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IMPACT OF SANITATION PROGRAMME & HYGIENE INDEX

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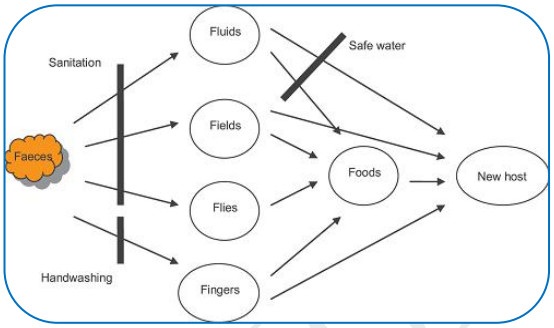


ABSTRACT:

Individual health *and* ***hygiene*** *is largely dependent on adequate availability of* ***drinking water and proper sanitation.*** *Therefore, a direct relationship between water, sanitation and health.****Consumption of unsafe drinking water, improper disposal of human excreta, improper environmental sanitation and lack of personal and food hygiene*** *have been major* ***causes of many diseases*** *in developing countries and India is no exception to this.****Sanitation*** *is one of the basic determinants of* ***quality of life and human development index****. Good sanitary practices prevent contamination of water and soil and thereby prevent diseases. The concept of sanitation was, therefore, expanded to include personal hygiene, home sanitation, safe water, garbage disposal, excreta disposal and waste water disposal. The present research aim to study sanitation practices followed by the household in the PanhalaTaluka. For the study hygiene index was prepared and household sanitation practices were assessing. The study result reveals that households are following the hygiene practices in terms of defection and hand washing habits, however the score is less in terms of water related hygiene practices and domestic waste management.*

KEYWORDS: *Individual health , quality of life and human development index.*

INTRODUCTION

Individual health and hygiene is largely dependent on adequate availability of drinking water and proper sanitation. Therefore, a direct relationship between water, sanitation and health. Consumption of unsafe drinking water, improper disposal of human excreta, improper environmental sanitation and lack of personal and food hygiene have been major causes of many diseases in developing countries and India is no exception to this. Prevailing High Infant Mortality Rate is also largely attributed to poor sanitation Programme (CRSP) was launched in 1986 primarily with the objective of improving the quality of life of the rural people and to provide privacy and dignity to women.

The concept of sanitation was earlier limited to disposal of human excreta by cess pools, open ditches, pit latrines, bucket system etc. today it connotes a comprehensive concept, which includes liquid and solid waste disposal, food hygiene, personal, domestic as well as environmental hygiene. Proper sanitation is important not only from the general health point of view but it has a vital role to play in our individual and social life too. Sanitation is one of the basic determinants of quality of life and human development index. Good sanitary practices prevent contamination of water and soil and thereby prevent diseases. The concept of sanitation was, therefore, expanded to include personal hygiene, home sanitation, safe water, garbage disposal, excreta disposal and waste water disposal. A

comprehensive Baseline Survey on Knowledge. Attitudes and Practices in rural water supply and sanitation was conducted during 1996-97 under the supervision of the Indian Institute of Mass Communication. Which showed that 55% of those with private latrines were self-motivated. Only 2% of the respondents claimed the existence of subsidy as the major motivating factor, while 54% claimed to have gone in for sanitary latrines due to convenience and privacy. The study also showed that 51% of the respondents were willing to spend up to Rs. 1000/- to acquire sanitary toilets.

Keeping in view the above facts, the CRSP was improved. In the new format, CRSP moves towards a "demand driven" approach. The revised approach in the Program me titled "Total Sanitation Campaign (TSC)" emphasizes more on Information, Education and Communication (IEC), Human Resource Development, Capacity Development activates to increase awareness among the rural people and generation of demand for sanitary facilities. This will also enhance people's capacity to choose appropriate options through alternate delivery mechanisms as per their economic condition. The program me is being implemented with focus on community-led and people centered initiatives. Children play an effective role in absorbing and popularizing new ideas and concepts. This program me, therefore, intends to tap their potential as the most persuasive advocates of good sanitation practices in their own house-holds and in schools. The aim is also to provide separate urinals/toilets for boys and girls in all the schools/ Anganwadis in rural areas in the country.

OBJECTIVES OF "TOTAL SANITATION CAMPAIGN (TSC)"

- Objective of TSC- is to bring an improvement in the general quality of life in the rural areas.
- Toilet access to all in rural area.
- Motivate communities and Panchayati Raj Institutions promoting sustainable sanitation facilities through awareness creation and health education.
- Develop community managed environmental sanitation systems focusing on solid & liquid waste management.

Objectives of the Study

- To understand the hygiene practices followed by the people in Panhala Taluka.
- To study awareness and attitude of the people in Panhala Taluka towards Total Sanitation scheme.
- To analyse the relationship between health status and hygiene practices followed by the people.

LITERATURE REVIEW

This chapter includes review of literature on Books, Ph.D., M.Phil. Thesis and on Articles published along with the Research Gap.

INTRODUCTION:-

An extensive research review is necessary to understand the sanitary habits among people,sanitation awareness participation of people, sanitation habits and impact on health by different authors in their research, books and articles. So far there have been many sanitation campaigning has been going on in last many year in the rural as well as developed area in the country, but there has been evidence actual success of these sanitation campaigning is depend upon the real implication and achievement of campaigning objectives through various activities about sanitation awarenessand sanitation habits among beneficiaries from PanhalaTaluka. Sanitation habits are changing as awareness goes on increasing through the effective sanitation campaigning. It has become important to further understand how this sanitation campaigning is impacting on changing sanitation habits of the people and hoe changing habits impacted on health status of people. This chapter is there with the necessary literature review relevant to the topic of present study. A review of related literature has created much suggestion as being models in the present research.

