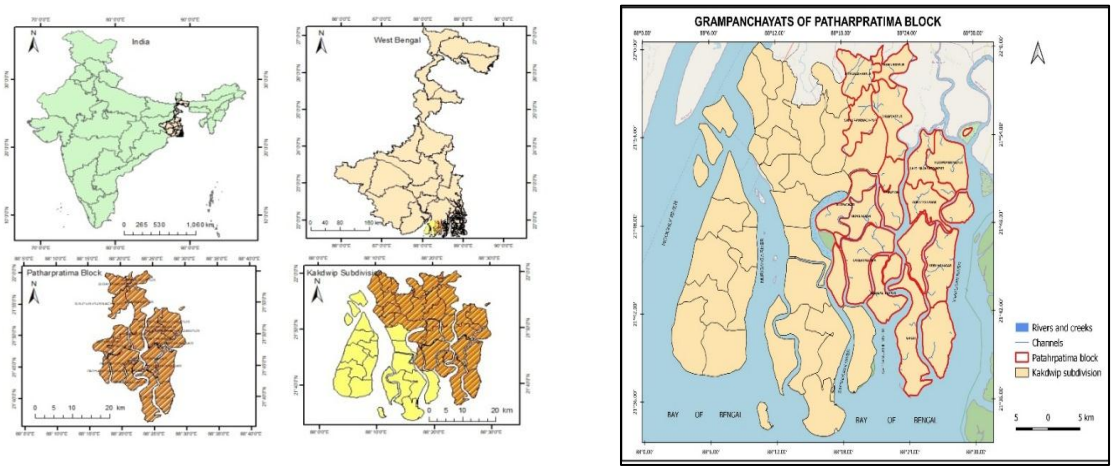

Fig:1 (a-e), Prepared by Author, 2021

Findings:

A: Human Resource Development Index-

(i) High development Zone: Digambarpur, Pathar and G-Plot Grampanchayats are belonging at this zone ranking with greater than 0.8 HRDI (Human Resource Development Index) levels.

(ii) Medium Zone: Achintyanagar and Dakhin Gangadharpur are lying at this zone with 0.7 to 0.8 HRDI levels.

(iii) Low & Very Low Zone: The Rest ten Grampanchayats i.e. Lakshmi-Janardanpur, Brajaballavpur, Ramganga, Banasyamnagar,

Herambagopalpur, Durbachati, Gopalnagar, S.N.Pur-Purnach-Pur, Dakhin Roypur, Sridharnagar are standing their low levels in this respect and Sridharnagar is at very low level (0.01)

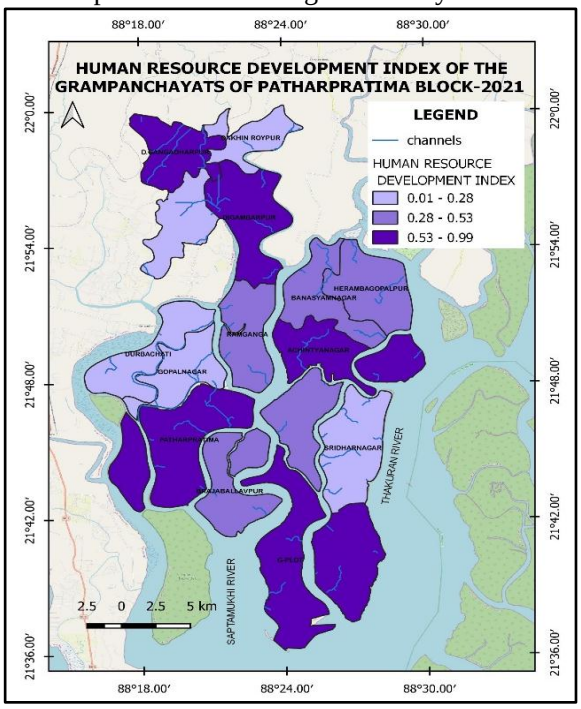

Fig: 2, Prepared by Author, 2021 of Human Resource development.

B: Dependency Ratio (Population /Tube well):

(i)High (200-151): Dakhin Gangadharpur, Dakhin Roypur, Sridharnagar, G-Plot, S.N.Pur-Purnach-Pur, Durbachati are in this class with more than 151 person per Deeptube well.

(ii)Medium(151-130):Brajaballavpur, Achintyanagar, Lakshmi-Janardanpur, Herambagopalpur, Patharpratima Grampanchayats are in this class.
(iii) Low (130-78): Gopalnagar, Digambarpur, Banasyamnagar, Ramganga are belonging to the low dependency level.

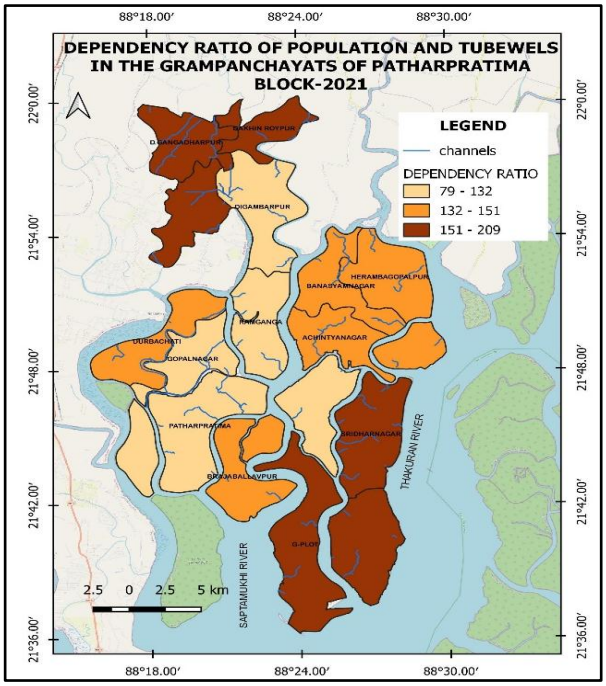

Fig: 3, Prepared by Author, 2021

Quantitative Analysis Of The Indices In The Grampanchayats Of Patharpratima-2021

Sr.	Grampanchayats	Hrdi	Pop/Sources	Dwdi	Storm Vulnerability	Dw-Vulnerability Index
1	D.GANGADHARPUR	0.714	209	0.746	0.0002	0.414
2	DAKHIN ROYPUR	0.041	183	0.001	0.0004	0.550
3	S.N.PUR-PURNACH-PUR	0.053	153	0.286	0.0107	0.574
4	DIGAMBARPUR	0.825	106	0.993	0.0165	0.252
5	RAMGANGA	0.419	79	0.893	0.3747	0.319
6	DURBACHATI	0.138	150	0.401	0.3771	0.593
7	GOPALNAGAR	0.125	127	0.247	0.3281	0.435
8	PATHARPRATIMA	0.874	131	1.000	0.6410	0.713
9	BANASYAMNAGAR	0.382	95	0.429	0.5420	0.594
10	ACHINTYANAGAR	0.737	144	0.720	0.3945	0.493
11	LAKSHMI-JANARDANPUR	0.441	144	0.434	0.2388	0.477
12	HERAMBAGOPALPUR	0.344	133	0.388	0.2667	0.727
13	SRIDHARNAGAR	0.011	160	0.089	0.5243	0.858
14	BRAJABALLAVPUR	0.439	148	0.487	0.6071	0.613

15	G-PLOT	0.990	156	0.756	0.9972	0.667

Table-1, computed by author, Datasource; B.D.O. Pathar Pratima, Census of WB, 2011

C: Drinking Water Development Index:

(i)High (0.73to 1.0): Patharpratima, Digambarpur, Ramganga, G-Plot. Dakhin Gangadharpur have contributed at this levels of Drinking water Development

(ii)Medium (0.73to0.4): Achintyanagar, Brajaballavpur, Lakshmi-Janardanpur, Banasyamnagar, Durbachati Grampanchayats are in this class.

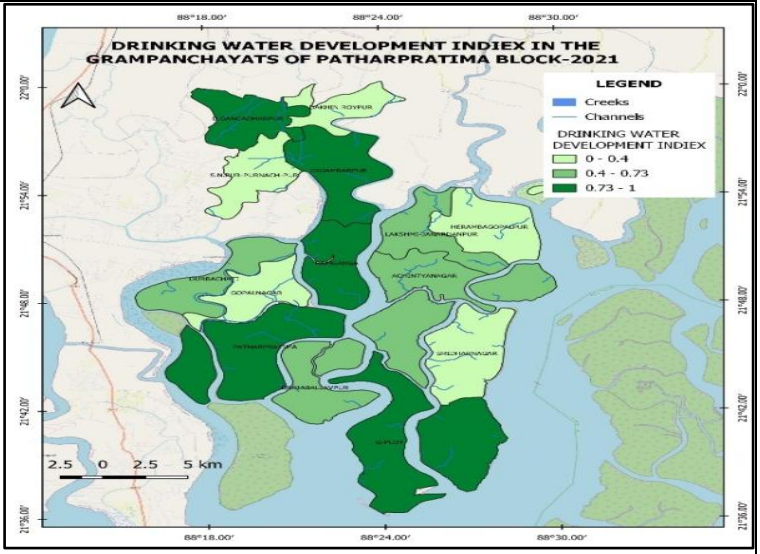

Fig: 4, Prepared by Author, 2021

(iii)Low (0.4 to 0.1): Herambagopalpur, S.N.Pur-Purnach-Pur, Gopalnagar, Sridharnagar, Dakhin Roypur Grampanchayats rank in poor category in development of drinking water.

D: Storm Vulnerability Index: On the basis of Creek lengths, location and damaged by cyclones and tidal flood the storm vulnerability Indices are calculated and analyse herewith:

(i)High (1-0.44): This vulnerable zone comprises with G-Plot, Patharpratima, Brajaballavpur, Banasyamnagar, Sridharnagar Grampanchayats.

(ii) Medium (0.44-0.26): The Grampanchayats of Achintyanagar, Durbachati, Ramganga, Gopalnagar Herambagopalpur are within this class.

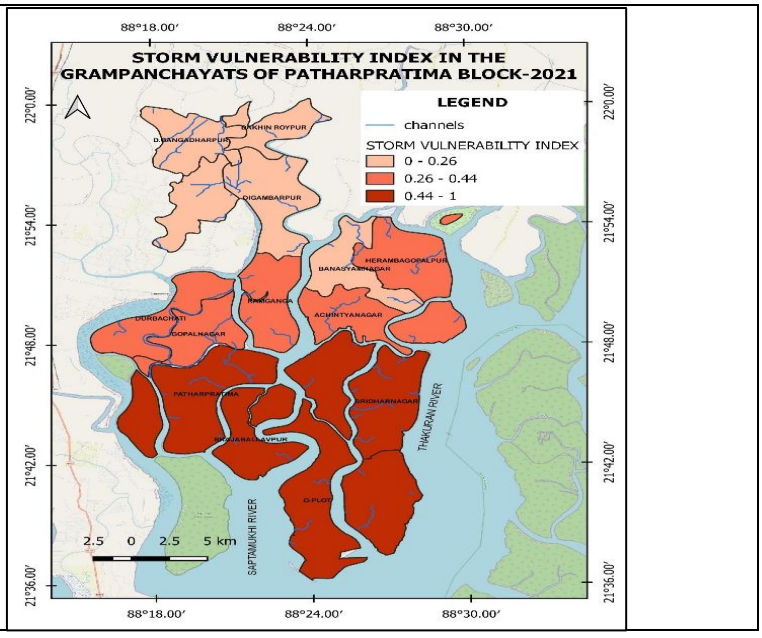

Fig: 5, Prepared by Author, 2021

(iii) Low (0.26-0.1): These group of Grampanchayats have linked with interior land of the district, hence the storm vulnerability is not strong on the Lakshmi-Janardanpur, Digambarpur, and Srinarayanpur-Purnachandrapur, Dakhin Roypur, D.Gangadharpur Grampanchayats

E: Drinking water Vulnerability Index: On the basis of overall negative components for availability of pure drinking water and extension of tidal creeks, Gangs, Khals, Rivers and Sea of the Fifteen Gram Panchayats of this block are categorized into three classes i.e.

(i) High Vulnerability Zone (1 to 0.6): The Grampanchayats of Sridharnagar, Herambagopalpur, Patharpratima, G-Plot, Brajaballavpur are bounded by

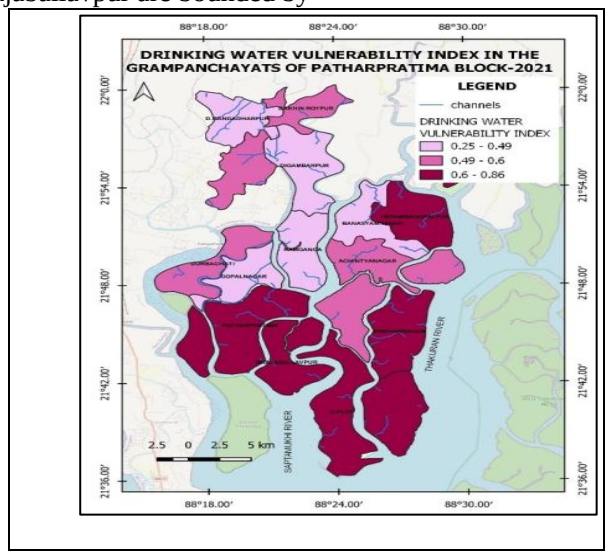

Fig: 6, Prepared by Author, 2021 several tidal creeks and became hazard prone region during cyclones i.e. Aila, Amphan, Yash and other supercyclones etc. Hence these Grampanchayats are more vulnerable as scarcity of drinkable and households sweet water.

(ii) Medium (0.6 to 0.4): Banasyamnagar, Durbachati, S.N.Pur-Purnach-Pur, Dakhin Roypur, Achintyanagar, Lakshmi-Janardanpur and Gopalnagar Grampanchayats are belonging this class due to decrease the intensity of storms and cyclonic effects.

(iii) Low (0.4 to 0.1): Almost Landlocked Grampanchyats of this block like Dakhin Gangadharpur Ramganga and Digambarpur are very low intensity in drinking water vulnerability.

Conclusion:

Present study has analyzed the vulnerability of drinking water and its impact on the coastal communities of the western Sundarban in the Grampanchayats of Patharpratima Block, south 24 Parganas district in west Bengal. The Ground water aquifer is much more depth in 300 metres or 1000 feet from the surface, in rainy season and cyclonic storms- salted creek water inundated through passing from the damaged embankments, surface ponds and tanks are getting polluted by saltwater during Aila (2009), Fani (2019),Amphan (2020), Yash (2021), hence deep tube wells are getting polluted and submerged under storm-surge salted water among the sea facing and tidal-creeks belted Grampanchayats i.e. G-Plot, Brajaballavpur, Shreedharnagar, Achintyanagar, Banashyamnagar, Lakhijanardanpur, Patharpratima and Durbachati of Patharpratima block. The State government of west Bengal provides the adequate Relief Centers at every Grampanchayat of this Block to rescue the affected villagers and also provides supplementary drinking water, shelter and food during hazards and disasters.

Suggestions and Recommendations:

Embankment is the lifeline of the Sundarbans people. So, management of embankment is very crucial to safe the spot sources of drinking water during tidal surge and flood. The following are the ways of embankment management.

1. Vulnerable embankment must be repaired at regular interval.
2. All the embankment creeks should be allowed wider spill area to reduce Hydrostatic pressure on embankment.
3. Embankment should be protected by block pitching, concrete structure and by brick pitching.
4. Settlement must be evacuated from the embankment sites.
5. Plantation mangroves can also protect the bank from erosion.

6. Platforms of Tubewells must be above flood levels where flooded contaminated salt-water can't enter into tube wells.
7. Need solar pumping supply water station of the vulnerable grampanchayats.

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Comparative Study of Anxiety among Kabaddi Players of Gadchiroli District

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Abstract

The purpose of this study was to compare the anxiety of under 14 and under 17 year's Kabaddi players of Gadchiroli district. The study was conducted on sixty samples, consisting of thirty under 14 years and thirty under 17 year's Kabaddi players of Gadchiroli district. Anxiety levels were obtained by administrating anxiety test. The data collected through aforesaid tests were analyzed with respect to anxiety. T test was applied to compute the significances among under 14 and under 17 year's Kabaddi players. The significance of data was judged at 0.05 levels. The result of the study indicates that anxiety of below 17 year's Kabaddi players was higher than under 14 year's Kabaddi players.

Key Word : Anxiety , Kabaddi players

Introduction:

Sports anxiety is a personality characteristic of responding to certain situations with a stress syndrome of responses. Anxiety state are then function of the situations that evoke them and the individual personality that is prone to stress. Sports normally involve competition, which in turn tends to induce anxiety, characterized by an increase in arousal. Kabaddi normally involves competition, which in turn tends to induce anxiety, characterized by an increase in arousal. You may have had the experience of performing better than you expected when anxious, or, alternatively, you might have had the less fortunate experience of making mistakes under pressure. Sport psychologists have been concerned with understanding what factors affect arousal, anxiety and stress; how these affect wrestler performance; and how we can learn to regulate our arousal and anxiety in order to improve our performance. As Jones (1991) has pointed out, at the top sporting levels (at least in many sports), there is very little difference in the skill levels of the participants. It is thus often the ability to handle anxiety and stress that separates the winner and loser. Before going any further, it is important to understand exactly what psychologists mean by the terms 'arousal', 'anxiety' and 'stress'. Weinberg & Gould (1995) have offered the following definition of anxiety: 'a negative emotional state with feelings of nervousness, worry and apprehension associated with activation or arousal of the body'. We can thus think of anxiety as an unpleasant state of high arousal. The term *stress* has a broader meaning than anxiety.

Statement Of The Problem:

"**Comparative Study Of Anxiety Among *Kabaddi Players* Of Gadchiroli District**"

Purpose Of The Study:

The purpose of the study was to compare the anxiety among under 14 years and under 17 year's Kabaddi players of Gadchiroli district.

Objectives Of The Study:

1. To study the anxiety of under 14 years of Kabaddi players of Gadchiroli district.
2. To study the anxiety of under 17year's of Kabaddi players of Gadchiroli district.
3. To compare the Anxiety of under 14 years and under 17 years of Kabaddi players of Gadchiroli district.

Hypotheses:

1. There would be significant difference between the anxiety of under 14 years and under 17 years Kabaddi players of Gadchiroli district.
2. There would be insignificant difference between the anxiety of under 14 years and under 17 years Kabaddi players of Gadchiroli district.

Methodology:

Selection of Sample:

The sample consists of thirty Kabaddi players of under 14 years and thirty Kabaddi players of under 17 years of Gadchiroli district. The subjects were drawn from various schools boys who are the participated in district level inter school tournament. Random sampling technique was employed to select the subjects. The data was collected from Kabaddi players. The researcher will use survey research methodology for the study.

Tools used:

A.K.P. Sinha and L. N. K. Sinha's anxiety test has been taken to assess the anxiety of Kabaddi players. This questionnaire consisted of 90 statements. Each statement has to be responded in either

positive or negative terms. No time limit is fixed for completing the test. However, usually individual takes 15 to 20 minutes in completing the test form.

Method for Analysis:

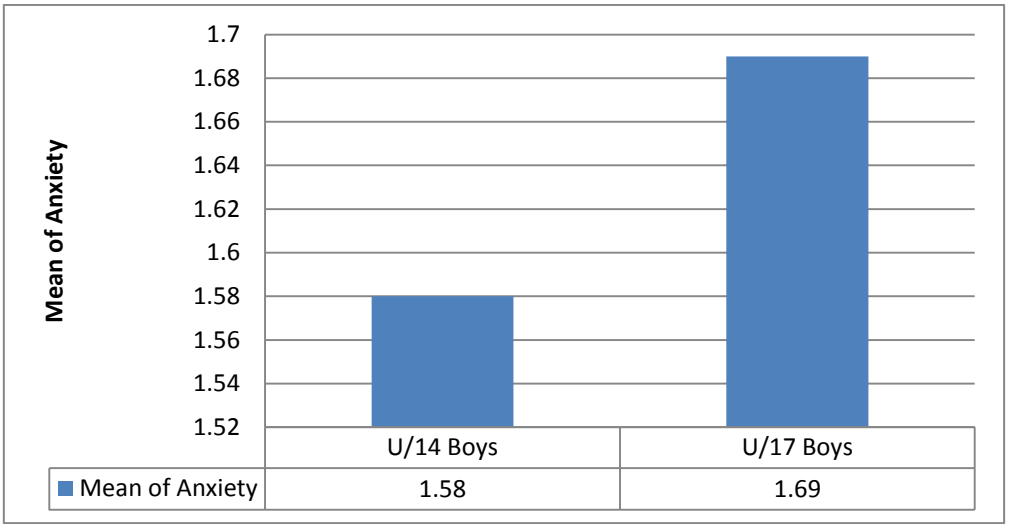
'T' test has been applied to find out the significant differences among under 14 years and under 17 years Kabaddi players at 0.05 level of significance. The collected data were tabulated to find out the difference of anxiety among Kabaddi players of Gadchiroli district.

RESULTS AND DISCUSION:

Table No.-1 , Comparison of anxiety among U/ 14 and U/17 years Kabaddi players

Variable	Group	N	Mean	SD	t value
Anxiety	U/14	30	1.58	0.692	**0.6354***
	U/17	30	1.69	0.649	

*Insignificant at .05 level.



The above table shows that the mean scores of anxiety of under 14 and 17 years Kabaddi players as 1.58 and 1.69 respectively and their standard deviation as 0.69 and 0.64 respectively. The 't' ratio is 0.6354 which is insignificant at .05 level of significance. This reveals that there is insignificant difference exists between mean scores of anxiety between under 14 and 17 years Kabaddi players. Therefore, the hypothesis first was rejected and hypothesis second was accepted.

It is clear from the above graph, the mean score of under 17 wresters is higher than that of under 14 Kabaddi players. Therefore, it may be said that the under 17 Kabaddi players possess significantly higher anxiety than Under 14 Years Kabaddi Players.

Conclusion:

The result of the study showed that anxiety level of below 17 years Kabaddi players was higher than Under 14 years Kabaddi players of Gadchiroli district.

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Study Of Water Pollution as One of the Emerging Problems in Urban And Rural Areas of India

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Abstract

Water contamination is one of the major social problems that have great impact on public health in India. India ranks 120th position among 122 countries in the global 'Water Quality Index'. In recent decades, there has been ample amount of ground water contamination reports causing serious chronic health hazards. Unplanned and uncontrolled waste management resulted in serious contamination of ground water in many urban areas of India. Normally, groundwater gets renewed very slowly, and hence must be used judiciously for drinking, cooking, agricultural, and industrial uses. The excessive extraction of ground water and its over-exploitation is causing contamination of aquifers with high fluoride, arsenic or nitrate concentrations. Finally, it is concluded that water quality deterioration has a great impact on the environment, public health and country's economy. Rapid unplanned population growth is a key factor to the water pollution and water quality deterioration in India.

Keywords*: Pollution, ground water, Arsenic, fluoride, nitrate, rivers, public health.*

1.0 Introduction

Pollution means the presence of undesirable substance in any section of environment and surroundings that are harmful to plants, animals and human beings, primarily due to discharged by-products, waste products or harmful secondary products. From an ecological perspective, pollutants can be classified as- (i) bio-degradable or non-persistent pollutants, including domestic sewage, agricultural waste and garbage, which are rapidly broken down into simpler substances in a short time by natural processes; (ii) slowly-degradable or persistent pollutants which include pesticides like DDT, most plastics, where they remain unchanged in the environment for many years and are not easily degradable; (iii) non-degradable pollutants including toxic elements like lead, mercury, cadmium and nuclear wastes. Pollution of natural fresh water implies the presence of a huge amount of inorganic and organic substances introduced by man-made activities, leading to change in the quality of water imparting a harmful impact to living organisms including man. Water is one of the most essential constituents of life and is a renewable resource. It gets contaminated easily from various sources by suspended particles and colloidal materials. Though India is gifted with many freshwater reserves like, Ganga, Yamuna, Brahmaputra, the over increasing population and overexploitation of surface water and ground water over the past few decades has brought about the water level and its availability at an alarming state. Only a small fraction of water available to us is a freshwater, which is nearly 3% of total water available on earth. Of this 2.997% is locked in ice caps or glaciers, and only 0.003 % is available in the form of soil moisture, groundwater, water vapour, and lotic and lentic waters in rivers, lakes, streams and wetlands.

2.0 Causes Of Water Quality Deterioration In India

Water quality of fresh water reservoirs is being affected either by pollution or salination, or by a wide range of natural and anthropogenic influences. The quality of water is usually described in terms of the concentration and state, whether dissolved or particulate, of all the organic and inorganic materials present in water. Fresh water
gets polluted due to domestic and municipal sewage, industrial wastes, agricultural wastes, sewage and radioactive materials and thermal.

The quality of water deteriorates due to some common impurities present in water. Some finely divided un-dissolved suspended solids, like clay, silt, organic matters and colloidal particles causes turbidity in water.

Due to unmanaged and uncontrolled dumping of sewage waters into water bodies, like ponds, lakes, streams or rivers from towns, cities, megacities, metropolis and rural areas, self-regulatory capability of aquatic ecosystem is lost and becomes unfit for drinking and other domestic uses.

Further, there are some oxygen-depleting organic wastes that are decomposed by large populations of aerobic bacteria present in water leading to degradation of water quality and partial or total deoxygenating. Biochemical oxygen demand (BOD), which is the amount of oxygen required to break down a certain amount of organic matter, is an indicator of the level of pollution. The depleted oxygen condition also makes the aquatic ecosystems unstable for fish and aquatic life. In this condition anaerobic bacteria produce chemicals that are harmful to human health because of their anaerobic respiration.

3.0 Nature Of Water Pollution-

3.1 Ground Water Pollution

Ground water is the main source of drinking, cooking, and other household purposes Even, majority of the agricultural system is dependent on ground water. In recent days ground water depletion and pollution is one of the most concerned environmental challenges to Urban India. Most of the underground sources of drinking water in outskirts of larger cities and villages are also polluted. Generally, ground water is chemically and microbiologically non-polluted and gets renewed very slowly. Due to excessive extraction of ground water there is contamination of aquifers with high fluoride, arsenic or nitrate concentrations. Ground water pollution due to industrial effluents and municipal waste is of another great concern in many cities and industrial belt of India. Ground water is threatened with pollution from seepage pits, refuse dumps, septic tanks and different pollutants. Some causes of ground water pollution in urban areas include, urban run-off from catchment areas of poorly treated waste water and garbage, leakage from underground storage containing hazardous substances, seepage from bottom of old landfills, poorly designed and maintained septic tanks, dumping of industrial waste above or near aquifers.

3.1.1 Arsenic contamination of ground water

High levels of Arsenic above the permissible limits of 50 parts per billion are reported from few states of India like, West Bengal, Bihar, Utter Pradesh, Jharkhand, and Punjab. In Indian subcontinent, major incidence of ground water pollution has been noted in more than 100 blocks of many districts of West Bengal, where a vast tract is under the arsenic calamity. Millions of people are at risk in Ganga-Meghna-Brahmaputra plain. Now it has been established that the fresh water of immediate aquifer is contaminated with arsenic, with maximum content occurring in ground water in the 20-60 m range, ranging from <0.01 mg/l upto a maximum of 2.0 mg/l. Besides, ground water in arseniferous areas is also characterized by high levels of iron, calcium, magnesium, fluoride and sulphates. According to WHO announcement, 2011, the maximum permissible level of arsenic in drinking water is 0.01mg/l or 10µg/l, but based on Indian Standards of drinking water the permissible limit in absence of alternative source of water is 0.05mg/l or 50µg/l. In many villages of West Bengal sufficient arsenic concentration has been observed in the foodstuffs of domestic animals and thereby excretion of arsenic by domestic animals like cow urine, cow dung, cow milk, chicken liver etc. According to a report of Hindustan Times, Kolkata on June 28, 2019, a research made by Jadavpur University's School of Environmental Sciences revealed the presence of arsenic above permissible limits in rice grain, wheat flour, and a variety of vegetables being sold in Kolkata market. The arsenic content found in the samples ranged from 24 to 324µg/kilo. According to Prof. Tarit Roychowdhury, School of Environmental studies, Jadavpur University, the inorganic form of arsenic, arsenite and arsenate are toxic and carcinogenic to human. As per WHO, long-term exposure to arsenic can cause skin lesions, cancer, cardiovascular diseases, and diabetes.

3.1.2 *Fluoride contamination of ground water*:

Ground water contamination by fluoride is one of the serious problems in the arid regions like Rajasthan and semiarid regions over India. High levels of fluoride are reported from about 21 states covering 177 districts and affecting 62 million people, including 6 million children. People are exposed to both dental and muscular skeletal fluorosis imparting potential biological and toxicological effects. In Haryana and Punjab, consumption of fluoride-rich water from wells caused endemic fluorosis. In Andhra Pradesh also water with high fluoride content caused dental fluorosis. The problem has become more severe in Rajasthan. Like Arsenic, fluoride contamination had been reported in seven districts of West Bengal and Assam. The exposed community of that area has suffered from both short-term and long-term problems showing bony deformities associated with locomotory organs. Since, fluoride is not absorbed in the blood stream; it has an affinity with calcium and thus gets accumulated in bones resulting into 'knock-knee syndrome'. According to WHO guideline and Bureau of Indian Standard (BIS), maximum permissible limit of fluoride is 1.5 mg/l(0.6 to 1.2 mg/l).

3.1.3 *Nitrate contamination of ground water*

In many states of India like Rajasthan, Tamilnadu, Uttar Pradesh, Kashmir, nitrate contamination in ground water has become a widespread phenomenon. Principal origin of nitrate is related to excess application of fertilizers and sewages. Nitrate in ground water is primarily derived from mineralization of soil organic matter of from excessive use of nitrogen fertilizers. Many locations across India are having shallow aquifers with nitrate concentration more than 45 mg/l, reaching upto 100 mg/l or more. According to Bureau of Indian Standards, 2012 (BIS), the desirable limit of nitrate in ground water for drinking is <45 mg/l, while the guideline value of WHO permissible limits (2011) is 50 mg/l, above which will pose

serious health hazards. Exposure to high levels of nitrate in drinking water is linked to a blood disorder, gastric cancer, goitre etc.

3.2 Surface Water Pollution

3.2.1 River pollution in India

The Central Pollution Control Board (CPCB) monitors the water quality of Indian rivers. Most of the Indian rivers and their tributaries viz. Ganga, Yamuna, Godavari, krishna, Sone, Cauvery, Damodar, and Brahmaputra have been reported to be greatly polluted due to discharge of untreated sewage waste, and industrial effluents directly into the rivers. The holy river Ganga has become polluted due to establishment of numerous industries on its banks. Further, some of the highly polluted cities, such as Allahabad, Banaras, Patna, Kanpur, and Kolkata are also situated on the bank of the river. The sewage, municipality garbage and industrial effluents are dumped into the Ganga. Similarly, another major river, the Yamuna is threatened with pollution in Delhi and Gaziabad area, where huge amount of sewage waste water and untreated or partially treated effluents are discharged in the river every day.

Considering the importance, the Ganga Action Plan (GAP) was launched in 1986 by late Prime Minister, Rajiv Gandhi, whose main objective was to improve the water quality of river Ganga. The GAP Phase-II in 1991 included cleaning operation for the tributaries of the Ganga, and the Yamuna Action Plan (YAP), the Gomti Action Plan (GAP) and the Damodar Action Plan (DAP) was introduced.

4.0 Effect Of Water Pollution

Impact on aquatic ecosystems: Water pollution has a great impact on aquatic ecosystems raising the biochemical oxygen demand (BOD), which is an indicator of organic pollution.

Eutrophication: It causes destruction of biodiversity and triggers eutrophication. The runoff from agricultural lands fully loaded with fertilizers rich in nitrates and phosphates greatly increase the productivity of water leading to formation of algal blooms in water bodies. This excessive nutrient load culminates in eutrophicated water bodies.

Food chain contamination and biomagnification: Polluted waters used for pisciculture, aquaculture, and use of waste water for livestock farming and agriculture introduce toxin and heavy metals into food chain, thereby causing bioaccumulation and biomagnification.

Lack of potable water: Water quality deterioration may lead to less access to clean water for healthy drinking or sanitation in particularly rural areas.

Impact on human health: Consumption of contaminated water and transmission of pathogens like bacteria, parasites, etc. is intimately connected with the occurrence of many deadly diseases. The common disease agents are bacteria causing cholera, typhoid, viruses, and the infective hepatitis. Moreover, the heavily polluted water with sewage load and industrial wastes kill useful bacteria responsible for bio-purification.

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Effect t of Progressive Muscle relaxation Training on Competitive State Anxiety of Male Athlete in Track Event.

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Abstract:

The present study is mainly concerned with Athletics in Tract event players who participated in the state level competition. Now days, the Athletics Event is becoming as a professional sport rather than the competitive sport. So the competitiveness among the Track and field event players is growing up day by day with different color. Reason for such competitiveness arises naturally among the players, because of pressures such as equal competition, concern about fulfilling the expectation of their teachers, coaches, parents and peer group and personal needs. The present study investigated the Effect of Progressive Muscle Relaxation Training on Competitive Anxiety of Male Track Event. Research is study of competitive state anxiety Experimental research, which aimed at identifying the Effect of Progressive Muscle Relaxation Training on Competitive Anxiety of Male Track Event athletes of Kreeda prabodhini, Pune. In these study considered the track and field male athletes of Kreeda prabhodhani, Pune who participated in 19th school state athletics championship held at Mahalunge-Balewadi pune (2010-11). The populations of the study were 24 male athlete in track event, Kreeda Prabhodhani, Pune division aged 18 to 20 years, who participated in 19th school state athletics championship held at Mahalunge-Balewadi pune (2010-11) were selected as sample of the study and the technique employed was purposive sampling. For data collection the tools used was the Competitive State Anxiety inventory -2 (CSAI-2) by Martens, Vealey, & Burton (1990). The specific tool measures, cognitive, somatic anxiety, & self-confidence. The scale consists of 27items (9 – items subscale arranged on a 4 – point Likert – type scale ranging from 1 (none) to 4 (very much). In the study significance difference has been found. The result of the research showed that track and field male athletes reported moderate of Cognitive Anxiety, Somatic Anxiety and high level Self Confidence. Furthermore these athletes displayed higher self-confidence with positive effect on their performance. Cognitive anxiety and somatic anxiety are positively correlated.

Key words: *Cognitive Anxiety, Somatic Anxiety, Self Confidence, Progressive Muscle Relaxation,*

Introduction

The present study is mainly Athletics in Track and field event players was participated in the State level competition. The complexity of competition in the modern life has heightened the anxiety in these days. In light of this, the twentieth century is termed as the 'Age of Anxiety.' In modern competitive sports also the anxiety in sportsmen has affected their performance. As the physical load during training of sportsmen for international competition is being increased day by day, the psychological stress during competition is also intensified. The players and athletes like other human beings, apparently, are anxiety prone while participating in competitive sports (Agyajit Singh. 2004). Sports and athletics create special opportunities for the study of the feelings of the athletes in various sporting events (Bray, Jones & Owen , 2002; Tielman, Peacock ,Cureton & Dishman, 2002).Anxiety means a disturbed state of mind, emotional reactivity, arousal and nervousness and unpleasant state of mind. Anxiety is an essential ingredient of any competitive situation and without certain level of anxiety there cannot be competitive performance. Neither too high they could fail to achieve their goal. The impact of anxiety on sport performance has become an interest in the field of Sport Psychology within the last decade. Performance related anxiety, also referred to as competitive a-state anxiety composed of three states. The cognitive a-state is responsible for cognitive concerns such as worry and negative expectations about oneself or one's performance. The somatic state accounts for autonomic arousal such as muscle tension and increased heart rate. High levels of either cognitive a-state or somatic a-state negatively effect state self-confidence. Overall, competitive a-state anxiety is defined as an emotional response to an unpleasant stimulus. Typical responses to an anxiety provoking stimulus include: muscle tension, increased breathing, and decreased concentration. It has been suggested that athletes are prone to experience this negative emotion for two reasons. First, they frequently find themselves in situations in which others can assess their success or failure. Second, the degree of success achieved by an athlete is measurable by goals such as distance, scores, or time. Furthermore, an examination of sport competition literature exemplifies the causes of competitive a-state anxiety. Some of the commonly cited causes include fear of failure, ego threat/fear of evaluation, and poor preparation or lack of perceived physical readiness. Generally, both psychological and physiological ramifications reveal the athlete's response to anxiety. In addition, studies have indicated that a reduction in competitive a-state anxiety may enhance athletic performance. Recently, the emphasis placed on the psychological aspect of

athletics has exhibited psychological skill training to be equally important as physical training. Psychological skill training such as relaxation training can be used to lower both somatic anxiety and cognitive anxiety. Hence, such a training method can be implemented to reduce competitive anxiety and in turn, enhance athletic performance (Onestak, 1991). Moreover, relaxation techniques include: progressive muscle relaxation that is induced by instructions to tense and relax major muscle groups of the body; deep breathing which ensures calm respiration; and visualization techniques (Jacobson, 1938). The purpose of relaxation strategies is to allow the athlete to decrease anxiety prior to performance and in turn, reach his or her full athletic potential (Onestak, 1991). Previous research explored the effect of various relaxation training techniques on competitive a-state anxiety and performance. Anshel and Porter (1996), Bethany and Forrest (1998), and Savey and Beital (1997) have demonstrated further collective evidence that the application of psychological skill training programs can reduce competitive a-state anxiety as well as improve athletic performance. For example, Bethany and Forrest (1998) found that visuo-motor behavioral rehearsal, when employed by athletes can decrease stress and state anxiety. In support of this finding, Anshel and Porter (1996) also found that athletes who employed stress management techniques expressed better athletic performance. Future research may extend the examination and see exactly which sub-scale, somatic anxiety, cognitive anxiety and self-confidence is most effected by the psychological skill training. In consideration of the previous evidence that psychological skill training can reduce competitive anxiety, the present study will further investigate the impact of progressive muscle relaxation, a type of psychological skill training, on a-state competitive anxiety with an emphasis on the three sub-levels of competitive anxiety. Cognitive anxiety, somatic anxiety and state self-confidence will be examined. It will be beneficial to test if in fact, psychological skill training such as relaxation training lowers competitive anxiety and if so, which of the three sub-scales are most effected. Moreover, the present study will examine competitive anxiety and the impact of relaxation training. The variable being manipulated is the relaxation training, which is defined as progressive muscle relaxation. Progressive muscle relaxation generates relaxation by systematically progressing through skeletal muscles. The variables being measured are the subject's trait anxiety level, competitive anxiety level and the three sub-levels of state anxiety: somatic anxiety, Cognitive anxiety, and state self-confidence.

Methods

The purpose of the study was to find out the effect of progressive muscle relaxation training on competitive anxiety of male Track and Field Athlete of Kreeda Prabhodhani who participated in 19th school state Athletics Championship held at Mahalunge-Balewadi pune (2010-11). To achieve the purpose of the study 24 male Athlete in Track event track and field athlete were selected from Kreeda Prabhodhani, Pune, who participated in 19th school state athletics championship held at Mahalunge-Balewadi, Pune (2010-11) their age was ranged from 18 to 20 years. The present study is an experimental one pre and post. Purposive sampling technique was used for this, the selected samples (N=24) were divided into two equal groups. Group I was considered as Progressive Relaxation Training Group (PRTG) in which they underwent progressive muscle relaxation practices. Group II was considered as control group they are doing the regular practice for our event. The experimental group were given training for 3 days a week and for 6 weeks in total.

Variables of the study

Dependent

For this study Independent variables are

- Progressive Muscles Relaxation training

These variables were used to bring about change in the dependent variables

Competitive state anxiety inventory -2(CSAI-2) by Martens, Vealey & Burton, (1990)

Independent

Progressive Muscles Relaxation training.

Procedure of the study: As stated above all the selected subject were assigned two group Control Group and Experimental group.. The designer of the experimental has been planted in three phases.

Phase – I: Pretest

Phase-II: Training or Treatment, and

Phase-III: Post Test

Pre test (Phase- I): As a propose of the study is to see Effect of Progressive Muscle Relaxation on Competitive State Anxiety and Performance of male athlete in track event, all the subject of experimental group were exposed to Competitive State Anxiety Inventry-2(CSAI-2) test to record the pre test data for before the 30 minutes for competition.

Treatment stimuli (Phase-II)

After the pre test was over, all the subject of Experimental group were exposed to 06 week training of Progressive muscle relaxation for 35 minutes in the evening for Three days in weekly For total period of 06 weeks we are given the coach and researcher collar daily training programmed for the 35 minutes for evening session after the finish event practice.

Post test: (Phase III)

Finally, when the treatment or training period of 06 week was over, 30 minutes before competitions were taken post test in trails competitions

Tools Used for Data Collection

Competitive Sport Anxiety Inventory - 2

Competitive state anxiety was assessed by using the Competitive State Anxiety Inventory - 2 (CSAI-2, Martens et al. 1990) which is a self report, psychometric state anxiety inventory, consisting of 27 items. The CSAI-2 normally takes less than five minutes to complete and was administered 30 minutes before competition.