1. (Sah, Khadgi, & Jha, 2017)Haveassessed the knowledge and practice regarding hygienic conditions among residents of Rangeli Municipality of Morang District. Hey have measured the association

between socio-demographic characteristics and disease pattern with hygienic practices of the study population. Their study reveals that majority of samples had good knowledge and practice regarding hygiene.Overall prevalence of hygienic practices of this study was 77.7%. Higher economic condition and those did not suffer from diarrhea in previous one year was significantly associated with hygienic practices.

2. (Rayamajhi, et al., 2014)have done a research on A Study On Sanitary And Hygiene Practices In ChungwangVdc Of Dhankuta District, Eastern Nepal through their extensive research they found that Only 97.4% of the respondents washed hands with soap and water though in reality though 99.3% of them had soaps in their households. Similarly, 81.2% of the respondents had provision of toilet at their home but 79.2 % used it regularly. This showed the importance of behavioural change and communication among the participants rather than health awareness alone. Basic hand washing was practiced by everyone during/after defecation and before meal but the importance of it after cleaning the bottom and nose of children and before preparing the meal was known to few of the participants.
3. (Tearfund, February 2007)Tearfund is an evangelical Christian relief and development agency working with local partners to bring help and hope to communities in over 70 countries around the world. They had done investigation in Madagascar about development of policies on sanitation and hygiene at national level and implementation of sanitation and hygiene programmes and found positive factors relating to sanitation and hygiene are sanitation and hygiene policy, stakeholder dialogue in Madagascar, led by the national WASH platform strong leadership shown by certain individuals also have some barriers like low budgetary priority, education ministry is a secondary player in sanitation and hygiene policy-making and issue of choice and sequencing of different types of development intervention.
4. (Tan, Cheng, Soon, Ghazali, & Mahyudin, 2013)in their research article “A Qualitative Study On Personal Hygiene Knowledge And Practices Among Food” have done a study to determine personal hygiene knowledge among 25 food handlers at 12 selected primary schools in Klang Valley area, Selangor, Malaysia. A qualitative approach using in-depth interviews was employed and respondents were selected by a convenience sampling. The results showed that the respondents had basic knowledge on personal hygiene practices, mainly on hand washing (30.7%) and glove use (18.7%). The food handlers (<11%) also demonstrated their knowledge on other good personal hygiene practices that were related to the use of hair restrain/cap/apron, keeping tidy hair/ clean nails/ clean hand, no bare hand contact with food, not wearing ring/jewelry, no smoking, tidy/clean attire and typhoid injection. Most respondents (>70%) practiced glove use, however more than 50% did not wash hands with every glove change, change gloves when change type of products and after preparing raw material. The study showed that the food handlers have basic knowledge one good personal hygiene practices. However, some discrepancies were revealed in the proper hand washing procedure. This study recommended good hand washing procedure to be reiterated among the food handlers. There is also an immediate need for continuous training among food handlers regarding good personal hygiene practices.
5. (Islam, July,2012)Focused on personal hygiene but also discuss about street-vended food. This study was attempted to find out knowledge, attitude and practices about personal hygiene among East West University students. Their study examined for other risk factors of poor personal hygiene practices. Results of the study were showed that those students are very alert about their personal hygiene. Their hand washing habit is very good. But students (98%) take street-vended food which is very harmful for their health. Students who are coming from outside of Dhaka have some poor personal hygiene practices habit comparing who live permanently in Dhaka city with their family.
6. (Akter & Ali, 2014)in their study entitledFactors influencing knowledge and practice of hygiene in Water, Sanitation and Hygiene (WASH) programme areas of Bangladesh Rural Advancement Committee explored factors that facilitate and/or impede hygiene behavior in water, sanitation and hygiene (WASH) intervention areas using qualitative research techniques and found hygiene behavior was mainly facilitated by improved knowledge and awareness of health and environment-

related issues. Latrine ownership increased through financial assistance, resulting in improved privacy, social prestige, and a heightened sense of responsibility towards maintaining a healthy life.However, lack of interest in attending cluster meetings,traditional knowledge, poverty, and lack of will were some of the factors impeding knowledge and hygiene practice.

7. (Karn, Bhandari, & Jha, 2012)have assess the personal hygiene and sanitary condition of theKatahari Village Development Committee of Morang district Nepal, they studied 80 households were randomly selected from two wards of VDC and found that Knowledge of sanitation was high (90%) but only 65% of them were using soap water for hand washing. Sixty percent had no toilet facilities. There was significant association between education and toilet facilities among community people. Land holding and type of family had no significant association with toilet facilities and conclude that the knowledge regarding sanitation was high among community people but very poor in practice.
8. (Thitu, Kaseje, & Augustine, 2016)Have studied demographic, social cultural, economic, environmental and policyfactors influencing latrine coverage among the population of Ildamat location Central Division, Kajiado District. Through the intensive research they found that Overall sanitation coverage was 28.7%. Factors influencing sanitation coverage included male gender and higher socio-economic status. While environmental factors were not statistically significant, qualitative data pointed to rocky ground as a barrier to latrine coverage. knowledge of laws related to sanitation was significant though there were no statistical significance between role played by public health department and latrine provision despite clear gaps in public health personnel and given suggestions that need for all stakeholders to work together to improve latrine coverage in the area and recruitment of more public health staff, creation of programs and projects that will increase family income hence a source of economic empowerment hence investment in household sanitation.
9. (Vivas, Gelaye, Aboset, Kumie, Berhane, & Williams, 2010)Have evaluated the KAP of hygiene among rural school children in Ethiopia and assessed the extent to which proper knowledge of hygiene was associated with personal hygiene characteristics. Their study enclosed with hygiene and hand washing practices, knowledge about sanitation, personal hygiene characteristics, and presence of gastrointestinal parasitic infection. Study reveals that need for more hand washing and hygiene education in schoolsalso the programs development of comprehensive health and hygiene intervention programs in rural Ethiopian schools.
10. (Abdelrazig, Mustafa, & Mohamed, 2017)have investigated hygienic practices of food handlers in restaurants of Alnohod locality market including Cooking hygienic practices, Tobacco consumption, personal clothing, medical fitness card and Tolls of washing hands. The study reveals that level of cooking hygienic practices among 40 food handlers, 33.21% of them was good, 47.57%poor and 27.71% bad) was reported. However, regarding personal hygiene practices, neither training in personalhygiene among the study workers has been noticed nor usage of hand gloves. Statistically significant differenceswere observed by gender, education with personal hygiene practices the study concluded that cooking and personal hygienic practices were poor among food handlers. Basic training in personal, cooking and food hygiene is needed for food handlers. This is to ensure that they follow the required rules for proper hygiene and sanitation.
11. (Pfadenhauer & Rehfuess, 2017) in their research they studied WASH practices and their impact on childhood diarrhoea in the Philippines, and to examine socio-cultural and environmental factors underlying defecation and anal cleansing practices in Northern Mindanao they quantified the effect of WASH practices on diarrhoea through logistic regression models, using the Philippine Demographic and Health Survey 2008 the study reveals that Defecation and anal cleansing behaviors were constrained by the physical environment, particularly the lack of clean, safe, comfortable and private facilities.
12. (Dwivedi & Sharma, 2007)studied Environmental Sanitation, Sanitary Habits and Personal Hygiene among the Baigas of Samnapur Block of Dindori District, Madhya Pradeshover 100 households comprising of 494 persons have been studied in this purpose on a random sampling basis, by using

pre tested, structured schedules, through semi-participant method. The result of study indicates that environmental sanitation through inhabitants is of an average degree, but not very much satisfactory from the hygiene point of view it is also observed during the study that most of them go to the open fields for the defecation purpose, after which they generally do not wash their hands, the concerted efforts in this direction, such as the development of simple low cost designs of water sealed latrines in such areas.

13. (Patil, Benjamin F. Arnold, Alicia L. Salvatore, Bertha Briceno, Sandipan Ganguly, & Paul J. Gertler, August 2014) have studied in their research entitled The Effect of India's Total Sanitation Campaign on Defecation Behaviors and Child Health in Rural Madhya Pradesh: A Cluster Randomized Controlled Trial their study is mainly focuses on measure the effect of the TSC implemented with capacity building support from the World Bank's Water and Sanitation Program in Madhya Pradesh on availability of individual household latrines (IHLs), defecation behaviors, and child health and concluded thatthese improvements were insufficient to improve child health outcomes (diarrhea, HCGI, parasite infection, anemia, growth). The results underscore the difficulty of achieving adequately large improvements in sanitation levels to deliver expected health benefits within large-scale rural sanitation programs.
14. (MBULA, 2013) in his research projectinvestigate the factors influencing implementation of hygiene practices in public secondary schools in Central Division of Machakos District in Machakos County main objective of his study was to establish whether availability of soap influences implementation of hygiene practices in public secondary schools study found out that availability of water has the greatest influence on implementation of hygiene practices and was followed by availability of soap while availability of sanitary towel disposal bins does not have a strong influence also several groups of people with a better understanding of factors influencing implementation of hygiene practices and perhaps encouragethem to practice and improve hygiene in their own organizations.
15. (Hossain, July,2012) has studied personal hygiene and street-vended food in his research entitled A Study On Knowledge, Attitude And Practice About Personal Hygiene And Disease Awareness Of East WestUniversity Students In Dhaka City also attempted to find out knowledge, attitude and practices about personal hygiene among East West University students.In addition to this, the study examined for other risk factors of poor personal hygiene practices, Results of the study were showed that those students are very alert about their personal hygiene. Their hand washing habit is very good. But students (98%) take street-vended food which is very harmful for their health. Students who are coming from outside of Dhaka have some poor personal hygiene practices habit comparing who live permanently in Dhaka city with their family. This study is expected to provide important information to better understand the importance of personal hygiene
16. (Arulchelvan & Uma Maheswari, December 2013,)has identified the awareness level and exposure to the Information Education Communication (IEC) tools on sanitation and hygiene among the rural people. The result exposes that the awareness level on sanitation and hygiene is low and that the usage of toilets is extremely less compared to the statistics. People's behavior on sanitation is not changed. Their exposure to IEC is very minimal and so they could not recall sanitation messages. The study has also revealed that, the government initiatives are mostly concentrated on construction of toilets rather than on awareness creation/ behavior change. IEC utilization by the agencies is mostly irrelevant, non-suitable and old. Appropriate and effective IEC tools and methods for different target groups of people like students, women, children and elders are important.
17. (India, 2012)Total Sanitation campaign was launched in April 1999, advocating of a shift from a highsubsidy to a low subsidy regime, a greater household involvement and demand responsiveness,and providing for the promotion of a range of toilet options to promote increased affordability.The TSC gives emphasis on Information, Education and Communication (IEC) for demandgeneration of sanitation facilities, providing for stronger back up systems such as trained masons govern has straded this programme with objectives ofBring about an improvement in the general quality of life in rural areas Accelerate sanitation coverage, Generate demand through awareness and health education. Cover all schools and anganwadis in rural areas with sanitation

facilities and promote, hygiene behaviour among students and teachers,Encourage cost effective and appropriate technology development and application, Endeavour to reduce water and sanitation related diseases.