Description of CSAI-2

The CSAI was revised to develop a sport –specific inventory that measured the cognitive and somatic components of A-state. The CSAI –2 was originally constructed to include subscales to measure not only cognitive state anxiety and somatic anxiety but also fear of physical harm and generalized anxiety. The development of the CSAI-2 as a sport-specific measure of multidimensional A-state followed a systematic Psychometric process. The CSAI-2 is an A-state inventory designed to measure existing state of cognitive state anxiety, somatic state anxiety, and state of self confidence in competitive situations,. The CSAI-2 was constructed primarily as research tool. It was administered three hour before competition. When administering the CSAI-2, it was recommended that the title on the form given to the subjects to be Illinois self-evaluation questionnaire. This technique helps to reduce the bias to the inventory. In addition antisocial instructions given by author of CSAI-2 was committed to memory and orally communicated with conviction to the respondents. Before allowing subjects to begin completing the CSAI-2 it was made sure that whether the instructions are completely understood and particularly that responses should be based on how the respondent feels at the moment.

Scoring the CSAI-2

The CSAI – 2 is scored by computing a separate total for each of the three subscales with scores ranging from a low of 9 to a high of 36. The higher the score, the greater the cognitive or somatic. A-state or the greater the state self-confidence. Total score for the inventory is not computed. The cognitive state anxiety is scored by totaling the responses for the following 9 items 1, 4, 7, 10, 13, 16, 19, 22 and 25. The somatic state anxiety subscale is scored by adding the responses to the following 9 items: 2, 5, 8, 11, 14, 17, 20, 23 and 26. Scoring for item 14 must be reversed in calculating the score for the somatic state anxiety subscale as indicated below:

1 = 4; 2 = 3; 3 = 2; 4 = 1

The state self-confidence subscale is scored by adding the following items 3, 6, 9, 12, 15, 18, 21, 24, and 27. Inventories that are missing no more than one response per subscale can still be scored, but any inventory in which two or more items from any one subscale are emitted should be invalidated. To obtain subscale scores when an item has been omitted, compute the mean item score for the eight answered items, multiply this value by 9, and then round the product to the nearest whole number

Progressive relaxation Training

1. **Forehead.** Focus attention on your forehead. Squeeze the muscles in your forehead, holding for 15 seconds. Be careful only to tense the muscles of your forehead and to leave the rest of your body relaxed. Feel the muscles becoming tighter and tenser. Then, slowly release the tension in your forehead while counting for 30 seconds. Notice the difference in how your muscles feel and the sensation of relaxation. Continue to release the tension in your forehead until it feels completely relaxed. Continue breathing slowly and evenly.
2. **Jaw.** Now, shift attention to your jaw. Tense the muscles in your jaw holding for 15 seconds. Then, release the tension slowly while counting for 30 seconds. Notice the feeling of relaxation and continue to breathe slowly and evenly.
3. **Neck and Shoulders.** Now, shift attention to your neck and shoulders. Increase tension in your neck and shoulders by raising your shoulders up towards your ears and hold for 15 seconds. Slowly release the tension as you count for 30 seconds. Notice the tension melting away.

4. **Arms and Hands.** Slowly draw both hands into fists. Pull your fists into your chest and hold for 15 seconds, squeezing as tight as you can. Then, slowly release while you count for 30 seconds. Notice the feeling of relaxation.
5. **Buttocks.** Slowly increase tension in your buttocks over 15 seconds. Then, slowly release the tension over 30 seconds. Notice the tension melting away. Continue to breathe slowly and evenly.
6. **Legs.** Slowly, increase the tension in your quadriceps and calves over 15 seconds. Squeeze the muscles as hard as you can. Then, gently release the tension over 30 seconds. Notice the tension melting away and the feeling of relaxation that is left.
7. **Feet.** Slowly, increase the tension in your feet and toes. Tighten the muscles as much as you can. Then, slowly release the tension while you count for 30 seconds. Notice all the tension melting away. Continue breathing slowly and evenly.
8. Enjoy the feeling of relaxation sweeping through your body. Continue to breathe slowly and evenly.

Statistical Analysis:

TABLE-1

Significance of Mean Gains / Losses between Pre and Post Test of Progressive Relaxation Training (PRTG) on Competitive Anxiety of Male athlete in Track Event.

Variables Pre-test	Pre test Mean	Post-test Mean	Mean Diff	Standard Error Mean	't' ratio
Cognitive Anxiety	21.50	20.08	1.42	.148	9.53*
Somatic Anxiety	22.08	20.50	1.58	.148	10.65*
Self Confidence	21.25	22.75	-1.50	.151	9.95*

Table – 1 indicates that the obtained't' ratios were: 9.53 for cognitive anxiety, 10.65 for somatic anxiety, 9.95 for self confidence. The obtained't' ratios on competitive anxiety. When compared with the critical value of 2.201 for degrees of freedom of 111 it was found that the mean gains and mean losses statistically significant. Resulting of these confirm that six week practice of progressive relaxation training produced a significant improvement in cognitive anxiety (1.42; $p<0.05$), somatic anxiety (1.58; $p<0.05$), self confidence (-1.50; $p<0.05$), statistically significant and explained its effect positively.

TABLE-2

Significance of Mean Gains / Losses between Pre and Post Test of Control Group on Competitive Anxiety of Track field Event.

Variables Pre-test	Pre test Mean	Post-test Mean	Mean Diff	Standard Error Mean	't' ratio
Cognitive Anxiety	21.50	20.08	0.30	.923	1.45
Somatic Anxiety	21.25	20.85	0.40	.233	1.71
Self Confidence	21.50	21.75	-0.25	.910	1.22

Table – 2 indicates that the obtained 't' ratios were: 1.45 for cognitive anxiety, 1.71 for somatic anxiety, 1.22 for self confidence. The obtained 't' ratios on competitive anxiety. When compared with the critical value of 2.201 for degrees of freedom of 111 it was found that the mean gains and mean losses statistically not significant. Resulting of these confirm that so it was found that the control group did not show significant improvement in cognitive anxiety (0.30; $p>0.05$), somatic anxiety (0.40; $p>0.05$), self confidence (-0.25; $p>0.05$), statistically not significant.

Results

The study was designed to find out the effects of progressive muscle relaxation training on competitive anxiety of male in Track and Field male athlete state players. The objective framed in the present study to test the data collected on variables: cognitive anxiety, somatic anxiety and self confidence. As one of the objectives of the present study was to test the effects of progressive muscle relaxation training on competitive anxiety, the initial test means and final test means were tested treatment wise by using the paired sample t-test. SPSS 13.0 statistical package.

Discussion On Findings

The purpose of the present study was to examine if progressive muscle relaxation decreased competitive anxiety, and if so, which of the three sub-scales: cognitive anxiety, somatic anxiety, And self-confidence were most effected by the training. The only statistically significant effects found between the experimental group and the control group occurred on the cognitive anxiety,Somatic anxiety and self confidence sub-scale of competitive anxiety. The competitive anxiety of the subjects was tested first producing no statistical significant effects between the experimental and control group. Although, previous

research suggests that various relaxation training techniques, including progressive muscle relaxation, decrease full-scale competitive astate anxiety (Bethany & Forrest, 1998), the results of the present study did not confirm these observations. The Competitive State Anxiety Inventory (CSAI-2) (Martens, Vealey, & Burton, 1990) produced no statistical significance for the overall a-state anxiety levels between the relaxation training experimental group (group 1) and the no training control group (group 2). However, the mean scores of trait and state for group I exhibited a greater decrease from competitive anxiety. There are several reasons for the lack of statistical significance between the groups. Originally, the subject pool contained 24 subjects. Other limitations of the present study pertained to a restricted form of psychological skill training. The findings of this case are supported with the theoretical construct of Jacobson (1938). According to him Progressive muscle relaxing of various muscle groups although the exercise is a relaxation technique, we start with anxiety because most individuals find it easier to go from a tensed state to a relaxed state then they muscles. Progressing from a tensed state to relaxation also helps to develop the ability to recognize and differentiate the feelings of tension and relaxation in the muscles. Relaxation improves alertness and awareness in such a way that the performance will be maximized. In short, learning to hang loose in all situations is talking one giant step towards playing at consistently high levels at or near potential performance.

Conclusion

From the results of comparative effect among the progressive relaxation training, and control group on criterion variables, it was concluded that players belong to progressive relaxation training is performed better in cognitive anxiety, somatic anxiety and self confidence as compared to control group.

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Environmental Impacts During Covid-19 Pandemic: Affecting Human's Physical Health

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Abstract

Coronavirus pandemic, as another illness arising in the interface among creatures and people, has uncovered the significance of interdisciplinary joint efforts like the One Health drive. Natural Health, whose job in the One Health idea is grounded, has been related with COVID-19 pandemic through different immediate and aberrant pathways. Current way of life, environmental change, natural debasement, openness to synthetic substances, for example, endocrine disruptors, and openness to mental pressure factors sway human wellbeing adversely. Thus, many individuals are in the disadvantageous situation to confront the pandemic with a generally debilitated insusceptible framework because of their openness to ecological wellbeing perils. In addition, the continuous pandemic has been related with outside and indoor air contamination, water and clamor contamination, food security, and plastic contamination issues. Additionally, the deficient foundation, the absence of legitimate waste and wastewater the board, and the inconsistent social weakness uncover more linkages between Environmental Health and COVID-19 pandemic. The critical arising environmental danger and its resulting wellbeing suggestions require impending danger investigation and hazard correspondence procedures.

Introduction

Four months after the principal affirmed instance of COVID-19 in Wuhan, China, on November 17, 2019, the World Health Organization recognized this new Covid illness as a worldwide pandemic.1 Since then, at that point, because of global business associations and voyaging, the sickness has quickly spread from one side of the planet to the other, with 96 906 712 affirmed cases and 2 075 902 passings (January 21, 2021, UTC 08:46).

Coronavirus comprises another lethal illness arising in the interface among animals and people; academic local area ought to, along these lines, reexamine the significance of the One Health idea, which accepts interdisciplinary drives focusing on all the while ensuring animals, people, and the regular environment. The job of the Environmental Health—characterized as the part of general wellbeing managing every one of the natural variables with an expected effect on wellbeing, like physical, compound, organic, social, and mental components—in the One Health idea drive is grounded.

Ecological Health is Associated with COVID-19

Present day way of life may adversely influence our health. accordingly, many individuals might be in the disadvantageous situation to confront the pandemic with an all around debilitated resistant framework because of their openness to natural wellbeing dangers. Beginning from the intrauterine life time frame, people are in a consistent openness—enthusiastically or not—to different endocrine-disturbing synthetic substances, mutagens, cancer-causing agents, perilous radiation, and mental pressure factors that communicate with their insusceptible system. Moreover, food and water security issues, environmental change, just as water, soil, and air contamination are a couple of natural variables with known inconvenient consequences for human and creature health. A vital factor with a very much examined impeding impact in the respiratory framework and by and large actual state is the inferior quality of metropolitan air. It is notable that mist concentrates convey microbes appended to their surface; additionally, particulate matter adds to the pathogenesis of aspiratory and cardiovascular sicknesses, and different sorts of cancer. Indeed, a relationship between metropolitan air quality and COVID-19 horribleness and mortality has effectively been accounted for, expanding the worry about the potential vaporized transmission of COVID-19. This negative affiliation may likewise be dictated by other ecological elements, for example, meteorological conditions including temperature, wind speed, and air relative humidity. Of note, during the pandemic, notwithstanding the decrease in commotion contamination levels, a decrease in the emanation of metropolitan air poisons was archived; this was ascribed essentially to the decrease of circling vehicles because of lockdown measures, along these lines briefly further developing air quality. unexpectedly, indoor air quality has been adversely influenced, because of the heightening of normal homegrown activities. Moreover, because of the wide utilization of sanitizers, covers, and gloves, both the arrival of numerous substance specialists in the sea-going climate and plastic contamination are relied upon to increment greatly. The natural impression of the pandemic should be altogether surveyed simultaneously with its advancement, and proper intercessions ought to be applied. For example, biomonitoring of numerous synthetic sanitizer specialists in amphibian creatures might uncover new ecological wellbeing risks and food security issues.

Besides, another test to be met is the appropriate administration of clinical waste. This could add up to a huge arising environmental danger to regular biological systems, particularly in regions with no solid waste administration arranging or with deficient important infrastructure.44 Moreover, the likely transmission of COVID-19 through wastewater requires unique attention.45 Close observing of family squander the executives ought to likewise proceed.

The social determinants of Environmental Health, like low pay, helpless lodging, absence of admittance to safe drinking water and food, poor sterile conditions, and deficient foundation altogether cooperate with the continuous pandemic as clear by the huge spread in low-pay regions in Latin America and Asia as well as in the created world as well. These conditions additionally decide the gravity of the pandemic effect. There are many difficulties to be met, for example, on account of day to day environments in the agricultural nations and in regions with grouping of weak populaces, for instance, outcast camps.

The Immediate Need for Risk Analysis and Risk Communication

No one can anticipate the exact result of the continuous wellbeing emergency. Notwithstanding, its multidimensional effects can be alleviated through powerful methodologies; a between disciplinary methodology is fundamental. The One Health idea, targeting ensuring the Environmental Health, may offer a fundamental interdisciplinary stockpile for feasible administration of this and future wellbeing emergencies. Effectively delicate medical services frameworks, for example, on account of sub-Saharan nations, think that its harder to adapt to current pandemic. Decision-producers ought to always remember that these nations are obliged to all the while manage other genuine wellbeing dangers, for example, jungle fever outbreaks. Besides, the significance of the non-drug intercession has been plainly laid out in ongoing guidance. The possibility of antagonistic ecological impacts of comparable and novel mediations ought to be additionally talked about inside the setting of One Health and the possibility of unavoidable future pandemics. Both improvement of the wellbeing status of everyone, and assurance of the total of the ecological elements that influence both straightforwardly and in a roundabout way human wellbeing are of fundamental significance against the progressing and future wellbeing emergencies.

Negative environmental effects

Increase of biomedical waste generation

Since the flare-up of COVID-19, clinical waste age is expanded worldwide, which is a significant danger to general wellbeing and climate. For test assortment of the suspected COVID-19 patients, analysis, therapy of gigantic number of patients, and sanitization reason loads of irresistible and biomedical squanders are produced from medical clinics (Somani et al., 2020; Zambrano-Monserrate et al., 2020). For example, Wuhan in China delivered in excess of 240 metric huge loads of clinical burns through consistently during the hour of the flare-up (Saadat et al., 2020), which is just about 190 m tons higher than the ordinary time (Zambrano-Monserrate et al., 2020). Once more, in the city of Ahmedabad of India, the measure of clinical waste age is expanded from 550-600 kg/day to around 1000 kg/day at the hour of the primary period of lockdown (Somani et al., 2020). Around 206 m huge loads of clinical waste are produced each day in Dhaka, the capital of Bangladesh in light of COVID-19 (Rahman et al., 2020). Likewise different urban communities like Manila, Kuala Lumpur, Hanoi, and Bangkok experienced comparative increments, delivering 154–280 m tons more clinical waste each day than before the pandemic (ADB, 2020). A particularly abrupt ascent of unsafe waste, and their legitimate administration has become a critical test to the neighborhood squander the board specialists. As per the new distributed writing, it is accounted for that the SARS-CoV-2 infection can exist a day on cardboard, and as long as 3 days on plastics and treated steel (Van-Doremalen et al., 2020). Thus, squander produced from the clinics (e.g., needles, needles, swathe, veil, gloves, utilized tissue, and disposed of drugs and so on) ought to be overseen appropriately, to lessen further disease and natural contamination, which is currently a question of concern worldwide.

Arising irresistible sicknesses on the ascent: Affecting human wellbeing

We have seen a pattern of more prominent development of irresistible illnesses in ongoing many years. The majority of these illnesses have gone into individuals from creatures, particularly wild creatures. This pattern has many causes. We have monstrous convergences of tamed creatures all throughout the planet, some of which can be home to microorganisms, similar to influenza, that can make individuals debilitated. We likewise have monstrous centralizations of individuals in urban communities where infections communicated by wheezing may discover rich ground. Furthermore, we can go all throughout the planet in under a day and offer germs broadly.

Yet, a gander at the beginnings of COVID uncovers that different powers might be in play. In the previous century we have raised our requests upon nature, to such an extent that today, we are losing species at a

rate obscure since the dinosaurs, alongside half of life on earth, went terminated 65 million years prior. This fast destroying of life on earth owes basically to living space misfortune, which happens for the most part from developing harvests and raising domesticated animals for individuals. With less places to live and less food sources to benefit from, creatures discover food and safe house where individuals are, and that can prompt sickness spread.

Another significant reason for species misfortune is environmental change, which can likewise change where creatures and plants reside and influence where sicknesses might happen. Verifiably, we have developed as an animal groups in organization with the plants and creatures we live with. In this way, when we change the standards of the game by radically changing the environment and life on earth, we need to expect that it will influence our wellbeing.

Conclusion

Taking everything into account, the continuous pandemic might be related with critical ecological wellbeing perils that need nonstop danger examination and the board through the coordinated effort of every pertinent partner. Hazard correspondence procedures will improve the comprehension of the significance of such intercessions by laypeople and strategy creators. Illnesses of zoonotic beginning, for example, Ebola Virus Disease and COVID-19, are continually uncovering the meaning of the One Health idea. Humankind should stand joined in the battle against this and future pandemics understanding that this is a multi-layered exertion at many fronts requesting interdisciplinary coordinated effort. Ecological Health is quite possibly the main ones.

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Climate Change and Its Impact on Developing-Country Cities: Implications for Environmental Health and Equity

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Abstract:

Climate is the average weather in a given area over a longer period of time. Climate change is any systematic change in the long term statistics of climate variables such as temperature, precipitation, pressure or wind sustained over several decades or longer. Climate change affects the social and environmental determinants of health- clean air, safe drinking water, sufficient food and secure shelter. The overall health effects of a changing climate are noticeably negative. The living beings especially the humans are mostly affected by the change in climate. Lifestyle modulation and adaptation according to climate is the need of hour. According to WHO, a state of physical, mental, social and spiritual well being and not merely an absence of disease or infirmity is called as health. Health, these days can only be achieved by following proper dietetic regimen and lifestyle modulation as ascribed in Ayurveda according to respective seasons to maintain the normal health. In present article implications for achieving proper health with respect to the seasonal change has been mentioned.

Introduction:

Climate change in India is having profound effects on health of people in India. India, which is ranked fourth among the list of most affected by climate change in the period from 1996-2015[1]. India emits about 3 gigatonnes (Gt) CO_{2eq} of green house gases each year which is half of the world average. Due to which health of individuals in India is drastically affected by the climate change. Climate is the average weather in a given area over a longer period of time. Climate change is any systematic change in the long term statistics of climate variables such as temperature, precipitation, pressure or wind sustained over several decades or longer. Climate change affects the social and environmental determinants of health- clean air, safe drinking water, sufficient food and secure shelter. According to WHO, a state of physical, mental, social and spiritual well being and not merely an absence of disease or infirmity is called as health. Ayurveda is the ancient science of life and has always focused on maintainance of health and well being by following proper diet and lifestyle regimen rather than treatment and cure of diseases. The prime principle of Ayurvedic system of medicine is preventive aspect and can be achieved by the change in diet and lifestyle in response to change in climatic condition. With the change in season, the change is very evident in the environment we live in. We see various changes in the ecology, such as flowering in spring and leaf-shedding in autumn in the plants, hibernation of many animals with the coming of winter, and many more changes we experience. As adaptations according to the changes, is the key for survival, the knowledge of Ritucharya i.e. regimen for various seasons is thus important. Prevention of disease to maintain health is being the first and foremost aim of Ayurveda which can be achieved by following the proper regimen according to respective seasons. In this article, measures to achieve proper health and to maintain it are discussed and emphasis has been given on the likely impact of Ritucharya on health of individuals.

Various seasons of India:

In India, one year consists of six seasons, namely, Shishira (winter), Vasanta (spring), Grishma (summer), varsha (monsoon), Sharada (autumn), and Hemanta (late autumn). As Ayurveda has its origin in India, the seasonal changes are observed predominantly in Indian subcontinent. To overcome this effect of seasonal changes Ayurvedic Acharyas have given the concept of ritucharya (seasonal regimen; mode of living in different season). Individuals following this seasonal regimen would never suffer from severe disorders caused by seasonal factors[2]

Seasonal Regimens[3] :

1) Shishira (Winter)

During this season, the climate remains cold , along with cold wind. The strength of person becomes less, deposition of the Kapha Dosha occurs and Agni (catabolism) remains in a higher state.

Diet regimen: cereals and pulses, wheat/gram flour products, new rice, corn and others are advised. Ginger , Garlic, Haritaki (Terminalia Chebula), pippali (piper longum), sugarcane products, milk and milk products are to be included in the diet.