18. (Rahul, August 2017)Have studied in their research article entitled understanding Toilet Usage, Cleanliness, And Hygiene In Rural Indiacleanliness and hygiene in Indian society and the role of religio-cultural norms and values in shaping the outlook of the people towards sanitary habits in general and toilet use. It also examines the variations across culture, gender, ethnicity and geographic locations in the notions of dirt and how our concept of cleanliness has changed over time and he found that Many people due to lack of awareness or influenced by religious values consider using and cleaning a pit latrine ritually impure and polluting and Non-availability of water source in toilet is an important reason for non-usage.
19. (Joshi & Sirajuddin Ahmed, 17 February 2016) has attempt is made to evaluate the major parameters of MSWM, in addition to a comprehensive review of MSW generation, its characterization, collection, and treatment options as practiced in India. This study also focuses on essential conditions for harnessing optimal benefits from the possibilities for public private partnership and challenges thereof and unnoticeable role of rag-pickers are also discussed and their study concluded he study concludes that installation of decentralized solid waste processing units in metropolitan cities/towns and development of formal recycling industry sector is the need of the hour in developing countries like India.

Research Gap

Researcher reviewed published in **Research Journals about hygiene practices its health impact.BesidesMost of the study are focusing on defection habits as a hygiene practices.**

Hygiene practice is a multidimensional concept it includes-

a. Drinking water practices,
b. Handwashing practices
c. Defection practices and
d. Domestic waste management practices.

Present study has assessed the impact of all these hygiene practices on household health status.

Hypotheses

- **Hypothesis No.1**
- H_0: Hospital and medical expenditures of the family are independent to hygiene practices followed by the household.

Hypothesis No.2

- H_0 : Hygiene practices followed by the respondents are independent to their income.

RESEARCH METHODOLOGY

❖ **Type of Research: Descriptive Research**
❖ **Data Collection**

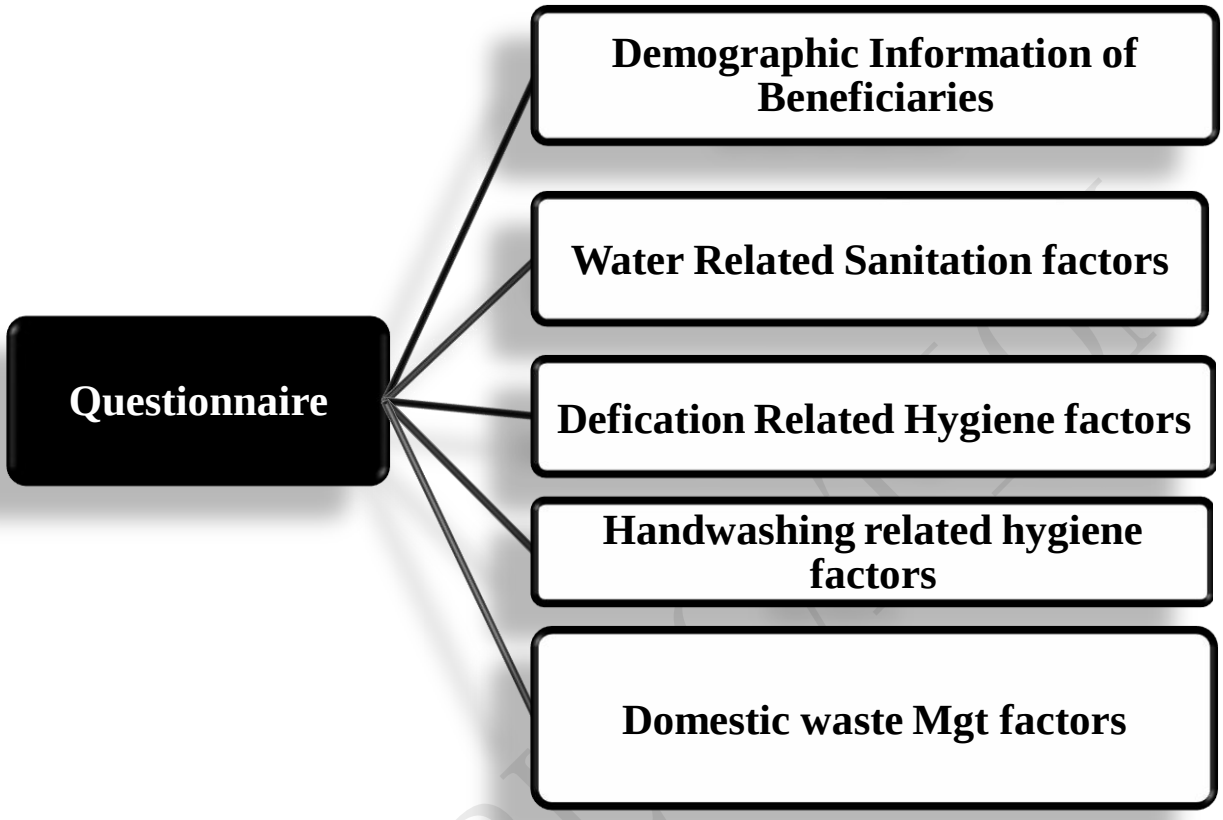
- For the research both **Primary and Secondary** data is collected.