Lifestyle: Massage with oil/powder/paste, bathing with lukewarm water, exposure to sunlight, wearing warm clothes is mentioned to follow. Vata aggravating lifestyle like exposure to cold wind, excessive walking, sleep at late night are to be avoided.

2) Vasanta (Spring)

This season is considered as season of flowering amd origin of new leaves. Strength of the person remains in medium degree, vitiation of kapha dosha occurs and agni remains in manda state.

Diet regimen: one should take easily digestible foods. Among, pulses, lentil, mudga and others can be taken. Honey is to be included in the diet. Foods which are hard to digest are to be avoided. New grains, curd, cold drinks and so on are also to be prohibited.

Lifestyle: one should use warm water for bathing purpose, may do exercise during vasant ritu. Udvartan (massage) with powder of Chandana (santalum album), Kesara(crocus sativus), aagaru and others Kavala (gargle), Dhooma (smoking), Anjana (collyrium) and evacuative measures, such as Vamana and Nasya are advised. Day-sleep is strictly contraindicated during this season.

1) Grishma (summer):

Environment is prevalent with intense heat and unhealthy wind. The river bodies are completely dryand the plants appear lifeless. The strength of the person becomes less, deposition of vata dosha occurs, but the vitiated kapha dosha is pacified during this season. Agni of the person will remain in mild state.

Diet regimen: foods which are light to digest such as rice, lentil, etc. are to be taken. Drinking plenty of water and other liquids, such as cold water, buttermilk, fruit juices, meat, soups, mango juice, churned curd with pepper is to be practiced. At bed time milk with sugar candy is to be taken.

Lifestyle: staying in cool places, applying sandal wood and other aromatic pastes over the body, adorning with flowers, wearing light dresses and sleeping at day time are helpful. During night one can enjoy the cool moon rays with breeze. Excessive exercise or hard work is to be avoided too much sexual indulgence and alcoholic preparations are prohibited.

2) Varsha (monsoon):

During this season the sky is covered by clouds and rains occur without thunderstorm. The strength of the person again becomes less, vitiation of vata dosha and deposition of pitta dosha, agni also gets vitiated.

Diet regimen: it is mentioned that one should take medicated water or boiled water. Intake of river water, churned preparations having more water, excessive liquid and wine are to be avoided. The foods which are heavy and hard to digest, like meat,etc are prohibited.

Lifestyle : use of boiled water for bath and rubbing the body with oil properly after bath is advised. Medicated basti is prescribed as an evacuative measure to expel vitiated doshas. Getting wet in rain, day-sleep, exercise, hard work, sexual indulgence, wind, staying at river bank, etc. are to be prohibited.

3) Sharad (Autumn):

During this time, the sun becomes bright, the sky remains clear and sometimes with white cloud and the earth is covered with wet mud.

Diet regimen: foods having the properties to pacify vitiated pitta are advised. Wheat, green gram, sugar candy, honey, patol (trichosanthes diocia), flesh of animals of dry land areto be included in the diet. Hot, bitter, sweet, and astringent foods are to be avoided. The food items such as fat, oils, meat of acquatic animals, curds, etc. are also to be not included in the diet during this season.

Lifestyle : food should be taken only when there is a feeling of hunger. One should take water purified by the rays sun in daytime and rays of moon at night time for drinking. It is advised to wear flower garlands and to apply paste of chandana on the body. Medical procedures such as virechana (purging), rakta mokshana (blood letting), etc should be done during this season.

4) Hemanta (late autumn)

Blow of cold wind starts and the climate is chilled. The strength of the person remains on highest grade and vitiated pitta dosha gets pacified. Activity of agni is increased.

Diet regimen : one should use unctuous, sweet, sour and salty foods. Among cereals and pulses, new rice, flour preparations, green gram, masha, etc. are mentionedto be used. Various meats, fats, milk and milk products , sugarcane products, tila, etc. are to be included in diet.

Lifestyle : exercise, body and head massage, use of warm water, atapasevana (sunbath), application of agaru on body, heavy clothing, sexual indulgence with one partner, residing in warm places is recommended. Exposure to strong and cold wind, habit of day sleep,etc. are mentioned to be avoided.

Discussion :

It has been observed that there is an increased occurrence of flu, dry skin in winter, heat stroke in summer, pollen allergy in spring, high incidence of air and water borne diseases in rainy season and skin diseases in

autumn. Thus, it can be studied that physiology indicates the concept of ritucharya [4]. With the knowledge of Ayurveda we can surely avoid these by practicing regimen in accordance with the ritu to maintain the harmony of the tridosha and stay healthy forever. Growing public awareness may help prevent the hazardous effects of climate change.

Conclusion :

This review summarises various aspects of seasonal changes. Following proper ritucharya i.e. proper regimen according to ritu as stated by acharyas brings about homeostasis of doshas and let us remain in harmony and health. So, in order to cope up with transition, the ritucharya i.e. seasonal regimen must be followed.

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Statistical Analysis of Some Fern Species in Western Ghats, Sahyadri Hills, Maharashtra, India

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Abstract

Western Ghat is a mega biodiversity region, with varied flora, fauna and landscapes. The area is one of the worlds "MEGA BIODIVERSITY HOTSPOTS". Diversity of life on earth has always remained a striking feature of troposphere and an important area of investigation for a biologist. This is one of the places that harbor rich diversity of endangered species both in the aquatic and terrestrial ecosystems. The present paper deals with the Statistical analysis of some general and families of ferns in Western Ghats, Sahyadri Hills, Maharashtra, India.

Key words: statistical analysis, Sahyadri, Western ghat, Maharas

Introduction

Maharashtra is a state in the western peninsular region of India. The Sahyadri range is the physical backbone of Maharashtra which rises on an average to an elevation of 100m. The region between the Arabian Sea and the Sahyadri Range is called the Konkan. It is a narrow coastal low land, hardly 50-80 kms wide. Konkan is coastal lowland lying between the Arabian Sea and Sahyadri ranges with an average elevation below 200m. Majority of the forests area in Maharashtra is formed by Sahyadri hill ranges. Western Ghat is one of the 'Mega biodiversity hotspots of the world showing highest biodiversity of flora and fauna. Western Ghat shows many hill stations like- Matheran, Lonawala, Khandala, Mahabaleshwar, Panchgani, Amboli and Vengurla, which show high diversity of plants, particularly fern species. The Sahyadri Ghats are a succession of steep hills, most of the famous hill stations of the state are at the ghats. Sahyadri ranges with an elevation of 1,000 meters are known for its crowning plateaus. It runs approximately 1600 km through the states of Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala which ends at Kanyakumari. Near about 60% of the Western Ghats are located in the states of Karnataka and Kerala. Konkan is the western coastal region, between the Western Ghats and the Arabian sea. Major cities including their districts located here are Kolhapur, Sindhudurg, Mumbai, Ratnagiri, Satara, Alibag, Pune, Nasik and Thane. The entire coastline of the Western Ghats of Maharashtra state - starts from the well known towns of Kihim and Alibag in the north to the town of Vengurla in the south where it merges. The plateau has been carved by the major rivers Krishna, Bhima, Godavari and Tapi and their master tributaries, into alternating broad-river valleys. The Ghats are also the source of numerous small rivers which flow westwards, emptying to in the Arabian Sea. The various vegetation types are tropical evergreen forests, moist deciduous forests, dry deciduous forests and scrub forests.

Major localities in the study area visited for exploration

Western Ghats mountain ranges have many hill stations like Matheran, Lonawala-Khandala, Bhor Ghats, Mahabaleshwar, Kolhapur, Trimbakeshwar, Kalsubai, Bhandardara, Pachgani, Koynanagar, Radhanagri, Amboli Ghats, Alibag, Roha, Devrukh, Nagotne, Sakharpa, Rajapur, Kudal, Malvan, Kudremukh and Vengurla. etc. which were visited a number of times and specimens collected.

Geography, Soil and Climate

Topography of Western Ghat in Maharashtra is distinct. The entire range of Sahyadri hills in Maharashtra is covered by dense forest areas with highest biodiversity. The main rivers in the states are Krishna, Bhima, Godavari, Tapi-Purna and Wainganga. Soil in Western ghat varies from humus rich peat to laterite soil in the lower sides of hill slopes and high rainfall areas. It is generally acidic, derived from under line basalt. In the Sahyadri ranges the basaltic soil give rise to brick red laterite type of soil. Climate of the study area is mainly influenced by high mountain ranges of Western ghat called Sahyadri hills which block the monsoon bearing winds and clouds coming from Arabian Sea and cause high rainfall in this area. Highest rainfall is in the months of July and August. Monsoon starts in June and ends in September. Winter starts in the month of November and ends in February followed by harsh summer.

Materials And Methods

The present project has been planned to start with survey and end with compilation like any taxonomic research project. Sahyadri ranges in Maharashtra begain from Kudal (Sindhudurg) and end in Nandurbar district of Maharashtra. Looking at the natural conditions, rainfall and altitude, the survey of ferns was conducted in hill ranges of Sahyadri. The exploration was conducted in the following three phases-

Exploratory or survey :-

This phase began the project with surveying of ferns in area under investigation. The survey began in 2016 and was completed at the end of 2018. During this phase intensive and extensive exploration was undertaken to various localities in different seasons. Main intension of such visits was to collect samples for further studies and photograph them. Thick forests and anticipated localities were given stress in this regard and it has yielded better results. Plant specimens collected during such tours were pressed and dried in blotters. Soil samples were collected in polythene bags to analyse physical and chemical properties of soil.

1) Preservation and Mounting phase:-

The plant materials collected from various localities of area under investigation were dried properly. These specimens were subjected to the treatment of suitable insecticide and pesticides to avoid insect attacks. Mercuric Chloride solution was used for this purpose. The specimens were glued on handmade herbarium sheet of international size (42 X 29 cm). These herbarium sheets are deposited at S.B.E.S. College, Aurangabd and served as the research data.

2) Compilation phase:-

The herbarium sheets prepared in the second phase were arranged by Pichi- Sermoli (1977) classification in almirah. All plants were described in detail which includes the morphology and ecology of plant. Dichotomous keys were devised for families, genera and species for their easy and correct identification. Each species was provided with latest nomenclature. The citations are spatially enriched with Indian references. The description of plants were also appended with additional information like distribution in the region, economic importance etc. Similarly line drawing has been appended with this work which will help easy identification of plants.

Statistical Analysis

76 fern species belonging to 38 genera are identified and reported in the present investigation. These species belong to 21 families and the Statistical analyses of these species are provided.

Out of the 21 families eleven families are dominant and reported here. These families are arranged in order their dominance in the following table. Present investigation suggests that Cheilanthaceae is the dominant family as far as the species number is concerned. Following table shows number of species in decreasing order along with their families.

Table 1

Sr. No.	Families	Genera	Species
01	Cheilanthaceae	1	12
02	Pteridaceae	4	11
03	Theypteridaceae	8	9
04	Dryopteridaceae	2	6
05	Adiantaceae	1	6
06	Lomariopsidaceae	1	3
07	Oleandraceae	1	3
08	Microsoridaceae	2	2
09	Polypodiaceae	1	2
10	Lygodiaceae	1	2
11	Tectarioidaceae	1	2

The above families are compared with floristic investigation of Manickam and Irudayaraj (1992). Table no.2 shows the dominant families which are commonly shared in the three regions i.e. present study area (Sahyadri hills), Southern India and India.

Table .2 (comparison of family in the 3 regions (Manickam and Irudayaraj -1992)

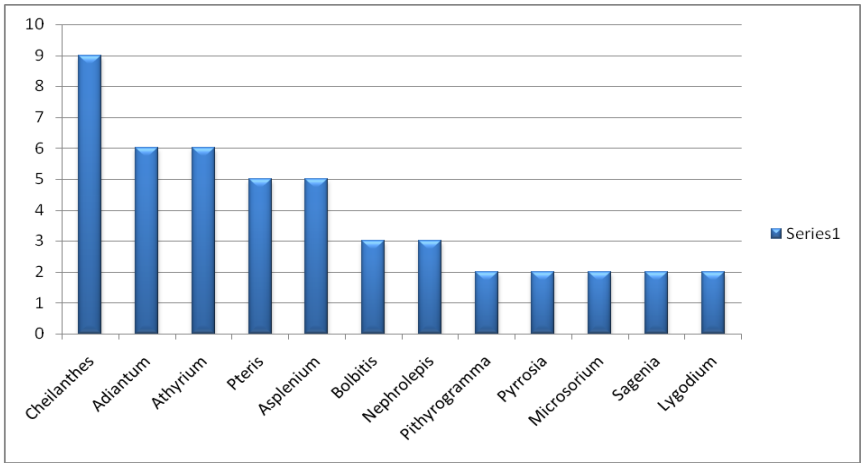
Sr. no	Family	Species no, in Sahyadhri Hills	Species no, in Southern India	Species no, in India
01	Cheilanthaceae	12	08	35
02	Pteridaceae	11	45	62
03	Theypteridaceae	9	02	02
04	Dryopteridaceae	6	06	09
05	Adiantaceae	6	15	22
06	Lomariopsidaceae	3	04	07

07	Oleandraceae	3	06	10
08	Microsoridaceae	2	01	01
09	Polypodiaceae	2	--	--
10	Lygodiaceae	2	10	05
11	Tectarioidaceae	2	--	--

The data shows 14 families present in all the regions Cheilanthaceae (12), Theypteridaceae (09), Pteridaceae (11), Dryopteridaceae (06), Adiantaceae (06), Lomariopsidaceae (03), Oleandraceae (03), Microsoridaceae (02), Polypodiaceae (02), Lygodiaceae (02), Tectarioidaceae (02) are well represented in all the regions but Polypodiaceae and Tectarioidaceae are represented only in Sahyadhri Hills.
Prominent genera representing two or more species from area under investigation is given in table 3.

Table 3 (Genera with two or more species in the study area.)

Sr. No.	Name of Genus	No. of species
01	*Cheilanthes*	9
02	*Adiantum*	6
03	*Athyrium*	6
04	*Pteris*	5
05	*Asplenium*	5
06	*Bolbitis*	3
07	*Nephrolepis*	3
08	*Pithyrogramma*	2
09	*Pyrrosia*	2
10	*Microsorium*	2
11	*Sagenia*	2
12	*Lygodium*	2



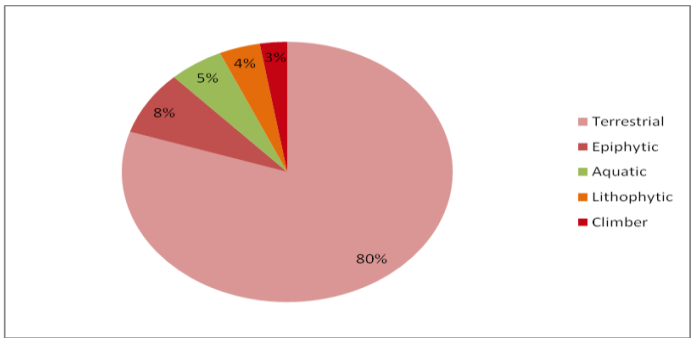
(Graph 1. showing number of species arranged in their decreasing order).

About 76 indigenous species are distributed over the Western Ghats area. This reveals relatively greater species density of 11 genera when compared with figure given for entire Western Ghat. These genera along with their decreasing order of species occurrence are depicted in graph 1. This calculation however, does not appear to be a relative figure, as much remains to be explored in the Western Ghats and the area under investigation is not significantly large for such a calculation. Western Ghats is a suitable working area to indicate richness of the flora. The richness of the present work area, the area not being significantly large for even such calculations for ferns. The distribution of number of species in an area denote the floristic richness and pteridophytic diversity.

Table -4 (major life forms in the study area)

Sr. No.	Life forms	Number of species	%of species
01	Terrestrial	60	80.03%
02	Epiphytic	06	8.10%
03	Aquatic	04	6.85%
04	Lithophytic	03	4.05%
05	Climber	02	2.70%

Detailed analysis of life forms of pteridophytic species (Table-4) and pie chart is given. Terrestrial species are much dominant (80%) than the other life forms.



Pie chart. Analysis of life forms of pteridophytic species

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Impact on Chili Production Labour on Covid-19

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Abstract:

According to official estimates, around 10,000 workers, majority of them from Chhattisgarh, had been working in chilli fields spread over 10,000-12,000 acres along the Godavari river belt in Vajedu and Venkatapuram mandals (revenue blocks) of Mulugu district and Charla and Dummugudem mandals of Bhadradri Kothagudem district (both in Telangana), besides Chintoor, Kunavaram and V R Puram mandals of Andhra Pradesh's East Godavari district. They migrate to these parts during the chilli crop season - in February and March - to earn their livelihood. But this year, as the crop almost reached the harvesting stage, the coronavirus epidemic started and thousands of labourers began hurriedly returning to their native villages in Chhattisgarh and Odisha.

Introducation:

Among vegetables grown in our country. Chilli [Capsicum annuum (L.)] is an important spices crop, belongs to genus capsicum under solanaceae family. It is a crop of tropical and subtropical regions and requires a warm humid climate. Though, chilli can be grown in many types of soils, well drained loamy soils rich organic matter of soils, well drained loamy soils are ideal for its cultivation. It is indispensable spice crop used in every Indian cuisine due to its colour (due to presence of pigment capsanthin), pungency (due to an alkaloid'capsaicin'), taste, appealing odours and flavors. Chilli fruits are rich source of vitamin A, C and E. In recent days, it is gaining popularity as vegetable as well as spice crop apart from its medicinal value as it prevents heart attack by dilating the blood vessels(www.ikisan.com).Chilli is origin of Mexico and it brought by Portuguese from Brazil in 1585 in Goa. Since then it has rapidly spread throughout the country and commonly considered as red pepper. The top ten chilli producing countries are India, China, Ethiopia, Myanmar, Mexico, Vietnam, Peru and Pakistan. India accounted for more than 85% per cent of the world production in 2015, the lion's share taken by India with 56% per cent (Source: FAO). In India chilli grown in almost all states of the country. In Maharashtra, chilli is grown on area of 99.50 hectares contributing to the production of45.60 tonnes with productivity of0.46tonnes /ha In Maharashtra major chilii growing districts are Nanded, Jalgaon, Dhule, Solapur, Nagpur, Amravati, Chandrapur and Osmanabad District. Out of these districts Nagpur selected for study becausetotal area and production in Nagpur district under chilli cultivation is 14100 ha and 20090 tonnes, respectively in Nagapur Bhiwapur panchyat samiti major chilli growing area((Anonymous, 2015-2016).

"Except 1,000-1,500 labourers from Chhattisgarh and around 500 from Odisha, all of them have left for their native places on foot, notwithstanding the imposition of lockdown and sealing of inter-state borders. Since they know the forest route, they might not have come to the notice of the police authorities," said Jatvati Venkatesh, an activist belonging to Jana Vikas Samithi (JVS), working for the rights of Chhattisgarh tribals.

The plight of Chhattigarh tribals returning from the agricultural fields of Telangana back to their native hamlets came to light with the death of 12-year-old Jamlo Madkami, a resident of Aded village of Bijapur, on her way back to her village on April 18. The girl came with her maternal uncle to work as labourer in the chilli fields of Peruru village of Vajedu mandal in Telangana. As the lockdown was extended till May

3, she started back to her village, about 150 km away, but collapsed, reportedly due to dehydration and lack of proper food, about 50 km away from her village. The Mulug district administration ordered an inquiry into how Madkami, a minor girl, was allowed to work in chilli fields and how she managed to cross the border. "Ever since the lockdown was announced, our district officials have been taking all measures to see that the migrant tribal labourers remained in their respective areas of working and not ventured to go back breaking the lockdown," Mulug district collector S Krishna Aditya told Hindustan Times.

He said each migrant labourer was provided with 12 kg of rice, besides Rs 500 towards subsistence allowance, though some big farmers promised to take care of these migrant labourers. "In Vajedu mandal alone, we distributed rice and money to around 1,726 migrant labourers. Yet, some of them seem to have tried to go back to their native places fearing uncertainty in lockdown," he said.

The exodus of tribals back to their native places have left the chilli farmers in lurch. "We are not able to get labourers to harvest the crop when we actually need them, as majority of them have walked back to their native places," Srinu Kandula, a chilli farmer in Nandigama village of Chintoor block said.

Normally, these migrant labourers come in groups of families - each comprising parents and their children. "We pay equal wages to each of them, irrespective of their age - ranging from Rs 200 to Rs 300 depending on the work they do. If we deny work to minors, the parents, too, drop out from work. So, we are forced to employ even minors," Kandula said. Besides cash, the labourers also get some quantity of chillis as wages, which they carry along with them back to their villages, where they sell it to make some money. "This time, the yield in chilli crop is very good and the market price is also very encouraging - Rs 12,000 per quintal, as against Rs 7,000 last year. But we are not position to harvest the crop due to migration of labourers. If we can't complete the harvesting in another couple of weeks, we will be at a big loss," said Kandula.