Primary source –

- To collect the **Primary data Survey method** was adopted.
- **Survey instrument**

Questionnaire was prepared to collect information from **Rural Household**

Components of the Questionnaire



Research Methodology

❖ **Data Collection:**

II. **Secondary Source:** Already published research papers. Bulletin, Magazine, Reports of Central Government and State Government & Journals .Shivaji University's Library and Library of other educational institute and Universities, etc

❖ **Sampling Design: Stratified Multistage Random Sampling**

❖ **Stages for collecting the samples was as follows:**

- **Stage 1:** Total geographical area of Panhala Taluka was divided as per JilahaParishad constituencies. There are four constituencies in the Taluka, Each constituencies is strata under the study.
- **Stage 2:** Three villages from each constituencies were selected randomly.
- **Stage 3:** From these villages, households under the study were contacted using simple random sampling method.
- **Random Sampling**: For selection of Villages and respondent under the study random number were generated and data was collected.

ANALYSIS &INTERPRETATION RESULTS

In this chapter the researcher has analyzed the data by using various statistical tools. The researcher had firstly validated the instrument, and then collected the data by personally visiting and distributing questionnaires to respondents. Then the filled questionnaires were collected and checked for any missing or incorrect information. Collection of data was followed by editing, coding classification and tabulation. The data was then entered manually in IBM SPSS (Statistical Package for

Social Science) Version 20 and then rechecked for any missing values, duplications or errors followed by further processing and testing of hypothesis by applying appropriate statistical tests.

Researcher collected primary data through structured questionnaire. The questionnaire comprises questions related basic information about respondents from Panhala Taluka. Researcher is interested to understand their views about the sanitary facilities and sanitary habits. Researcher also wants to know about the Total Sanitation Campaign. It is also asked about the participation of people in Total Sanitation Campaign.

Researcher is also interested to found the Health Status of Respondents by asking them different types of questions related to the health and safety.

It is also checked whether relationship between awareness of Total Sanitation Campaign and development of beneficiaries who actually taking the advantage of the benefits under Total Sanitation Campaign.

On the information collected from above mentioned questions was analyzed through descriptive statistical tools. Frequency distribution and percentage analysis was done on the data. Researcher further wants to find how awareness of Total Sanitation Campaign motivates respondents to use better sanitary habits.

Further the researcher tries to find out awareness level of respondents about Total Sanitation Campaign For that the researcher has hypnotized the statements related to the awareness about benefits under Total Sanitation Campaign and different types of sanitary habits of the respondents.

In this study the dependent variable are demographics of the respondents & the independent variables are respondent's awareness level is considered.

The main purpose of the research is to know the impact of Total Sanitation Campaign on sanitation habits of the respondents and how it is also impacted on their health from selected respondents from Panhala Taluka. Therefore the researcher focused on these three major areas finding the awareness level about TSC, Understanding Health Status of the Respondents and sanitary habits of the respondents from Total Sanitation Campaign.

5.2 Data Source:

The researcher used both primary and secondary data sources, which is termed as triangulation or dual methodology.

Primary Data Source:

The research instrument used for collecting primary data was a questionnaire, which are most widely used data collection methods in evaluation research. The structured questionnaire is used for the data collection. The questions from the questionnaire were close ended question. Researcher has collected primary data from the respondents in the scope of sample size. Questionnaires were circulated and get filled by the respondents from the research area. Researcher helps respondents to understand and filling of the questionnaire. It helped to gather information on opinions, views, relations, facts, and other information.

Secondary Data Source:

The researcher has collated secondary data for the research from various resources like past researcher projects, research articles, company registers, company website, library & internet.

5.3 The Analysis Has Done In Three Parts

1. **Part A**: Demographic Variables Analysis
2. **Part B** : Sanitation Habits of the Respondents, Perception about using Toilets and Open Deification, Onion about Public Toilets, Awareness level about Total Sanitation Campaign.
3. **Part C :** Hypothesis Testing

Part A: Employee Demographics

This part of the analysis contains questions concerning general information about the respondents and helps to understand the demographics of the respondents who took the survey. The questions aim to find out respondents Age, Gender, Marital status, Education, Family Size & Religion of the respondents.

The purpose of this data is related to make further researcher scope to understand the impact of demographic factors of the respondents on sanitation habits.

Part B: Sanitation Habits & Awareness About Total Sanitation Campaign

This part of the analysis contains information about the opinion of the Sanitation Habits of the Respondents, Perception about using Toilets and Open Deification, Onion about Public Toilets, Awareness level about Total Sanitation Campaign.

The purpose of this data is to understand how sanitations habits of the respondents are impacted on health of the respondents and their family members.

Part C: Hypothesis Testing

This part of the analysis contains hypothesis testing related to the awareness level of the respondents about Total Sanitation Campaign. And how awareness level increases the benefits of the beneficiaries. Also how sanitation habits impacted on Health Status of the respondents.

Part A: Demographic Analysis

In this part researcher wants to categories all respondents according to general information about Age, Gender, Marital status, Education, Family Size & Religion of the respondents.

Part B: Sanitation Habits & Awareness About Total Sanitation Campaign

This part of the analysis contains information about the opinion of the Sanitation Habits of the Respondents, Perception about using Toilets and Open Deification, Onion about Public Toilets, Awareness level about Total Sanitation Campaign.

Drinking Water Source Wise Distribution of Respondents

Here Researcher wants to find out the drinking water source of the respondents from Panhala Taluka. It was measured by asking the respondents to select the category of Source for Drinking Water. Purpose behind asking this question is to understand source of respondent's drinking water because it affects lot on health status of the respondents including their family member. The first category (coded 1) included this is not the source, second category were Primary Source and third was Secondary Source.

Hygiene Index

A hygiene practice is a multidimensional concept. This study has adopted a holistic perspective towards assessing the level of hygiene practices following in the study area. It studied the composite impact of hygiene practices followed and its impact on health condition in the given study area.

The researcher has prepared an index to assess the level of hygiene practices followed in the study area. The components of the index are as follows.

Water Related Hygiene practices:

Water is one of the important medium of spreading health diseases. Many a times drinking water provided in the rural area is contaminated. As there is no access for clean drinking water people have to drink unhealthy water. Besides, unhealthy drinking water supplied from its source, unhealthy water handling practices also cause contamination of drinking water. In rural area there is no daily supply of drinking water; household members have to walk long distance for fetch the water. Hence they fetch more amount of water in their free time and store it for more days. There are chances of

water contamination is it is stored for more days. Using clean utensil for drinking water storage is important. Improper cleaning of drinking water storing utensils also leads to water contamination. Spread of water related diseases can be controlled by effective sterilizing the drinking water. Here is assessed what extent rural people do drinking water sterilization.

Defecation Related Hygiene:

Open defection is the most unhygienic practices followed in India. It is route cause of spreading the health diseases like Maleriya,dehydration and other viral diseases. There are various socio-economic factors influencing on peoples preferences to follow open defection practices. Indian Government has made huge effort to change peoples attitude and convince them to use toilet for defection. It is not only for defection but urinate also Indians goes in open space. It is checked what extent Indians use toilets for urinate and defection.

Hand washing habits:

Transmitting of viral diseases can be control effectively by following daily hand watching practices. Infection can be control through using soap for watching hands. It is checked what extent hand watching practices are followed in the rural area. It is checked whether respondents watch their hands daily after doing various tasks. Such as defection, returning from work etc.

Domestic Waste Management:

Proper disposal of domestic waste ensures the hygiene and clean environment. Disposal of waste ensures timely decomposition of the waste. It also helps to avoid dirty smell. Mosquitos' birth can be control by proper domestic waste management. The score is given to the respondents who follow the healthy domestic waste management practices.

To prepare the index in detail review of index preparation methods is done. The procedure of preparation of Human development index 2017 is studied. To prepare the Hygiene index, Women's empowerment in agriculture index prepared by International Food Policy Research Institute (IFPRI)is referred and same methodology is followed for construction of Hygiene index.

Below table depicts the questions in each domain used for the construction and evaluation of the Hygiene Index.

Table No. Hygiene index with questions in each domain.

Domain	Questions	Response	Value assigned for index	Max Score for the domain
Water Related Hygiene	For how many days you store drinking water	1 day (No Store)	5	
		2 days	4	
		3 days	3	
		4 days	2	
		5 days	1	
		6 days	0	
	Within how many days you clean the utensils	1 day	5	
		2 days	4	
		3 days	3	
		4 days	2	
		5 days	1	
		6 days	0	
	Whether you	Through out year	2	

	sterilized your drinking water	Only in Rainy season	1	
		Never	0	
	Grade the quality of your drinking water.	Very Good	4	
		Good	3	
		Neither Good Not Bad	2	
		Bad	1	
		Very Bad	0	
Defecation Related Hygiene Habits 13	Whether toilet is available at your home q14	Yes	5	
		No	0	
	where generally Male members urinates	Private Toilet	2	
		Public Toilet	1	
		Open Space	0	
	where generally Female members urinate	Private Toilet	2	
		Public Toilet	1	
		Open Space	0	
	where generally Male members defecate	Private Toilet	2	
		Public Toilet	1	
		Open Space	0	
	where generally Female members defecate	Private Toilet	2	
		Public Toilet	1	
		Open Space	0	
Hand Washing Habits Whether your family members wash their hands after doing following task.	Returning from work.	Always 1	3	
		Many a times 2	2	
		Some Time	1	
		Never	0	
	After defecation	Always	3	
		Many a times	2	
		Some Time	1	
		Never	0	
	After cleaning small kids defecation	Always	3	
		Many a times	2	

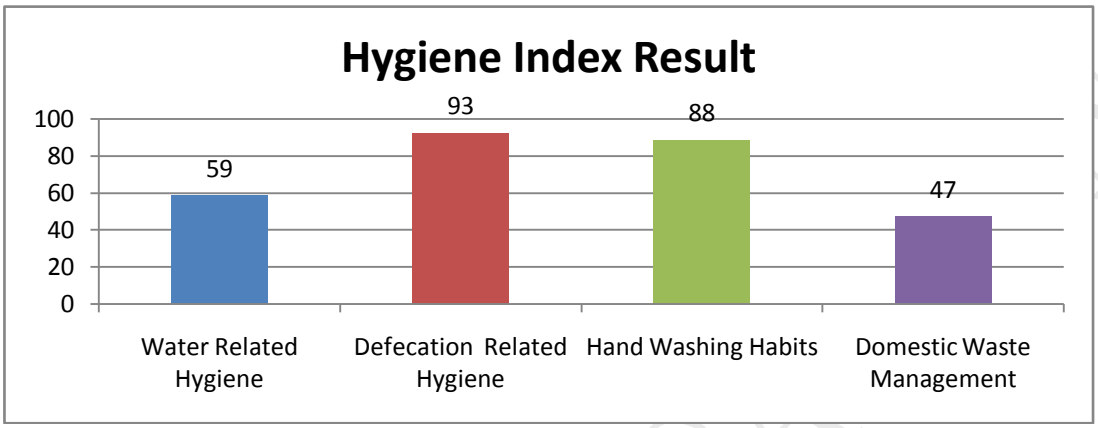
		Some Time	1	
	Animal Husbandry	Never	0	
		Always	3	
		Many a times	2	
	Before Cooking Food	Some Time	1	
		Never	0	
		Always	3	
	Before having food	Many a times	2	
		Some Time	1	
		Never	0	
Domestic Waste Management 17	where you through your domestic waste	Through it on the road or Through it on open space	0	
		Dispose it properly	5	
	Whether there is dustbin near by your village	Yes	2	
		No	0	
	Whether there is garbage collection van	Yes	2	
		No	0	
	Whether dustbin is cleaned regularly	Always	2	
		Some time	1	
		Never	0	
	How often garbage collection van comes	Every day	3	
		Alternative day	2	
		Twice in a week	1	
		Never	0	
	How you grade the cleanness of your area.	Very Good	3	
		Good	2	
		Bad	1	
		Very Bad	0	