Back home, these tribal migrant labourers are not finding it easy to return to their villages. "The villagers are informing administration about their return. In most of the places these migrant labourers are camping outside the village," said a police officer posted in Bastar region, who was not willing to be named.

Dantewada superintendent of police Abhishek Pallav said that about 2,500 people from Telangana and Odisha returned to their villages in the district in last

20 days. "Police are monitoring them through sarpanch, village secretary and police station and putting them under quarantine outside the village after medical examination," he said.

Bijapur Collector KD Kunjam said about 6,000 labourers returned from Telangana and Andhra Pradesh and are quarantined in 40 camps. "The tribal villagers have become vigilant about the Covid-19; they are not allowing their own relatives to enter their villages. We are taking care of each and every labourers and for that relief camps have been set up in schools and ashrams," said Kunjam.

Chief Medical Officer of Bijapur district Dr BR Pujari said many labourers had returned from crossing jungles and mountains. "Most of these are camping outside their villages with the help of villagers and administration," said Pujari.

Bastar Collector Ayaj Tamboli informed that 41 relief camps have been set up in Bastar district. "As many as 1,084 people have been kept in quarantine. Recently, 17 laborers of Odisha have been stopped outside the village Nangur Gaon, 20 km away from the headquarters," he said.

Bastar Commissioner Amrit Khalko said that that the villagers of Bastar division are aware of the coronavirus. "More than a thousand villagers are been closed. The traditional Mati festival of Bastar, Devguri Puja, Ama Tihar, Cock fight are not celebrated and people are following the rules," said Khalko.

Employment-related measures
(e.g. state compensation schemes, training…)

Ready to be enacted is legislation that was approved on March 31 by Congress, which provides protections to workers and imposes obligations on employers when the suspension of the employment relationship is mandated by the authority in response to the Covid-19 outbreak.. Some of the central aspects include:

Employees that meet minimum requirements can apply for unemployment insurance which will cover 70%, 55%, and 45% of the salary during the first, second and following months of suspension respectively

Employer and employee can agree on a suspension of the labor relationship

During the suspension, the employer is required to make social security and health insurance payments with certain ceilings

Under certain conditions, employers and employees can agree a reduction of the work hours with a proportional reduction of the salary, in which case the employee can obtain unemployment insurance benefits of up to 25% of her salary

The unemployment benefits are limited to the equivalent of US$265 approx. per month.

Law in protection of employment:

Suspension of working contract due to an authority mandate: If the government considers convenient to take extreme sanitary and safety measures which imply the paralysation or total stop of economic activities, individual employment contract must be suspended, unless exists an arrangement between both parts which stipulates that the employee may continue to offer services, which of course has to be written on a contract. In this case, the employer must continue providing their social security payment excluding solely occupational accidents. During this period of time employers can only decide to terminate contracts with their employees by cause of need of the company. Suspension arrangement of the working contract: When employers see their economic activities affected by the covid-19 crisis. They can arrange individually or collectively with their employers the partial suspension of the working contract. This pact follows the same effects than the suspension mention earlier. Temporary reduction of working hours: Employers can reduce with the approval of their employees the temporal reduction of legal working hours up to 50%, with the remaining salary covered by the pension security system.

Independent employers or entrepreneurs:

Early return on income taxation: Anticipation of income tax returns to the month of April 2020 instead of May 2020.

Return on tax retentions in January and February 2020

Economic stimulus measures
(e.g. loans, moratorium on debt repayments…)

Reduction by the Central Bank of the fiscal policy interest rate to 0.5%

Measures announced by the Financial Market Regulator (CMF) with the purpose of loosening the flow of credit to individuals and companies. These measures include:

Regulatory exception for provisions to deferral of up to 3 installments for mortgage backed loans

Flexibilization of loan maturities for SMEs up to 6 months without qualifying as a renegotiation

Possibility to use mortgage guarantees for loans by SMEs

US$ 500m capitalization of BancoEstado, a state owned commercial bank

Supplemental bonuses for families eligible to governmental subsidies

Additional support:

"Compra ágil", new website destinated to speed up and help out the SMBs in their daily offer of services and supplies to public entities.

Banco Estado (National Bank) capitalization by US$ 500 millions. This measure will increase the credit capacity of the Bank up to US$ 4.400 millions which are aimed to mainly support citizens and SMBs

Micro Business:

Creation of a social fund holding US$ 100 millions: In case of social emergency due to big drops in sales of the local micro business.

Financing for entrepreneurs:

US$ 3.000 Millions on state guarantees contemplated for SMBs to have access to credits in order to finance working capital. This measure, contemplated in the second emergency plan announced by the government, consists in a state line of credit which will allow companies to finance credits up to US$ 24.000 millions in total and will be available until September 30th 2020.

Other measures and sources

Security and protection:

Employers must look after the safety of their employees, and employees in that matter are allowed to abandon their work places in protection and wellbeing of their life or health. Due to Covid 19 the employer has to inform about any associated risks, keep adequate hygiene conditions at the work place and provide the proper elements to prevent any contagion with the virus.

Medical License:

In case that any employee is diagnosed with Covid 19, he or she must require medical license. Rights to provide services and therefore of regular remuneration are suspended. In consequence, public subsidy gets activated which consists in covering up payments related to the health care system in which the person is affiliated (ISAPRE or FONASA).

Home office:

New regulation has been announced concerning "teleworking", this allows employees to work from home and feel confident about their rights which have the same formal conditions contemplated in any normal context and as any other worker. A Covid 19 perspective has thought about the possibility of employers to cease remunerations consisting on mobility and lunch.

Protection for the most vulnerable:

US$ 2.000 millions desginated to citizens who do not have formal employment, therefore do not have any unemployment insurance.

Other measures:

The Central Bank in coordination with the CMF provided flexibility for the implementation of Basel III standards by the financial industry

15 day extension for submitting to the CMF annual audited financials by listed companies.

Deferral of hearings and other judicial procedures, except for specific matters (domestic violence, detention control).

Assistance with payment of utilities and basic services (power, telecoms, water) for lower income households.

Price caps for certain pharmaceutical products, medical devices and medical and sanitary supplies. The price for the Covid-19 detection exam is capped at the equivalent of US$30 approx.

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Vrikshayurvedas Role in Crop Production and Disease Management

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Abstract

*Just as Ayurveda treats human diseases, there is a science for plant life called 'Vrikshayurveda'.It is a traditional science of plant life of India for the production of superior quality yields from the healthy plants in terms of its uses as food and , Medicine, understanding of physiology and pathology of plant life similar to that of animal and human life based on the philosophy of ancient Indian system of Panchamahabhuta and its products are clearly described Various measures for nutrition ,prevention of diseases, diagnosis and treatement based on the theory of Tridosha (Vata, Pitta, Kapha) has been also visualized in this science of plant life.Thus it is a part of amazingly futuristic one health framework (Combining plant, animal and human health) of ancient Indian health sciences has been established many centuries ago.**Vrikshayurveda is the ancient Indian science of plant life, a body of knowledge that has been systematically compiled in the form of 325 Sanskrit** slokas ***in a text named Vrikshayurveda by Surapala approximately 1000 years ago.***

KeyWords- *Disease , Panchamahabhuta , Prevention , Tridosha ,Treatement*

Introduction

Vrikshayurveda is that branch of science which deals with growing healthy plants to obtain desired fruits, flowers, grains, etc., from them. In general, the term is used to denote knowledge of plant life, in all aspects. Ever since farming has been practiced by man, plant characters such as healthy, disease free, vigorous and Phenotypically superior seedlings, with no physical damage and having good viability, have been the basis of agriculture. Vriksayurveda is the name of a Sanskrit text dealing with agriculture (*kṛṣi*).—Surapāla's text Vriksayurveda deals with arbori -horticulture and gives considerable information on the importance of trees, soil types, classification of plants, seed, sowing, planting, plant protection recipes, nourishment, types of gardens, locating groundwater, and bio-indicators to decide the suitability of raising specific crops or breeding animals. For treating disorders, Surapāla suggests using a number of plant species that we know today have antimicrobial properties, including mustard paste and milk.Vrakshayurveda is very old Indian knowledge of plants like sowing techniques, plant propagation techniques including pest and disease management/preventive and promotive care to build up disease resistance and to cultivate healthy plants. Extracts of plants like neem, garlic, onion, , turmeric, ginger, tobacco, papaya, leucas, pongama, tulsi, aloe, custard apple, vitex, sweetflag, poison nut, calotropis etc and their effects on curing plant diseases. Vrikshayurveda classified plant disorders in to two types- Nija and Aganthu. The Nija disorders are caused by the disturbance of three dosas- Vata, Pitta, Kapha.and Aganthu disorders are caused by pests, hail, lightening. According to Vrikshayurveda, plants are also having Vata, Pitta, and Kapha characteristics. Various procedures like rules for sowing seed, process of planting also explained in various Vrikshayurveda texts. Vrikshayurveda also praises a pesticide cum fertilizer called Kunapajala made from fish and animal waste. The experimental outcome of Kunapajala has been proved in various plants like Senna, Langali and Brinjal. Apart from agricultural scientists the personnel from Ayurveda Forestry, Ecology and Pharma-cognosy should emphasize to the respective ancient science of *Vriksayurveda* and correlate with the modern science and the thorough validation is required. The ignorance of our ancient texts is responsible for the degeneration of the agriculture practices. With the help of ancient texts and model methods of agriculture we can not only scientifically prove the sayings of the text but we could also establish some novel modified methods for the agricultural systems. Present scenario is very suitable for the development of the ancient sciences as there is a huge demand of the conservation and sustainable utilization of the wood and non wood forest products as well as the medicinal plant sciences. The proper interpretation and availability of *Vriksayurveda* can also play an important role in the field of intercropping and put forward for the use of organic fertilizers and can play a crucial role to build the eco friendly environment.The scientific community should validate the sayings of *Vriksayurveda* and the development of the agriculture as well as the production of various medicinal plants used in various systems of medicine. Very limited literature is available regarding the *Vriksayurveda* and admirable interpretation is done by some of the agricultural scientists.

Methodology

Source of Data- This article will review research published on Vrikshayurveda. Data were collected from several legitimate databases , "Vrikshayurveda – A Review" , Int. Jou. Of Ayurvedic and herbal medicine ,"Surapala Vrikshayurveda" , "vrikshayurveda-the-ayurvedic-treatment-for-plants-vrikshayurveda-organic-

farming" and other internet sources. Surpala' s Vrikshayurveda is an exclusive texts for Plants . Various other texts also have reference regarding Vrikshayurveda. Relevant and related data were filtered properly if it was found appropriate to the topic of interest. Time frame was also adjusted to obtain up-to-date information regarding Vrikshayurvedas..

Observation

The practices used in treatment of plant diseases in Vrikshayurveda are as follows:

Just as Ayurveda treat human diseases,Vrikshayurveda deals with the treatment and protection of plants. (Pitham) related diseases of plants that shows symptoms like leaves turning yellow, premature ripening of fruits and fruit rotting can be treated in Vrikshayurveda.

1. The roots of sesame plants and others of the bean family carry root nodules containing bacteria. These bacteria imbibe nitrogen and produce nitrogen salt which are rich and very nutritious food for plants. Should not be removed from the fields after the harvest, but ploughed along with the stubble when the field is being made ready for the next sowing.

2. Before planting, the seeds should be mixed with ashes and exposed to treatment by medicated smoke. This procedure ensures full growth and health of the plants.

Phlegm (Kapham) related diseases deform the plant leaves and slow down ripening of fruits. Also fruits will lose its natural taste.To treat this, make a paste of some mustard and sugar and apply it on the root of the plant. Then mix some ash of burned sesame in water and pour it a.. sesame in water and pour it at the bottom of the plants.

3. There is another remedy for phlegm related disease. Make a decoction of catechu bark , neem bark , nut grass, milkwood pine bark , sweet flag and nightshade plant (Kantakari). Pour the decoction at the bottom of the plant for 7 days.

4. Watered with the decoctions of fruits, *triphala*, ghee, and honey the trees are freed of all diseases of the *pitta* type.

5. Some plants stop blooming after first season. Pour down the water used to wash meat or fish at the bottom of the plant to make them blossom again

7. When the trees become weak without any particular symptoms, apply a mix of sugar, sesame powder, cow milk and water.

8.When a tree is burned in lightening, irrigate it with a mix of nut grass, vetiver, Indian butter tree flower, peas, black gram, barley and sesame added in water

9.To help the tree flourish, make tablets of finely ground licorice root, Indian butter tree flower, sugar, costus (Kottam) and honey and bury them around the tree.

10.To boost growth of mango tree, boil some water adding mustard, bael leaves (Koovalam), rice water (Arikkadi) and oil cake (Pinnakku) and let it cool downPour this solution at the bottom of the tree.

11.To enlarge mangoes and vegetables, boil some water with milk, sesame,. meat and fish. Pour this liquid at the bottom of the plant once it is cooled down. The ingredients can be ground and buried under the tree.

12.If the trees happen to get burn, make a paste of mud and lotus flower and apply it on the tree.

13.To get seedless fruits, apply a paste of licorice root, sugar, costus and Indian butter tree flower on the tree roots

14. Use of Arka to control weed is done by cutting branches of Calotropis are kept at the entrance of rain water channel. This practice minimizes weed population if repeated for several times during rainy days.

15.To get rid of weeds, cut a whole crown flower plant into small pieces and put them at regular gaps in the channels that carries water to the root of the plants.

16.Take the sap of trees that produce sap and pour it down in the water in the paddy fields to prevent pests that attack paddy.

17.Tie some pure asafoetida to the roots of plants to stop its flowers and fruits from falling off the plant.

18.Trees which are smoked heavily by a mixture of ghee,vidanga , milk water and honey become full of flowers and fruits in a short time.

19 .The coconut trees become loaded with weight of huge fruits and also become disease free if smeared at night with extracts of fermented liquor , seasame,black gram and wine mixed with honey, salt and vidang.

20 .A tree which normally produces tasteless fruits starts producing sweet fruits if thickly smeared at the root with the paste of mixture made out of vidang ,yashtimadhu ,yava , milk and jaggery.

21.To remove Insects both from roots and branches of the trees one should water the trees with cold water seven days.

22.The insect on the leaves can be destroyed by sprinkling the powder of ashes and brick dust.

23.To prevent worm infection, take equal amount of Indian beech tree bark (Ungu), golden shower tree bark (Kanikonna), neem bark, milkwood pine bark, nut. grass and false black pepper seeds (Vizhalari) and grind them finely. Dissolve it in water, mix with cow urine and irrigate the plants with this solution
24.The worms can be overcome by the paste of milk, *kunapa* water, and cow dung mixed with water and also by smearing the roots with the mixture of white mustard, *vaca*, *kusta*, and *ativisa*.
25 . watered with plenty of triphala decoction immediatly with husk the jack fruit trees bears number of seedless fruit.
26. Fragrance of the blossom can be changed by filling (the base near) the roots of the trees with the earth scented with the desired fragrance and then fed with water mixed with *jalada*, *mura*, *nata*, *valaka*, and *patraka*.
27. All types of flowering plants produce excellent fragrance if earth strongly scented by their own flowers is filled around the base (of the trees) and then fed with water mixed with *musta*, *mura*, *nata* leaves, and wine.

Conclusion

Although vrikshayurveda methods have proven their mettle in the field, this ancient science is more than a means to become rich quickly. Our Vedic ancestors had a deep respect for nature and her mysteries, so did our ancient farmers. Little wonder that Indian civilization has withstood the test of time and the fertility of our soils has been maintained for over 5,000 years of our recorded history. Even Sir Albert Howard in his book "**An Agricultural Testament"** has admitted the superiority of traditional Indian methods of agriculture over European methods. Our experiment with western methods of chemical agriculture have led to disaster and farmer suicides in Vidarbha, Andhra Pradesh and north India are a direct outcome of this system of agriculture. Indian agriculture and horticulture stands at the crossroads today. Western methods have proven to be unsustainable.In today's scenario the importance of understanding Vrikshayurveda has also increased because several crores of rupees are being spent every year on pesticides for the control of pest. Apart from being expensive the chemical pesticides have proven to be environmentally disastrous6 . A detailed study of Vrikshayurveda would also provide us with information on pest management based on sound ecological principles. Chemical fertilizers and pesticides are petroleum derivatives. But with the depletion of oil reserves all over this planet within the next 20-25 years this system of agriculture cannot last. What will our farmers and growers do when DAP, urea and other chemical fertilizers are no longer available? They will of necessity have to return to their traditional methods of agriculture. But this will be a painful and long drawn out process if known methods are used for making the transition. *Vrikshayurveda* offers a relatively painless and smooth transition from chemical agriculture to organic agriculture. Let the interested farmers learn and adopt V*rikshayurveda* methods on their farms. They are sure to be surprised by the results.

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Object Identification Using Manipulated Edge Detection Techniques

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Abstract: *Because edge detection techniques are at the forefront of image processing for object recognition, having a thorough grasp of them is essential. The purpose of this study is to examine several edge detection methods, such as Canny, Sobel, Prewitt, and Roberts, in order to determine the accurate boundary of an object. The research is based on a collection of aeroplane images obtained from the Aeroplane Design and Engineering Database. Based on the analysis and results, it was observed that canny outperforms then other techniques in properly detecting the object, with an accuracy of 98.84%, compared to Sobel 91.75%, Prewitt 83.74%, and Robert 79.45%.*

Keyword: *Edge detection, Object recognition, Aeroplane imagery, Matlab.*

Introduction

In recent decades, scientists and researchers have a great demand for image research, one of which is to detect the edge of the image to recognize objects and search for edge information from the image1]. Image processing edge detection is a basic problem and computer vision is an important task in image processing [2]. The edge of an image is a collection of pixels with vital inequalities, representing significant characteristics of the image and containing information [3]. Edge detection is performed on images whose edges are not symmetrical [4]. Edge detection is one of the most vital technologies in the field of image processing, and has a significant impact on the study of feature extraction, description and subsequent target identification [5]. The purpose of edge detection is to analyze and group feature in the image, and perform further analysis of the image [6]. Edge detection is mainly divided into two parts, namely first-order edge detection and second-order edge detection [7]. The first-order techniques namely; Sobel [8], Prewitt [9], Roberts [10], and Canny [11]. Laplacian of Gaussian (LoG) is the second-order edge detection [12]. The edge detection described in this article is a first-order edge detection, such as Canny, Sobel, and Prewitt Roberts methods. Based on these edge detection methods, the results of these methods will be analyzed and compared to be the best and most accurate in recognizing aeroplane imagery. Several research have used edge detection techniques to solve various problems of the image recognition; this can be seen from the continuous extent of the study related to it. P Vinista and M M Joe (2019) Sobel technique is used for better image edge detection. The several feature of edge detection techniques (Laplacian, Prewitt, Sobel, and Roberts techniques) were studied and analyzed then compared with the Sobel technique with a threshold value of 100. Based on relative analysis, it is found that the Sobel edge detection technique works well as compare to other detection techniques. The outcomes show that the modified Sobel edge detection takes time less to detect the edges of diverse sampled images [13]. R Chetia, et al (2021) Introduce an edge detection techniques with improved Sobel quantum method, focusing on non-maximum and dual threshold technologies to present new and improved quantum technique. Edge detection quantum algorithm is realized by analyzing a series of edge pixels, simulation outcomes and circuit complexity. It is further compared with the classical method and several existing quantum edge detection technique. Therefore, the proposed technique can achieve a largely enhance in edge information and circuit complexity [14].

On the basis of these related research, this article proposed an edge detection technique for aeroplane image object recognition using Canny, Sobel, Prewitt and Roberts, so that the academic researcher can use it as a reference or information for further research.

Database and Methods

In this article used the dataset of aeroplane imagery obtained from the Google open source (https://www.open.edu/openlearn/science-maths-technology/engineering-and-technology/aeroplane-design-and-engineering), Aeroplane Design and Engineering (ADE). The image were obtained in JPG format with a resolution of 1024x578 pixels [15].

a)

b)

Figure 1. a) Original image of the aeroplane, b) Flipping horizontal image of the aeroplane.

First of all used the Matlab platform to flipping horizontally the original images, which will be used for edge detection comparison. Secondly convert the original image into greyscale and then use the edge detection methods to detect the accurate edge boundary of the aeroplane images with different methods to compare the results. The figure 2 shows the flow of the current research.

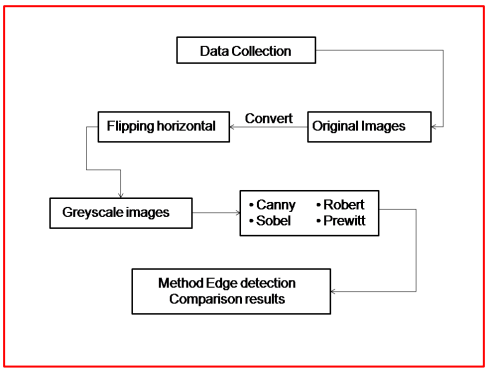


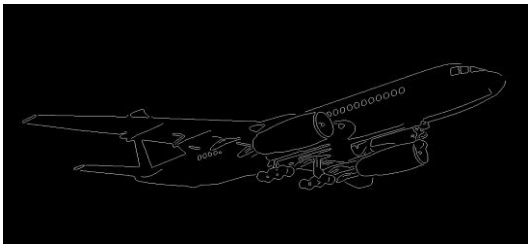
Figure 2: Proposed methodology.

1. Results and Discussion

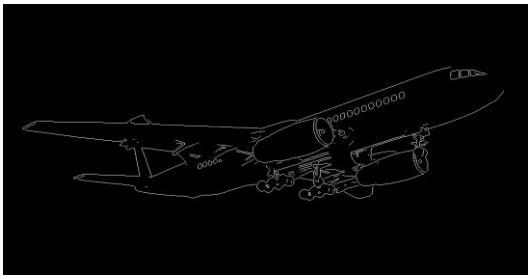
The proposed study present different edge detection techniques that includes Canny, Prewitt, Robert and Soble. All of these edge detection techniques are capable of detecting the aeroplane boundary information from the images, but some of these techniques affected by noise (unwanted information in the image processing terminologies). Canny counted one of the optimal edge recognition techniques in our case. It resulted in higher accurate edge detection capabilities along with enriched required information for the simulation purposes. It gives resultant image with high resolution and good edge detection capabilities as shown in figure 3 and 4 the results of edge detection.

a)

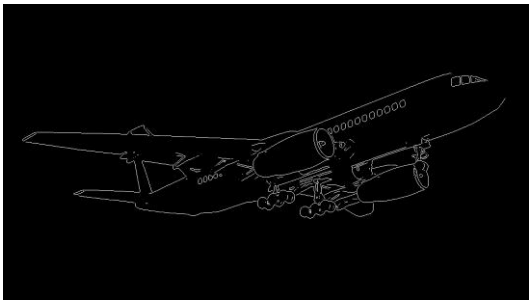
b)



c)



d)



e)

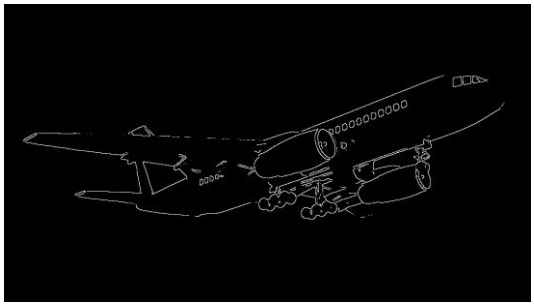
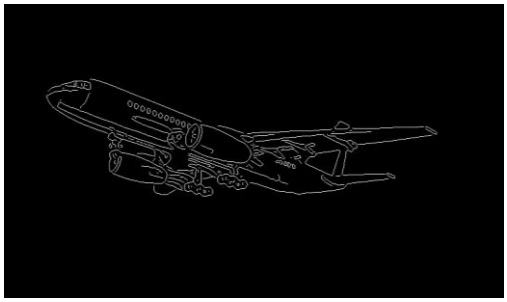


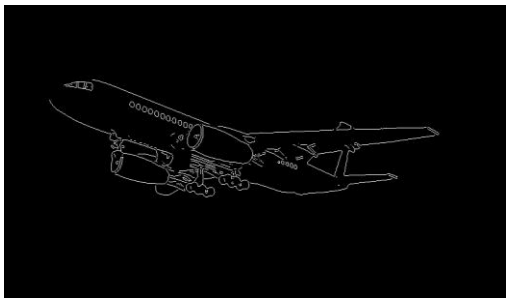
Figure 3. a) Greyscale images, b) Canny, c) Sobel, d) Prewitt, e) Robert.

a)

b)



c)



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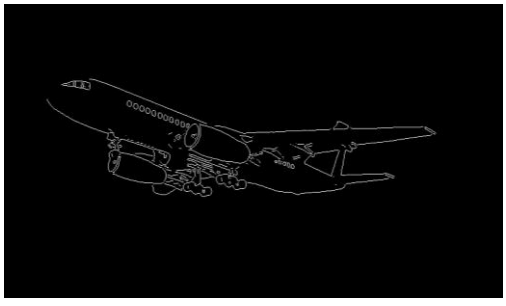

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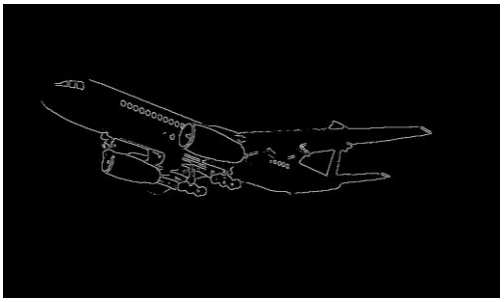

Figure 4. a) Greyscale images, b) Canny, c) Sobel, d) Prewitt, e) Robert.

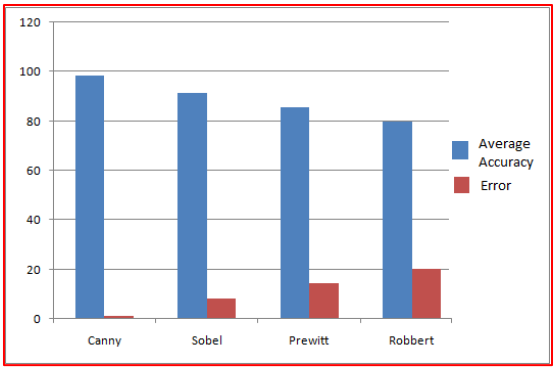

Figure 5. Show the average accuracy and error of the pixel in percent.

The information display in Figures 5, it can be concluded that the Canny edge detection technique has perform better accuracy than the other generic edge detection techniques such as; Sobel, Prewitt, and Robert edge detection algorithms. This is evidence by the outcomes of image recognition which is counted 98.84% better than the other methods, which is counted 91.75%, 83.74% and 79.45%.

Conclusion

Based on the analysis results, the study explains that object recognition using the edge detection procedure for aeroplane images using the Canny edge detection technique produced a superior recognition results than the other technique. The results of these techniques can help to recognize the object of the aeroplane image even though it has different dimensions and position.

Conflict of interest: The authors declare no conflict of interest regarding this paper.

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Reduction of harmonic distortion in a microgrid by using ANN and Shunt Active Power Filter Techniques

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Abstract

Energy quality is often expressed because the power of the power grid provides to provide the production of clean and stable energy flow as a constant supply of energy. the flow of space should have a pure form of rotation and should remain within the tolerance of electrical and energy. No real life power supply is right. In this ambiguity, a plan has been devised to stop static energy compensation for controlling electrical energy and reducing harmonic distortions during a small grid using Artificial Neural Network (ANN) and Shunt Active Power Filter Techniques. to maximize the introduction of standard controls and the gain of sensible controllers, a state-of-the-art feed (trained back-propagation algorithm) is an ANN-based process forced into active shunt power filters to produce the controlled pulses required by the IGBT power converter. This Paper introduces another strategy to reduce current harmonics in the provision of more indirect loads using the ANN controller.

Keywords:*Microgrid,ANN,SAPF,Non linear load,Harmonics*

Introduction

Energy quality is a simple term, but it describes a wide range of problems found in any electrical system and is an independent term. The concept of good and bad power depends on the end user. If the app piece works satisfactorily, the user feels the power is right. If the equipment does not work as planned or fails prematurely, there is a feeling that the electricity is bad. Between these limits, there may be several marks or layers of energy quality, depending on the energy user perspective. Understanding energy quality problems a The most common types of Power Quality problems are presented below Voltage sag (or dip)

1. Very short interferences
2. Long interferences
3. Voltage spike
4. Voltage swell
5. Harmonic distortion
6. Voltage variance
7. Noise
8. Voltage Unbalance

The dynamic force channel geography can be associated in arrangement or shunt or mix of both. Shunt dynamic channel is more notable than arrangement dynamic channel considering the way that by far most of businesses require consonant current pay. Different kinds of dynamic channels have been proposed to construct the nature of the force framework. The portrayal relies on the accompanying measures

- System boundaries to be make up (for instance symphonious flows, power factor and consonant voltages)
- Technique used for assessing the essential current And voltage.

Voltage source inverters which are current controlled can be utilized with a appropriate control framework to achieve the dynamic force channel adequately. Force frameworks are intended to work at frequencies of 50 or 60 Hz. Be that as it may, a few burdens can deliver voltages and flows with frequencies more noteworthy than thecrucial recurrence of 50 or 60 Hz. Electric contamination specifically, Harmonic mutilation can be caused because of this higher recurrence parts there are two sorts of harmony present in a force framework:

- Synchronous harmonics
- Asynchronous harmonics

Harmonics are aware to musicians like the nuances of an instrument.. These are the number products of the crucial recurrence of the instrument which are framed by a progression of standing influxes of expanding request. The very same activity happens in power circuits where non-straight loads make symphonious flows which are number products of the Central stock recurrence. Dynamic force channels (APF) have the capacity of producing consonant flows or voltages so the organization current or the voltage waves hold the first sinusoidal structure. The APF can be associated in arrangement (Series APF), shunt (SAPF) to make up for voltage or current sounds separately. Or on the other hand it tends to be joined with aloof channels to fabricate the crossover channels (HAPF) which can moderate both current and voltage sounds. Dynamic channels are very new to the universe of consonant expulsion gadgets. This sort of channels depends on power electronic gadgets and is a lot costlier than uninvolved channels. They are utilized in

troublesome occasions where the latent channels don't work as expected because of reverberation issues and they don't have impedance with different components introduced anyplace in the force framework. Dynamic channels have numerous different benefits over the old-style strategies for consonant pay, for example,

- Adapting with the difference in the heaps.
- Selective remuneration of music is conceivable.
- Limitations of the force remuneration.
- Compensation of responsive force is conceivable

Shunt active power filter

Depending on the system application or electrical problem to be solved, active power filters can be implemented as shunt type, series type, or a combination of shunt and series active filters. These filters can also be combined with passive filters to create hybrid power filters. The shunt- connected active power filter shows the characteristics similar to STATCOM (reactive power compensator of power transmission system) when used with self-controlled dc bus The shunt dynamic force channels, goes about as a current source, infuses consonant repaying current of same greatness as the heap current sounds yet moved in stage by 180° and along these lines remunerates load current music.

The arrangement associated channel basically remunerates voltage in unbalances and droops/swell from the air conditioner supply and hence shields buyer from deficient voltage quality. These are utilized for low-power applications. These channels can be utilized as a substitute to UPS with nearly ease as no energy putting away component like battery is utilized. Additionally by and large evaluating of segments is more modes The arrangement dynamic channels fill in as half and half channel geographies with uninvolved LC channels. On the off chance that aloof LC channels are associated in corresponding to the heap then arrangement dynamic force channel works as a symphonious isolator and compelling the heap current sounds to course predominantly through the inactive channel as opposed to the force dispersion framework. The principle benefit of this geography is that the appraised force of the arrangement dynamic channel is a little part of the heap kVA rating. The chart for shunt dynamic force channel is appeared in Fig. 1 The current related force quality issues like sounds, low force factor and responsive force utilization are relieved by utilizing shunt dynamic force channel. It is a gadget which is associated in the middle of source and burden at the Point of Common Coupling (PCC). By and large the dynamic force channel comprises of inverter geography and it goes about as a controlled current source .At the yield terminal of VSI a dc interface capacitor is associated which goes about as an energy stockpiling component and is utilized to keep a consistent DC voltage with little wave in consistent state. The dc connect voltage of the capacitor must be kept up as consistent to accomplish a superior remuneration. This is accomplished with the assistance of shut circle activity that is PI regulator. It creates the remuneration current which is 1800 out of stage with the music current delivered by load. This is cultivated by applying an appropriate control method for VSI. The following area holds the control. method for shunt APF

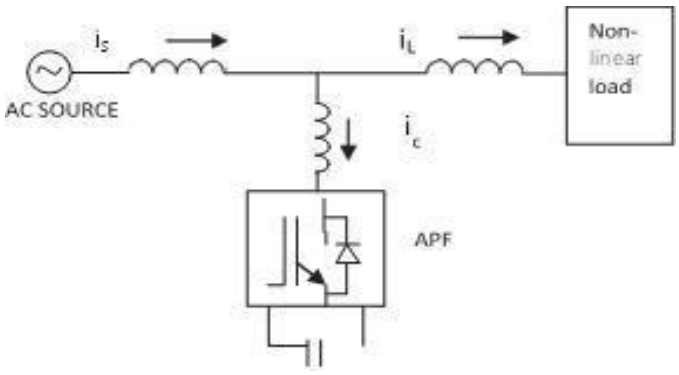


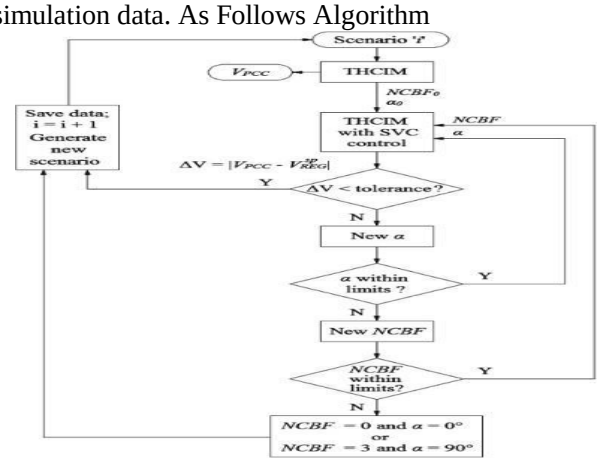
Fig.2. Shunt active power filter

MODELING AND DESIGN

This section incorporates the formation of voice fluctuations and the imitation of harmonic distortion reduction on a small grid using ANN and Shunt Active Power Filter Techniques -PCC) microgrid The control system should provide the appropriate number of capacitor banks with

additional accumulation function (NCBF) and thyristors fi ring angle (a) for different operating conditions of the system. To determine these settings, a neural network (NN) network is used. The route has two components:

1. Simulation of different loading and DG scenarios for data Gathering;
2. ANN training with the simulation data. As Follows Algorithm



Simulation Result and Discussion

The use of an effective shunt microgrid power filter system to compensate for the current problems of guaranteed energy quality using the Matlab / Simulink platform. Here microgrid sources are considered a good source of analytical purpose. In this project the performance of the filter is compared to two different control regions namely PI controller and NLA controller.

The powerful application of power management harmonics is shown in Figure.5.

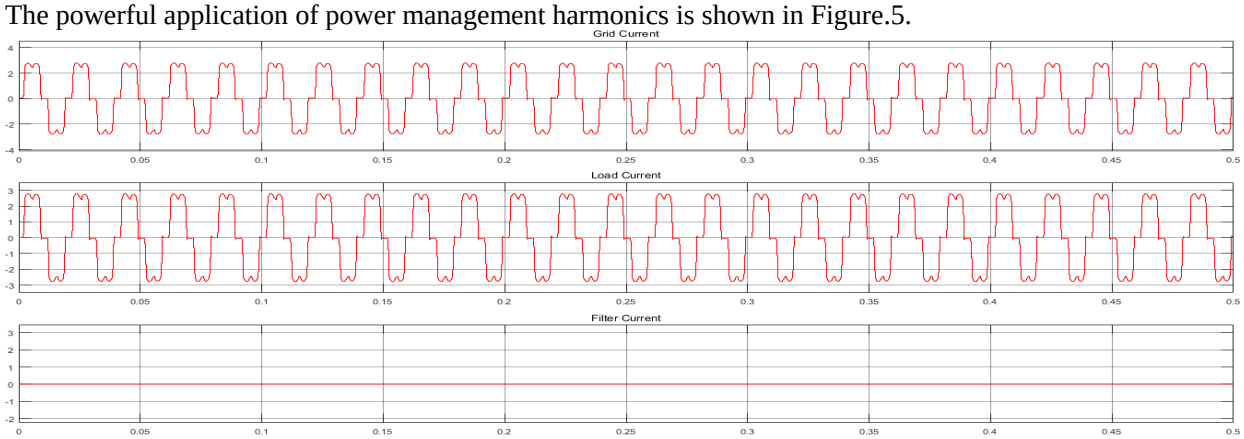
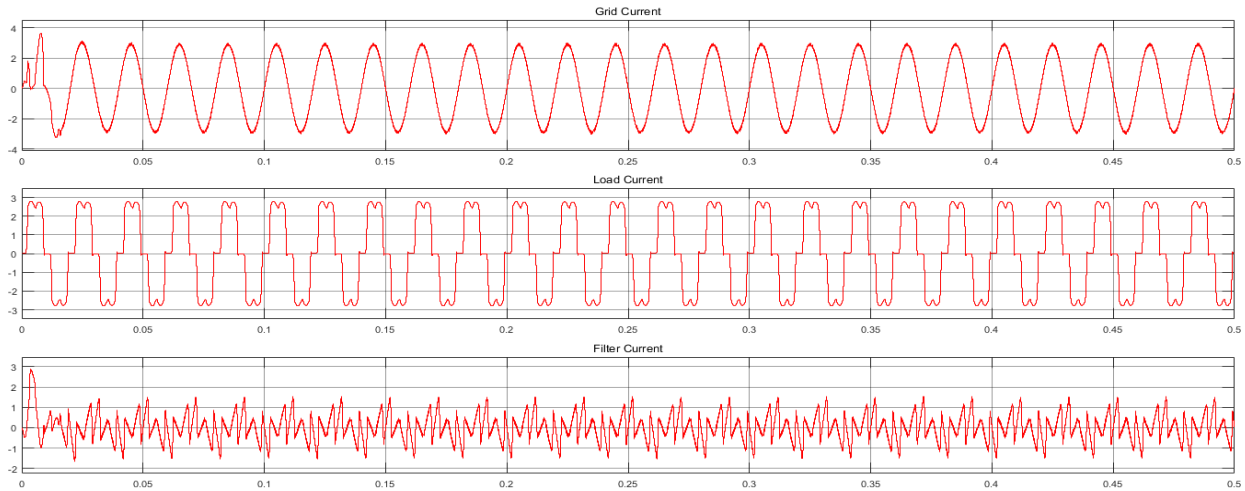


Figure 5:- Performance of voltage and current for source side without ANN and SAPF.



6 .Performance of voltage and current for Source side with ANN and SAPF

Conclusion

This paper identifies ANN as the implementation and measurement of THD for the third and current phases of the grid. Comparisons between the SAPF compliant grid using the controller and outside of this Paper, have been studied by the DC-integrated System, to increase the power quality where the small grid meets. The virtual grid connector has been shown to be able to be used effectively in the power setting without affecting the normal operation of the power transmission itself. Therefore, current imbalances, current harmonics and effective load forces, due to the unequal load single connected to the PCC, are effectively compensated so that the network currents are kept balanced and sinusoidal in the dynamic forces of unity. Combining the concept of neural network with neural networks and genetic algorithms is now transforming automated intelligence systems in many fields

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Application of ASTFA and Wavelet Transform to detect and decompose EMI

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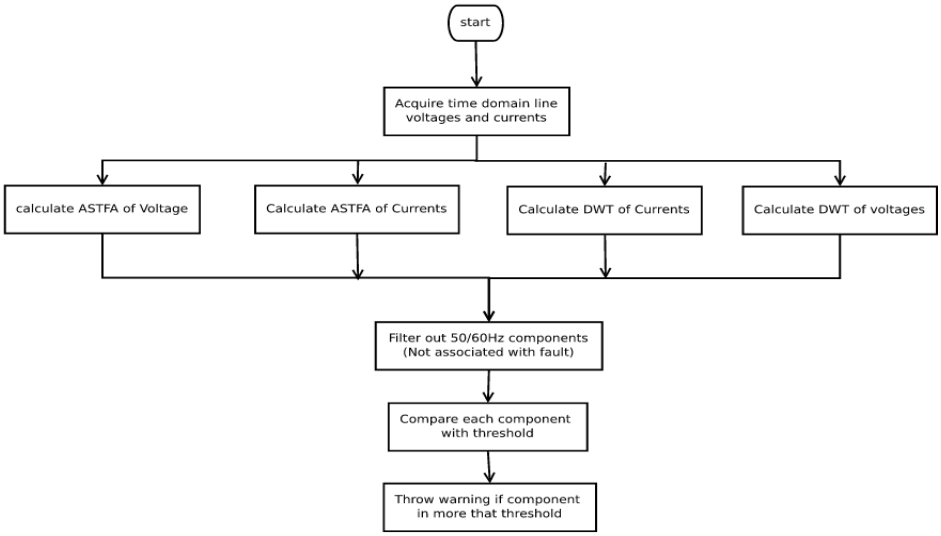
Abstract:
Electromagnetic interference (EMI), commonly known as radio frequency interference (RFI), is a type of electrical interference caused by electromagnetic conduction or electromagnetic radiation released from an external source. With the expansion of mobile electronic equipment, wireless communication systems, and computer networks, EMI issues have become more prevalent. For fault and harmonic analysis, this research proposes the use of adaptive sparse temporal frequency analysis and wavelet transform. Grid current and voltages will be broken into distinct DWT (discrete wavelet transform) and Frequency components in this approach. ASTFA (Adaptive Sparse Time – Frequency Analysis) will be used to decompose the data into frequency components. Each component's amplitude will be compared to a set of acceptable thresholds. Fault fault occurrence is identified when the amplitude of any of the components exceeds the threshold.