The answers to each question included in the Hygiene Index are converted into the score by multiplying values assigned for index. These values are added up within each domain and then divided by the number of items under each domain and score of each domain is ascertained.

Results:

Following table shows the descriptive statistics of Mean score Hygiene practices followed by the respondents in the PanhalaTaluka.

Domain	N	Mean	Std. Deviation
Water Related Hygiene	379	58.5917	13.38160
Defecation Related Hygiene	379	92.6324	16.87586
Hand Washing Habits	379	88.4638	20.31575
Domestic Waste Management	379	47.1364	16.32380
	379		



Interpretation:

Above graph reveals that Defecation related hygiene practices score is maximum at 93 percent. It is encouraging to state that people defecation habits have been changing. People have almost shifted from the open defection to use of toilet. The governments have done huge efforts to generate awareness among the population to use toilets. The findings reveal that the results are fruitful. People are using toilets not only for defecation but also for urinate. The study findings also supports the Maharashtra Government sanitation report which has stated that Kolhapur district has became open defection free district.

HYPOTHESES TESTING

Here researcher has tested the stated hypothesis with appropriate statistical tools. The result of hypothesis is presented below.

Hypothesis No.1: Hygiene Practices and Family Health.

One of the important objectives of this research is to assess the relationship between hygiene practices and family health status of the respondent. Hygiene practices of the respondents were measured by Hygiene Index prepared by the researcher. Health status of the family is assessed on the basis of the proportion of income they spend on the hospital and medical charges. Respondents were asked to state the proportion of the income of their family they send on the hospital and medical charges. The response is between 1 percent to 5percent 6percent to 10percent, 11percent to 15percent 16percent to 20percent, 20 percent to 25percent and more than 25 percent.

The statement of the hypothesis is as follows.

H_0: Hospital and medical expenditures of the family are independent to hygiene practices followed by the household.

Here dependent variable is the proportion of the income family spends on hospital and medical charges. It is categorical variable and one out of given six response is possible. Predicator variable, family hygiene practices are measured using hygiene index score of the each family. It is continuous variable.

Hypothesis test used:

To Multinomial logistic regression (often just called 'multinomial regression') is used to predict a nominal dependent variable given one or more independent variables. It is sometimes considered an extension of binomial logistic regression to allow for a dependent variable with more than two categories. As with other types of regression, multinomial logistic regression can have nominal and/or continuous independent variables and can have interactions between independent variables to predict the dependent variable.

The test results are presented as follows:

Model Fitting Information: table is used to test the overall model fit. The Model Fitting Information table, as shown below:

Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	497.039			
Final	390.976	106.063	12	.000

Here the "**Final**" row presents information on whether all the coefficients of the model are zero (i.e., whether any of the coefficients are statistically significant). It state whether the variables added statistically significantly improve the model compared to the intercept alone (i.e., with no variables added). The results from the "**Sig.**" column that $p = .000$, which means that the full model statistically significantly predicts the dependent variable better than the intercept-only model alone.

In multinomial logistic regression you can also consider measures that are similar to R^2 in ordinary least-squares linear regression, which is the proportion of variance that can be explained by the model. In multinomial logistic regression, however, these are pseudo R^2 measures and there is more than one, although none are easily interpretable. Nonetheless, they are calculated and shown below in the **Pseudo R-Square** table:

Pseudo R-Square

Cox and Snell	.244
Nagelkerke	.300
McFadden	.166

SPSS Statistics calculates the Cox and Snell, Nagelkerke and McFadden pseudo R^2 measures. Of much greater importance are the results presented in the **Likelihood Ratio Tests** table, as shown below:

Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	416.730	25.754	3	.000
Water Related Hygiene	432.718	41.741	3	.000

Defecation Related Hygiene	391.222	.246	3	.970
Hand Washing Habits	407.288	16.311	3	.001
Domestic Waste Management	395.442	4.465	3	.215

This table shows which of your independent variables are statistically significant. It is seen that water related Hygiene factor is statistically significant (P-value=0.000) at 5 percent level of significant, Defecation related hygiene factors is not statistically significant (P-value=0.970).Hand washing habits hygiene factors is statistically significant (P-value = 0.000) is significant at 5 percent level of significant and domestic waste management related hygiene factors is not statistically significant (P-value=.215)

Hypothesis No.2. Hygiene Practices and Income.

Further researcher has studied whether there is any relationship between hygiene practices followed by the respondents and their Income.

Statement of Hypothesis:

H0: Hygiene practices followed by the respondents are independent to their income.

Hypothesis test used: The one-way analysis of variance (ANOVA) is used to determine whether there are any statistically significant differences between the means of two or more independent (unrelated) groups (although you tend to only see it used when there are a minimum of three, rather than two groups).

Following table shows the income wise descriptive statistics of hygiene practices followed by the respondents.

Descriptive

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Defecation Related Hygiene	Up to 1 Lakh	265	93.85	15.75	0.97	91.94	95.75	38.46	100
	Upto 2 lakh	43	90.88	15.95	2.43	85.97	95.78	38.46	100
	Upto 3 Lakh	40	85.38	22.43	3.55	78.21	92.56	30.77	100
	Upto 4 Lakh	10	86.92	27.63	8.74	67.16	106.69	30.77	100
	More than 5 Lakh	21	97.44	8.88	1.94	93.39	101.48	61.54	100
	Total	379	92.63	16.88	0.87	90.93	94.34	30.77	100

Hand Washing Habits	Up to 1 Lakh	265	92.91	18.77	1.15	90.64	95.18	0.00	100
	Upto 2 lakh	43	74.81	20.19	3.08	68.59	81.02	38.89	100
	Upto 3 Lakh	40	70.42	18.20	2.88	64.59	76.24	38.89	100
	Upto 4 Lakh	10	77.22	17.06	5.40	65.02	89.43	50.00	100
	More than 5 Lakh	21	100.00	0.00	0.00	100.00	100.00	100.00	100
	Total	379	88.46	20.32	1.04	86.41	90.52	0.00	100
Domestic Waste Management	Up to 1 Lakh	265	43.20	10.39	0.64	41.94	44.45	0.00	100
	Upto 2 lakh	43	53.49	26.55	4.05	45.32	61.66	0.00	100
	Upto 3 Lakh	40	63.68	21.88	3.46	56.68	70.68	11.76	100
	Upto 4 Lakh	10	70.59	10.00	3.16	63.44	77.74	58.82	88.24
	More than 5 Lakh	21	41.18	0.00	0.00	41.18	41.18	41.18	41.18
	Total	379	47.14	16.32	0.84	45.49	48.79	0.00	100
Water Related Hygiene	Up to 1 Lakh	265	54.55	9.78	0.60	53.37	55.73	31.25	87.5
	Upto 2 lakh	43	66.28	16.26	2.48	61.27	71.28	25.00	106.25
	Upto 3 Lakh	40	76.09	13.57	2.15	71.75	80.43	37.50	106.25
	Upto 4 Lakh	10	73.75	5.74	1.82	69.64	77.86	62.50	81.25
	More than 5 Lakh	21	53.27	9.61	2.10	48.90	57.65	43.75	68.75
	Total	379	58.59	13.38	0.69	57.24	59.94	25.00	106.25

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Defecation Related Hygiene	Between Groups	3434.689	4	858.672	3.081	.016
	Within Groups	104217.651	374	278.657		
	Total	107652.340	378			
Hand Washing Habits	Between Groups	30355.486	4	7588.872	22.587	.000
	Within Groups	125656.273	374	335.979		
	Total	156011.759	378			
Domestic Waste Management	Between Groups	23037.377	4	5759.344	27.727	.000
	Within Groups	77686.984	374	207.719		
	Total	100724.361	378			
Water Related Hygiene	Between Groups	22010.427	4	5502.607	45.055	.000
	Within Groups	45676.949	374	122.131		
	Total	67687.376	378			

Above table reveals all score on all four hygiene index is significant at 5 % level. Defecation Related Hygiene (P-value is .016), Hand Washing Habits (P-value is 0.00), Domestic Waste Management (P-value is 0.00) and Water Related Hygiene (P-value is 0.00). Hence the null hypothesis is rejected and it is concluded that hygiene practices followed by the respondents dependents on income on the household. From descriptive statistics it is revealed that as income improves the hygiene score of the respondents also improve.

CONCLUSION

Individual health and hygiene is largely dependent on adequate availability of drinking water and proper sanitation. Therefore, a direct relationship between water, sanitation and health. Consumption of unsafe drinking water, improper disposal of human excreta, improper environmental sanitation and lack of personal and food hygiene have been major causes of many diseases in developing countries and India is no exception to this. The Central Rural Sanitation Programme (CRSP) was launched the scheme Total Sanitation Campaign in 1968. The main aim of the scheme is improving the quality of life of the rural people and provides privacy and dignity to women. "Total Sanitation Campaign (TSC)" emphasizes more on Information, Education and Communication (IEC), Human Resource Development, Capacity Development activates to increase awareness among the rural people and generation of demand for sanitary facilities. The present study is an assessment of awareness and impact of Total sanitation practices in rural Panhala Taluka of Kolhapur district. For the study household from the Taluka were contacted and information was collected using simple random sampling method. On the basis of data collected household hygiene practices index is prepared. The index score reveals that the household are comparatively following good hygiene practices for defection and hand washing habits. Whereas there are score of water storage hygiene practices. It is discouraging to state here that the score of domestic waste relating practices are worst. It is because in most of the villages there are not provisions for dustbin and waste collection vans. To improve this situation researcher has suggested that people awareness, education and action is the solution. Expected objectives of sanitation programs can be achieved through people participation. Role of rural leaders are of paramount important, Universities, schools colleges shall get involved in awareness generation of sanitation program and practices. Rural youth organization and play significant role in this direction. Besides relying on mass media campaign personalized door to door contact and street plays demonstrations will helps to achieve desired objectives.