Introduction:

Electromagnetic interference measurements are an important aspect of electromagnetic compatibility testing. Electromagnetic interferences are complex signals made up of continuous-wave, transient, and random disturbances superimposed on each other. The electromagnetic interferences measurement system is a multi-input single output system because the electronic device consists of numerous modules or a number of devices that work at the same time during the measurement. The experiment yielded a signal that was a combination of numerous interferences If just standard frequency-domain measurement methods are utilised, it is difficult to identify the source of interference without prior understanding of electronic equipment to provide sufficient assistance for later diagnosis and correction. Time domain measurement, on the other hand, is useful for determining the type of electromagnetic interference (EMI) Hou et al. introduced an adaptive sparse time-frequency analysis (ASTFA) method, which was inspired by the Empirical Mode Decomposition (EMD) method and compressed sensing theory. The signal decomposition problem is transformed into a nonlinear optimization problem using the ASTFA approach. The primary idea of ASTFA is to search for the sparsest basis and decomposition results at the same time. Decomposition among all decompositions imaginable. These possible decompositions are made up of intrinsic mode functions and constitute a dictionary that is highly redundant. Each intrinsic mode function (imf) is defined as a cosine function multiplied by an envelope function. In order for the component generated by ASTFA to have physical meaning, the envelope function must be smoother than the cosine function. In ASTFA, the sparsest decomposition is also obtained by solving an optimization problem, as opposed to compressed sensing. In comparison to the EMD approach, ASTFA eliminates the difficulties of mode mixing and end effect associated with extreme computing by employing an optimization method to produce the decomposition findings rather than fitting the envelope of the extreme.

Proposed System:



This section includes the modulation and simulation design of the ASTFA.

a. Overview of ASTFA method

Time–frequency analysis is a signal processing approach that examines a signal in both the time and frequency domains at the same time, utilising various time–frequency representations. Time–frequency analysis examines a two-dimensional signal – a function whose domain is the two-dimensional real plane, obtained from the signal via a time–frequency transform – rather than a 1-dimensional signal (a function, real or complex-valued, whose domain is the real line) and some transform (another function whose domain is the real line, obtained from the original via some transform).

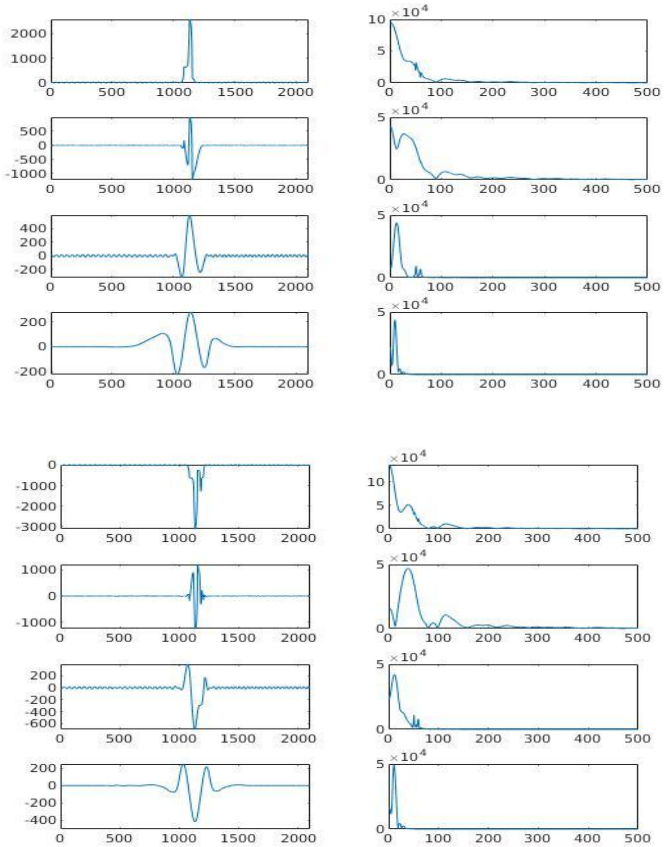
b. Time–frequency distribution functions

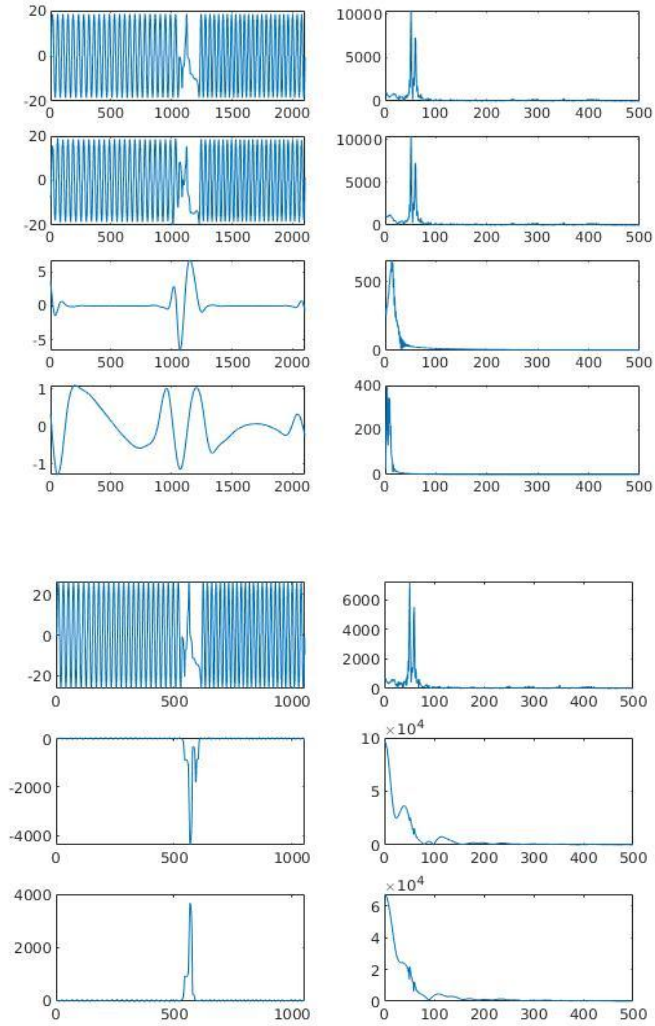
For the case where the signal frequency characteristics fluctuate with time, it is a generalisation and refinement of Fourier analysis. Time–frequency analysis provides a wide range of applications since many signals of relevance – such as voice, music, pictures, and medical signals – have shifting frequency characteristics.

While the Fourier transform technique can be used to determine the frequency spectrum of any slowly rising locally integrable signal, this approach necessitates a comprehensive description of the signal's behaviour over time. Indeed, points in the (spectral) frequency domain can be thought of as blurring together data from all over the time domain. While theoretically sophisticated, such a method is ineffective for assessing a signal with unknown future behaviour. To achieve non-zero entropy in telecom systems, for example, one must assume some degree of unpredictable future behaviour (if one knows what the other person will say, one cannot learn).

To take advantage of the power of a frequency representation without requiring a comprehensive characterisation in the time domain, acquire a signal's time–frequency distribution, which represents the signal in both the time and frequency domains at the same time. The frequency domain will only reflect the behaviour of a temporally limited version of the signal in such a representation. This makes it possible to speak intelligently about signals whose component frequencies change over time.

Implementation of paper:





Conclusion:

The initial phase of the ASTFA is described in this summary, and the wavelet transform method is estimated using the ensemble empirical mode decomposition (EEMD) approach. The wavelet transform is a signal processing method that converts a time-domain waveform to a time-frequency domain waveform and estimates the signal in both the time and frequency domains at the same time. As a result, it is mostly employed in the analysis of electric power systems. The decomposition of electromagnetic interference is then performed using the ASTFA and wavelet transform methods.

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Bio-monitoring For Lentic Water Body Quality Assessment with Special Reference to Periphyton

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Abstract
Nagpur City is surrounded by many natural and manmade lakes. Many of them were the drinking water sources for the city in the past. But later on, increase in population had put pressure on these sources, which got dwindled and eutrophic. At this juncture, to cater to the needs of people and also to augment the water source, it is very essential to monitor and maintain the quality of lakes for their end use.
In Nagpur, Gorewada Lake is used as drinking water source for Nagpur city, Ambazari Lake is used for recreation and limited watering of avenue trees and Gandhisagar Lake is used for recreation from aesthetic point of view and for fishery purpose. It was thought necessary to monitor the quality of these lakes with reference to their designated uses. In this work, bio monitoring of periphyton developed on glass slides & phytoplankton communities was carried out in these three lakes to assess their level of pollution and the need for prevention and restoration of water quality. The results showed Gorewada Lake as alpha – mesotrophic, Ambazari Lake as beta-mesotrophic, and Gandhisagar Lake as eutrophic. All these lakes need immediate planning and implementation for cost-effective & environmental friendly restoration measures. The periphyton community was observed to be the better choice as indicator population of water quality over a long study period as compared to floating phytoplankton. It was much more magnified in number and species composition.

Keywords: Periphyton, Phytoplankton, Lakes, Pollution,

RATIONALE OF THE STUDY

Periphyton is the population of algal species attached to any submerged objects and aquatic macrophytes. Periphyton in lakes, streams and rivers are an important component of aquatic ecosystem, providing food for invertebrates, and fish, in local and downstream ecosystems. Periphyton growth can be light-limited or nutrient-limited, or both, and is influenced by temperature. In addition, periphyton communities can rapidly deplete waterways of nutrients, assuming no additional inputs, and communities vary in species composition with variation in nutrient concentrations. Excessive periphyton growth can occur in rivers and lakes as a result of high water temperatures from reduced managed flows or excess nutrient production from human development on the landscape, through releases from wastewater treatment facilities, agricultural operations, deforestation, and soil disturbance, and therefore can serve as an ecological indicator for these disturbances.

OBJECTIVES OF STUDY

The present study is focussed on biological evaluation of lake water quality using phytoplankton and periphyton as well as their comparisons. The use of bio-criteria or bio-assessment in conjunction with physical and chemical water quality variables is an approach that goes beyond basic measurements of chl-a in evaluating water quality conditions (Corbett et al., 2005, Muniz et al, 2005; Lacouture et al., 2006) and represents a first step in incorporating biodiversity as a response to nutrients.

HYPOTHESIS

The study focuses on the physico-chemical and biological monitoring of water quality of three lakes in Nagpur, Maharashtra, India and comparative study between phytoplankton, and periphyton developed on artificial substrates in the lakes at different trophic levels with the assumptions study of periphyton is easy and fast than the study of phytoplankton.

METHODOLOGY

Three lakes in Nagpur were selected for study. These lakes are important for recreation, aesthetic view / drinking water source, as well as their ecological role for groundwater recharge and amelioration of climatic conditions in Nagpur.
A simple and convenient method was used to collect periphyton. The laboratory glass slides were suspended in water bodies and allowed them to be there for 6 days for development of periphyton onto it. The algal community from measured area on slide was scraped and was allowed to suspend in water and counts were taken and expressed per 324 mm^2 area of glass slide.
For collection of phytoplankton, 100ml water was collected and preserved with 1ml Lugol's Iodine solution. The phytoplankton were analysed qualitatively and quantitatively under microscope by Lackey Drop Count Method. (Sunita et al., 2007) and were expressed as number of algae per mL.

RESULTS AND DISCUSSION

Physiography of the Lakes

Gorewada Lake is a rain-fed storage tank which partially caters to the drinking water needs of Nagpur City. It is situated on the outskirts of the city on NWW direction at an elevation of about 1000 ft. above the median sea level (Figure 1).

The Ambazari Lake is situated around 4 miles from the zero mile of Nagpur City on SW direction at about 1000 ft. above the sea level, with a catchment area of 6.06 sq. miles and water spread of about 1 sq. mile (Figure 1).

Gandhisagar Lake or Shukrawaritalao, which is around 100 hectares in area and square in shape is situated in dense populated area of Nagpur City.

Phytoplankton Indicator of Lake Water Quality

The algal blooms in the Gandhisagar Lake and Ambazari Lakewere green to blue green in colour. Similar observations have been observed in other eutrophic lakes in India, such as in Udaisagar lake in Rajasthan (Vijaivergia, 2008), Dal Lake in Jammu and Kashmir (Solim and Wanganeo, 2008), (Kundu *et al*., 2015), and Chilika Lake in Odisha (Sengupta *et al*., 2017). However, the algal bloom in the Gorewada Lake is very low. The phytoplankton count per mL ranged from 2275 in Gorewada Lake, 4361 in Ambazari Lake and 8744 in Gandhisagar Lake. A total 25 algal species were recorded from the three lakes, out of which 6 species belongs to cyanophyceae, 10 species to chlorophyceae, 7 species to bacillariophyceae and 2 species to euglenophyceae.

Palmer, (1969) made the first attempt to identify and prepare a list of genera and species of algae tolerant to organic pollution to compute Palmer's Pollution Index (PPI). According to Palmer, PPI scores of 20 or more are indication of high organic pollution. PPIs were determined and were observed to be 27 for Ambazari Lake, 24 for Gandhisagar Lake and 21 for Gorewada Lake. These observations indicate that the Ambazari Lake and Gorewada Lakes were mesotrophic while the Gandhisagar Lake was highly eutrophic.

The phytoplankton data indicates that the pollution level in lakes is increasing as follows.

Pollution rating: Gorewada Lake < Ambazari Lake < Gandhisagar Lake

It is likely that further increase in eutrophication, the Ambazari and Gorewada lakes may lose some algal species like those in Gandhisagar Lake. These polluted lakes showed the dominance of *Oscillatoria subbrevis, Microcystis aeruginosa, Phormidium tenue, Ankistrodesmus falcatus, Chlamydomonas caudate, Scenedesmus bijugatus, Navicula oblonga, Nitzchia palea, Euglena gracilis,* &*Phacus longicauda* .

Periphyton Colonies on Glass Slides

The observations on periphyton developed on glass slides are shown in Figures 2, 3 and 4. The total count of periphyton algal species per 324 mm2 was observed to be 1755 in Gorewada Lake, 2460 in Ambazari Lake and 3380 in Gandhisagar Lake. The trend similar to phytoplankton was observed, however the count in Ambazari Lake was 1.4 times that in Gorewada lake and 1.9 times in Gandhisagar. This may be due to long period of exposure of substrates to the lake water, giving more time to algal species to develop over substratum.

A total 20 algal species were recorded in periphyton community from the three lakes, which consists of 3 algal species belonging to cyanophyceae, 5 algal species to chlorophyceae, 9 algal species to bacillariophyceae, 1 species to pyrrhophyceae, and 2 species to euglenophyceae. It was observed that the algal species, not capable of colonizing the substrate under the long term exposure, were eliminated in periphyton community like *Chroococcus minor, Microcystis aeruginosa, Spirulina platensis, Chlamydomonas caudate, Schroederia* sp., *Staurastrum muticum, Tetraedron minimum,* and *Phytoconis botryoides*. At the same time, some newalgal species also made appearance in periphyton like*Gyrosigma fasciola, Sematopleura* sp., *Gomphonema gracile,* and *Peridinium digitale.* Thus, periphyton community indicate the presence of algal species capable of withstanding the substrate habitat as well as water quality for longer duration of exposure, thus showing their suitability to indicate the water quality.

The algal biodiversity i.e. number of algal species were observed to be 9 in Gorewada Lake, 15 in Ambazari Lake and 8 in Gandhisagar. Gorewada Lake was having lowest pollution and nutrients thus having low number of algal species, algal species increased as the nutrient enrichment increased in Ambazari Lake, but again decreases as the pollution increased at highest level in Gandhisagar Lake. Similar observations have been noted by BoQiang *et al.* (2013). Phytoolankton species diversity did not show clear change in diversity as per the nutrient enrichment as shown by the periphyton.

Palmer's Pollution Index was computed and was observed to be 26, 22 and 12 in Ambazari Lake, GandhisagarLake and Gorewada Lake respectively. The Value of PPI 12 in Gorewada Lake indicates the probable presence of organic pollution, while the values above 20 in Ambazari and Gorewada lakes indicated very high organic pollution in lake water.

The certain diatom specieswere observed to be dominant/subdominant in the periphyton and were tolerant to pollution, while cyanophyceae and chlorophyceae which are indicators of organic pollution were subdominant and common respectively. This indicated that the lake waters were polluted, though at different levels in different lakes.

CONCLUSION

Both the methods have certain benefits and drawbacks. Phytoplankton monitoring is rapid method of biological monitoring with more diverse algal species but it indicates the water quality at the sampling time only. On the contrary, periphyton biomonitoring gives the average water quality for the experimental exposure period of glass substratum. Thus periphyton samples are more beneficial as they give:

- Better catch of algal species by density,
- True indicator group is magnified properly,
- Average waer quality for a 6 days period.

The observations showed that all the lakes were at various stages of pollution levels. Gorewada and Ambazari lakes may be classified as alpha-mesotrophic and beta-mesotrophic lakes respectively and Ambazari lake as eutrophic lake.

Gorewada Lake, which is drinking water source, was observed to be least polluted among the three lakes and pose alarming bell to take necessary preventive action to restore the lake water quality using cost-effective environmental friendly lake restoration technologies available now.Ambazari Lake is used for recreation and aesthetic purpose and for watering avenue plants. On the basis of CPCB classification of surface water, the water of these lakes was suitable only for Class E i.e. irrigation, industrial cooling and controlled wastewater disposal. Gandhisagar Lake is eutrophic and is unsuitable for its designated use for recreation and aesthetic purpose. This lake needs lake restoration.

All these three lakes are urban lakes and are affected by human activity. If proper preventive and restoration techniques are not implemented, these lakes will lose their utility for their designated use in near future.

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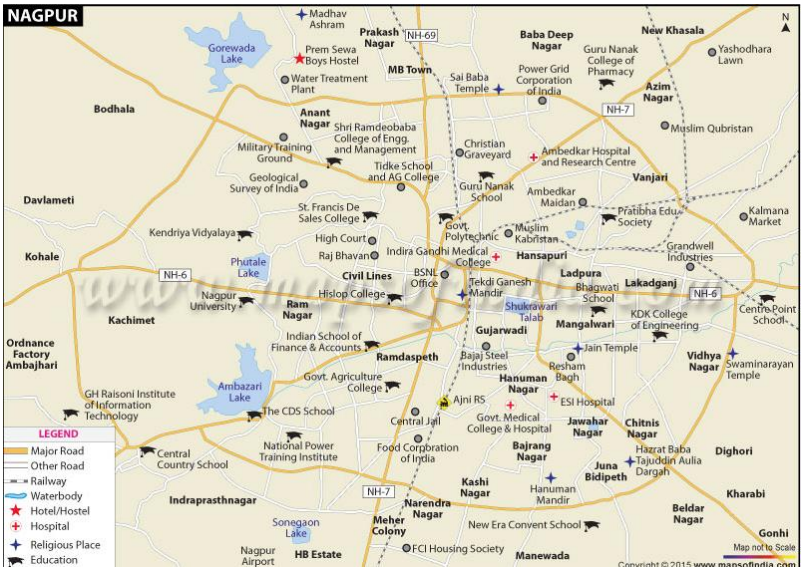

Figure 1: Nagpur City Map Showing the Locations of the Lakes

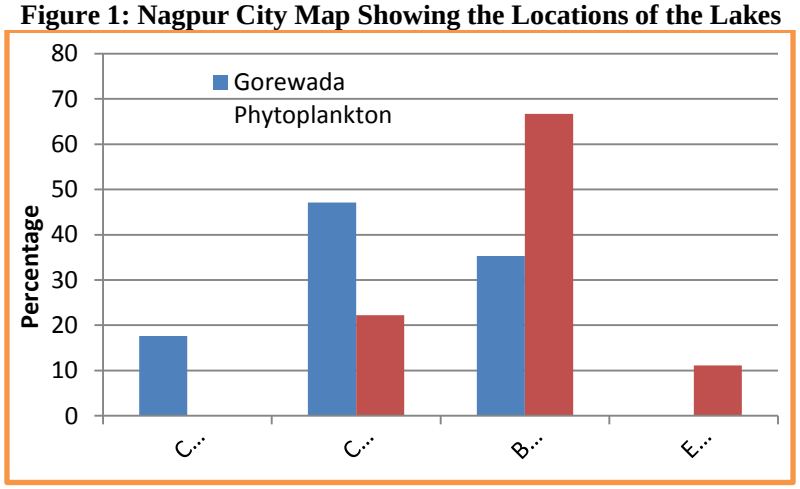

Figure 2: Comparison of Phytoplankton and Periphyton in Gorewada Lake

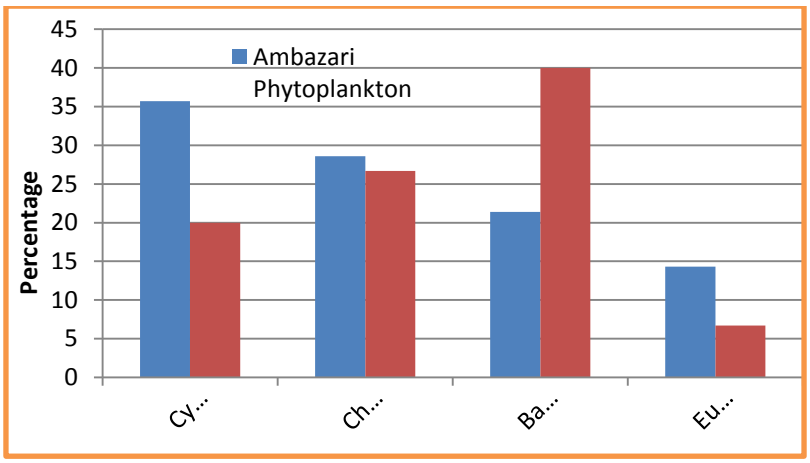

Figure 3: Comparison of Phytoplankton and Periphyton in Ambazari Lake

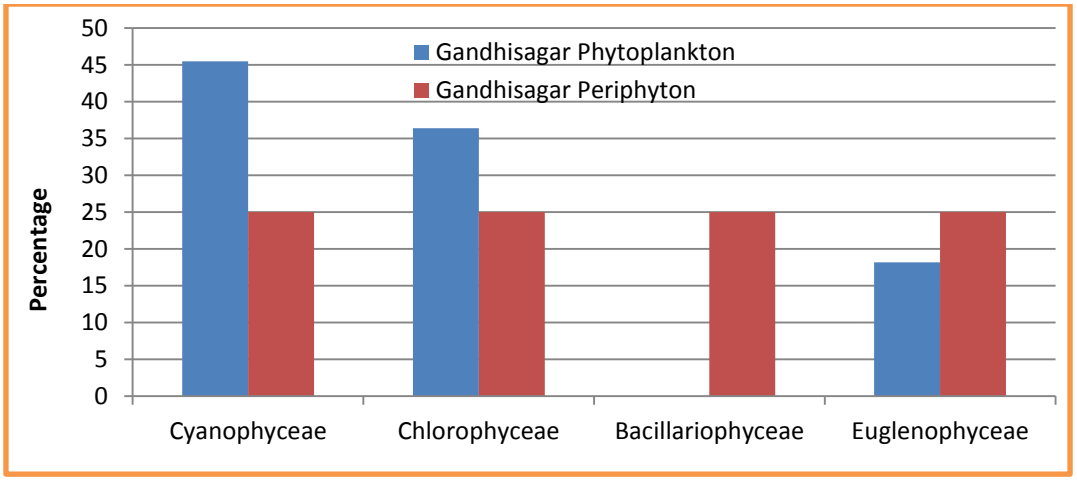

Figure 4: Comparison of Phytoplankton and Periphyton in Ambazari Lake

Sustainable Development: An Introduction

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Abstract:

The concept of sustainable development has in the past most often been broken out into three constituent parts: environmentalsustainability, economic sustainability and socio-political sustainability. More recently, it has been suggested that a more consistent analytical breakdown is to distinguish four domains of economic, ecological, political and cultural sustainability. This is consistent with the UCLG move to make 'culture' the fourth domain of sustainability. Sustainable development (SD) refers to a mode of human development in which resource use aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. The term 'sustainable development' was used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Introduction

Sustainable development is defined as an approach to developing or growing by using resources in a way that allows for them to renew or continue to exist for others. Using recycled materials or renewable resources when building is an example of sustainable development. Sustainable development is the idea that human societies must live and meet their needs without compromising the ability of future generations to meet their own needs. ... Specifically, sustainable development is a way of organizing society so that it can exist in the long term. Sustainable development is the idea that human societies must live and meet their needs without compromising the ability of future generations to meet their own needs. The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. Three main challenges– instability, implementation, governance. Increasing global instability, including the recent financial crisis, the political turmoil in the Middle East and North Africa, and the problems caused by changing climate conditions has brought about growing insecurity

Concept

The first use of the term "sustainable" in the modern sense was by the Club of Rome in March 1972 in its epoch-making report on the 'Limits to Growth", written by a group of scientists led by Dennis and Donella Meadows of the Massachusetts Institute of Technology. Describing the desirable "state of global equilibrium", the authors used the word "sustainable": "*We are searching for a model output that represents a world system that is: 1. sustainable without sudden and uncontrolled collapse; and 2. capable of satisfying the basic material requirements of all of its people*." The concept of sustainable development was originally synonymous with that of sustainability and is often still used in that way. Both terms derive from the older forestry term "sustained yield", which in turn is a translation of the German term "nachhaltigerErtrag" dating from 1713. According to different sources, the concept of sustainability in the sense of a balance between resource consumption and reproduction was however applied to forestry already in the 12th to 16th century. 'Sustainability' is a semantic modification, extension and transfer of the term 'sustained yield'. This had been the doctrine and, indeed, the 'holy grail' of foresters all over the world for more or less two centuries. The essence of 'sustained yield forestry' was described for example by William A. Duerr, a leading American expert on forestry: "To fulfill our obligations to our descendents and to stabilize our communities, each generation should sustain its resources at a high level and hand them along undiminished.

Domains of sustainable Development

Economics: The domain of 'economics' is fundamental to considerations of sustainable development; however there has been considerable criticism of the tendency to use the three-domain model of the triple bottom line: economics, environment and social. This approach is challenged to the extent that it treats the economy as the master domain, or as a domain that exists outside of the social; it treats the environment as a world of natural metrics; and it treats the social as a miscellaneous collection of extra things that do not fit into the economic or environmental domains (see the section on Economic sustainability below).

Ecology: The domain of 'ecology' has been difficult to resolve because it too has a social dimension. Some research activities start from the definition of green development to argue that the environment is a combination of nature and culture. However, this has the effect of making the domain model unwieldy if culture is to be considered a domain in its own right (see below). Others write of ecology as being more broadly at the intersection of the social and the environmental - hence, ecology. This move allows culture

to be used as a domain alongside economics and ecology.

Culture: Working with a different emphasis, some researchers and institutions have pointed out that a fourth dimension should be added to the dimensions of sustainable development, since the triple-bottom-line dimensions of economic, environmental and social do not seem to be enough to reflect the complexity of contemporary society. In this context, the Agenda 21 for culture and the United Cities and Local Governments (UCLG) Executive Bureau lead the preparation of the policy statement "Culture: Fourth Pillar of Sustainable Development", passed on 17 November 2010, in the framework of the World Summit of Local and Regional Leaders – 3rd World Congress of UCLG, held in Mexico City. This document inaugurates a new perspective and points to the relation between culture and sustainable development through a dual approach: developing a solid cultural policy and advocating a cultural dimension in all public policies.[16] The Network of Excellence "Sustainable Development in a Diverse World",[17] sponsored by the European Union, integrates multidisciplinary capacities and interprets cultural diversity as a key element of a new strategy for sustainable development.

Politics: The United Nations Global Compact Cities Programme has defined sustainable political development is a way that broadens the usual definition beyond states and governance. The political is defined as the domain of practices and meanings associated with basic issues of social power as they pertain to the organisation, authorisation, legitimation and regulation of a social life held in common. This definition is in accord with the view that political change is important for responding to economic, ecological and cultural challenges. It also means that the politics of economic change can be addressed. This is particularly true in relation to the controversial concept of 'sustainable enterprise' that frames global needs and risks as 'opportunities' for private enterprise to provide profitable entrepreneurial solutions. This concept is now being taught at many business schools including the Center for Sustainable Global Enterprise at Cornell University and the Erb Institute for Global Sustainable Enterprise at the University of Michigan.

Environmental sustainability: Environmental sustainability is the process of making sure current processes of interaction with the environment are pursued with the idea of keeping the environment as pristine as naturally possible based on ideal-seeking behavior. Thus, environmental sustainability demands that society designs activities to meet human needs while indefinitely preserving the life support systems of the planet. This, for example, entails using water sustainably, only utilizing renewable energy, and sustainable material supplies (e.g. harvesting wood from forests at a rate that maintains the biomass and biodiversity).

An "unsustainable situation" occurs when natural capital (the sum total of nature's resources) is used up faster than it can be replenished. Sustainability requires that human activity only uses nature's resources at a rate at which they can be replenished naturally. Inherently the concept of sustainable development is intertwined with the concept of carrying capacity. Theoretically, the long-term result of environmental degradation is the inability to sustain human life. Such degradation on a global scale could imply extinction for humanity.

Economic sustainability: The Venn diagram of sustainable development has many versions, but was first used by economist Edward Barbier (1987).However, Pearce, Barbier and Markandya (1989) criticized the Venn approach due to the intractability of operationalizing separate indices of economic, environmental, and social sustainability and somehow combining them. They also noted that the Venn approach was inconsistent with the Brundtland Commission Report, which emphasized the interlinkages between economic development, environmental degradation, and population pressure instead of three objectives. Economists have since focused on viewing the economy and the environment as a single interlinked system with a unified valuation methodology (Hamilton 1999, Dasgupta 2007). Intergenerational equity can be incorporated into this approach, as has become common in economic valuations of climate change economics (Heal 2009

Sustainable agriculture

The concept of sustainable agriculture extends intergenerationally, relating to passing on a conserved or improved natural resource, biotic, and economic base instead of one which has been depleted or polluted. Sustainable agriculture may be defined as consisting of environmentally friendly methods of farming that allow the production of crops or livestock without damage to human or natural systems. More specifically, it might be said to include preventing adverse effects to soil, water, biodiversity, surrounding or downstream resources -- as well as to those working or living on the farm or in neighboring areas..

Conclusions

Sustainable development is referred to as the idea that human beings should sustain by meeting their basic needs, while also making sure that the future generations are able to meet their basic needs. ... Sustainable

development looks to create a balance between the economic, environmental and social needs. he Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. Sustainable development is largely about people, their well-being, and equity in their relationships with each other, in a context where nature-society imbalances can threaten economic and social stability.

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Air Pollution, a Risk Factor in Airborne Diseases, Its Control and Prevention through Ayurvedic Perspective: A Review

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Abstract

Air, water and food are the basic needs of life. One can live for days without food, can live for hours without water but without air life is impossible even for seconds. Thus, air is the life i.e Pran of every living being. Air should be pure and safe for normal functioning of life on earth. What if, this air is rendered impure? Ayurved is the science of life. It aims at healthy living and curing disease of ill. Causes for manifestation of disease are different in different people. But, there are some environmental factors which are common and unavoidable, which cause mass illness. Ayurved refers it as Janapadodhwansa. As pure and normal air is responsible for health, impure and abnormal air is the cause for various airborne diseases. These airborne diseases affect particular population at a time resulting in janapadodhwansa. When Ayurved apprises about factors of janapadodhwansa at the same time it ascertains its preventive and control measures. In present pandemic, SARS CoV- 2 virus has shown the potential of getting spread around 6 feet through air.[1A] In this condition, the preventive and control measures stated by Ayurved are of enormous help. In this paper, I have attempted to explore these preventive measures with respect to airborne diseases.

Introduction

Successful prevention depends upon knowledge of causation, dynamics of transmission, identification of risk factors and availability of prophylactic measures. If we know the cause of the disease, then it is sufficient to remove the cause and stop the disease. Ayurved firmly believes in primordial prevention i.e preventing emergence of the risk factors of the disease. This is the prevention in purest sense. Ayurved identifies air, water, land and seasons as risk factors involved in surge of epidemic and suggest some remedies. In present review study, an attempt has been made to determine the trajectory of air borne diseases and decide the regimen by revisiting various *samhitas*.

Objective

To review about air pollution as the risk factor in causation of airborne diseases and determine the regimen for its prevention and control.

Methodology

Various Ayurvedic *samhitas* were reviewed. Text books and online articles were reviewed.

Air as a risk factor

In Ayurved, Sun is considered to take off the energy, moon is supposed to give the energy and air is responsible for the complete metabolism of the nature. [1]

Normal functions of air are sustenance of earth, kindling of fire, movement of sun, moon, stars and planets, creation of clouds, showering of rains, flowing of rivers, maturity of flowers and fruits, germination of seeds, development of plants, classifications of seasons, five *mahabhutas*, bringing about dryness, hardness and transformation everywhere. [2]

Importance of air: Air is not only Omni powerful like the sky but also supremely strengthened like the God because the Air is independent and forever of its functioning, and is omnipresent. As air gives life to every living being, it is the soul of the world. It is responsible for the birth, maintenance and destruction of the nature. It cannot be seen by our naked eyes but can be felt i.e (*avykto vykta karma)*. It has powers beyond imagination. (*achintyashakti*) [3]

Effect of wind according to the direction: Eastern winds are sweet, unctuous, salty, heavy, causes burning sensation, and aggravates *raktapitta*. It is unwholesome for patients especially suffering from *vrana*, as it increases moisture (*Kleda*), poisoning and injury. It is *kaphakaraka* and aggravates all diseases. [4] Southern winds are sweet, astringent, not causing burning sensation and light. It is conducive to eyes, enhances strength, *raktapittahara* and does not aggravate *vata*. Western winds are fast, dry, rough, reduce strength, unuctousness, *kapha, meda*, and cause emaciation and take away the strength immediately. Northern wind is unoctus, soft, sweet, astringent, cold, does not vitiate *doshas*, so only enhances strength, *kleda*, well for person suffering from emaciation, *kshaya* and poison. [5]

Effects of vitiated air on environment: Aggravate functions of *vata*, breaking of peak of mountains, uprooting of trees, disturbing of oceans, overflowing of lakes, changing course of rivers, bringing about earthquakes, causing thunders, storms, disturbance of six seasons, non productivity of plants, spread of epidemics among living beings, doing away with the positive features of creation, bringing about cloud, sun, fire and wind which would destroy all the four ages.[6] Vitiated Air Poison which is given in the form of flower (fragrance) produces cough, dyspnoea, vomiting, rhinitis, headache, fever etc. [7]

Effects of poisonous air: Air which is polluted with smoke and poison makes the birds tired and they fall over the earth. It also produces diseases like rhinitis, headache, acute eye diseases etc. (8)

Climatic variations are absence of characteristic features of particular *ritu*, excessive calmness, violent blowing wind, excessively dry, cold, hot, humid, fierce, wind blowing from one direction colliding with the wind blowing from another direction, cyclonic wind. (9)

Pollutants are association with unwholesome smell; gases, sand ashes, smoke etc. are not good for health.

***Janapadodhwansa*:**

Jnapadodwansa means destruction of large population (*janapada*=large population and *Udhwansa*= destruction). The disease which produces destruction of large population is known as *janapadodhwansak vyadhi.*

Acharya Chakrapani has stated the following causes for the disease.

The causes of diseases are mainly *Asadharan* i.e individual factors and *Sadharana* or factors relating to community like vitiation of water, air, land and seasons.

Factors responsible for epidemics: Factors which are common to the population under a particular community are air, water, land and seasons. Sinful acts or *adharma* in the form of war, afflictions of attack by *Rakshakas* and curse or *abhishapa* leads to *janapadodhwansa*. (10)

Vayu, jala, desh, kaala, are the reasons of *janapadodhwansa*. If these factors get polluted, naturally vitiation of season is most difficult to rectify. Similarly, vitiated air, water and land are progressively difficult to purify. Root cause for vitiation of air as a risk factors is *adharma* or misdeeds of past performed by intellectual errors. Sinful acts maybe in the form of wars, demons, germs and curse.

In the present day the sinful act regarding air can be correlated to different activities like deforestation, not obeying government rules in industries, automobile pollution which produces air pollution. The basic cause of this is mentioned as intellectual errors (*Pradhnyaparadha*) due to *rajas* and *tamas* predominance resulting in greed, selfishness, tendency to harm people, jealousy and anger. All these factors not only influence the individual, but also the society leading to *janapadodhwansa*.

Airborne diseases: Vitiated air or impure air leads to various diseases in human beings.

In *Sushruta Samhita* following modes of transmission of diseases are given.

Aupasargika diseases like obstinate skin disease including leprosy, fever, emaciation, and conjunctivitis, spread from person to person by contact, touch, respiration, sharing food, sharing bed and seats, using clothes, garlands used by person suffering from infectious disease. (11) Among which air is one of the vehicle of transmission of disease.

Following are the airborne diseases epidemiological factors. (12)

Sr. No	Disease	Causative factor	Environmental factor	Mode of transmission
1	Chicken pox	Varicella- zoster	Peak incidence during winter and spring, Coolest, driest months in tropics	Droplet infection
2	Measles	Myxo virus	In India, during winter and early spring	Droplet infection and droplet nuclei
3	Rubella	RNA v irus of togavirus family	Seasonal pattern. during the late winter and spring in temperate zone	Droplet infection
4	Mumps	Rubulav irus of paramyxoviridae	Peak incidence during winter and spring,	Droplet infection
5	Influenza	Influenza virus	Rainy season	Droplet nuclei created by sneezing, coughing or talking
6	Diptheria	Corynebacterium diptheriae	All seasons	Droplet infection
7	Whooping cough	B. pertussis	All seasons but more during winter and spring season	Droplet infection
8	Acute respiratory infections	Various bacteria and viruses	All seasons	Airborne route
9	Severe Acute	Corona virus	All seasons	Direct contact of

	Respiratory Syndrome (SARS)			respiratory mucosa
10	Tuberculosis	M.tuberculosis	All seasons	Droplet infection
11	Covid 19	SARS Cov 2	-	Droplet infection

Preventive and control measures

Acharya Charak has highlighted the importance of maintaining health [13]. This clearly point out prevention is better than cure. Following are the measures to avert airborne disease and its progress. Principles of treatment of *janapadodhwansa* are of two types. [14]

1. *Pratibandhatmaka* (Preventive measures): Efforts to prevent the cause of disease, so that the disease could be arrested.
2. *Vyadhi niyantranaatmak* (Control measures): Measures to curb the manifested disease.

1. *Pratibandhatmaka* (Preventive measures): 1. to collect and store the medicines before the onset of cause of disease. At this time medicinal plants are pure and with optimum potential.
2. To stop *Adharmacharan*- Following rules and regulation laid by the government, not involving with anti social elements, and activities which destroy the society. In other words enhancing *satva guna* leads to prevention of *janapadodhwansa*
3. *Rasayana* and *Panchakarma*: Rejuvenation to enhance immunity or immunization in modern to prevent the disease
4. Strict implementation of the legislative measures to prevent air pollution.
5. Truthfulness, kindness, generosity, worshipping God, codes of conduct and auspicious rituals help to prevent disease.
6. Avoid sinful acts and intellectual errors.
7. *Rakshogun*: To make all possible arrangements to stop the spread of viral and bacterial diseases.

2. *Vyadhi niyantranaatmak* (Control measures):

1. Purification of air is done by burning *laksha, haridra, ativisha, haritaki, musta, ela, valka, kushta, priyangu* to form the fumes. (Su.ka.3/17)
2. *Karpura, devadaru, dhupa, candana, sarja, agaru, nimbi, somaraji, gandhaka,* and *guggula* are used in *havana* i.e. sacrifice to purify the air

Holistic approach of Lifestyle adaption to prevent airborne diseases

1. As the portal of entry of most of the airborne diseases is nose and mouth, nasal and oral hygiene is of utmost importance.
2. Nasal hygiene is maintained by *pratimarsha nasya* i.e two drops of medicated oil are instilled into the nostril.
3. Smoking of medicated herbs.
4. Medicated Liquids are used in *Gandush* (gargling).
5. *Gandush* done with oil (oil pulling).
6. Avoid eating curds.
7. Avoid chilled and cold water.
8. Avoid fermented and baked foods and packaged foods.
9. Avoid smoking tobacco.
10. Practise *Yogasana* and *pranayama* regularly.
11. *Jalaneti* should be done once in a week.

Conclusion:

In Ayurved, air pollution is identified as the potential risk factor in causing airborne disease epidemics
Some lifestyle changes may prevent the disease.

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