



Hygienic condition among five Hill Kharia villages of Mayurbhanj District, Odisha: An overview

¹ Rajeswar Maharana, ² Jayanta Kumar Nayak

¹ Ph. D. Scholar, Department of Anthropology, Central University of Orissa, Koraput, Odisha, India

² Assistant Professor, Department of Anthropology, Central University of Orissa, Koraput, Odisha, India

Abstract

Good hygiene and sanitation are the indicators of social and economic development in a society. Sanitation is a serious problem in all over the world, but more focused on the Third World countries. It is estimated that 40 percent of the world population does not have access to adequate sanitation facilities. A country cannot achieve real development if the majority of its people live in unhealthy and unclean surroundings. Our streets are still dirty. The majority of people still defecate in open. The personal hygiene plays a vital role in maintaining our body clean and healthy. Even most of the diseases associated with unsafe drinking water, insufficient hygiene and inadequate sanitation. The safe drinking water and proper sanitation are the key factors in achieving the ultimate goal of 'health for all'. Personal hygiene helps us to free from the communicable diseases, which spread either from human beings or from the domesticated animals. At present, the sanitary and hygienic setting in the rural, as well as tribal areas of the Odisha, is very disgraceful. The present paper is an empirical research work, carried out among five Hill Kharia villages in Bijatola block of Mayurbhanj district, Odisha. The Hill Kharia is one of the particularly vulnerable tribal Groups of Odisha. The present paper is highlighting the current scenario of sanitation and water management of the villages and secondly, to know the personal hygiene practices among the Hill Kharia of the studies villages. Information has collected through fieldwork; applying observation, interview scheduled and with the help of personal interaction of the villagers.

Keywords: health, hygiene, sanitation, Hill Kharia

1. Introduction

Historically speaking, Indians are the pioneers of town planning in which sanitation and cleanliness are vital components. The Harappan sites have displayed the fact that there had been proper arrangements for sewage disposal with networks of culverts made of baked bricks. However, due to multiple factors, despite our scriptures mentioning the cleanliness of body and mind, we stopped practising cleanliness, especially at the community level. Our streets are still dirty; the majority of people still defecate in open. Improper disposal of human excreta, which was further aggravated by low literacy, blind cultural belief, lack of access to medical facilities; leading to serious public health problem encouraging the facto-oral transmission of enteric pathogens. However, contaminated drinking water and living in unhygienic conditions can cause disease and death. As per WHO report, 80% of all the diseases are caused due to lack of safe drinking water (2000). Hence, without an adequate supply of safe drinking water to the community, promotion of health and prevention of diseases are not possible.

In addition, drinking water and sanitation are the symbols of the quality of life. The safe drinking water and proper hygiene and sanitation facilities are the key factors in achieving the ultimate goal of Health for All. Good health is a concern for all living beings. Health is wealth. Thus, the health of an individual is an important aspect of human population and almost become a precondition for achieving efficient human resources development. Health is not only a function of medical care but also the overall integrated development of

society- cultural, economic, educational, social, and political. Each of these aspects has a deep influence on health. Good health and good society goes to gather. This is possible only when appropriate services such as nutrition and improvements in the environments and in education reach a higher level.

Even after half a century of independence of our country, much has not been achieved in the area of health in general and for the underprivileged group in particular. Many popular health programmes have been implemented from time to time to meet the special needs of the people at various levels. The tribals have their own distinct and unique cultural milieu and lifestyle. Due to a combination of societal attitudes, varying belief system, tribal population throughout Odisha has less access to basic health care. Hence, the tribal people living in different eco-systems face health problems.

Hygiene is defined as the science of health and embraces all factors, which contributes to healthful living (Park and Park, 2015). Hygiene has the two aspects: Personal and Environmental.

Personal Hygiene

The aim of personal hygiene is to promote the standard of personal cleanliness within the setting of the condition where people live. e.g.- bathing, clothing, washing hands after toilet, care of nails, feet's and teeth; spitting coughing, sneezing, personal appearance and inculcation of clean habit in the young. Personal hygiene plays a vital role in maintaining one's health. Personal hygiene is determined primarily by one's education level and awareness about the relationship

between person's hygiene and health. However, the social status of a person is also one of the important factors in determining one's personal hygiene. Due to indiscriminate defecation, barefoot and lack of health awareness; the worm infection condition is uncontrolled. People lie down on untidy floors and do not regularly wash their clothes; most of them suffer from various types of skin diseases.

Environmental Hygiene

Environmental hygiene and sanitation are extremely important for healthy living. The environment of the Hill Kharia villages remains polluted and dirty for a variety of reasons. The village street is littered with animal dung, household refuse, and excreta of children and swamps of human and other dirty materials. There is no arrangement for disposal of household wastewater.

Sanitation

The word sanitation also refers to the maintenance of hygiene conditions, through services such as garbage collection and wastewater disposal and also the provision of facilities and services for the safe disposal of human urine and faeces. Poorly controlled waste also means daily exposure to an unpleasant environment. According to the World Health Organization (WHO), "Sanitation is a serious problem in all over the world, but more focused on the Third World countries. It is estimated that 40 percent of the world population does not have access to adequate sanitation facilities" (2008). The importance of sanitation was realized long back by none other than the father of the nation Mahatma Gandhi who had stated way back in the 40s: "*Sanitation is more important than independence*". He proves that without clean and healthy surroundings, we would not develop as a nation.

A recent UNICEF report (2005) says; in India 54 percent people defecate in the open, as against just 7 percent reach in Brazil and Bangladesh. Only 6 percent rural children below five years in India use the toilet.

It is true that the state of environmental sanitation and personal hygiene is an important factor in determining the health status of the community (Adak, 1991). A community habit concerning about sanitation and personal hygiene, directly and indirectly, determine the health status of Jaunsaris of Uttar Pradesh (Rizvi, 1986). Rizvi also observes lack of clean water supply inefficient drainage, absence awareness regarding animals born diseases, unhygienic housing, improper defecation habits combined with unhygienic practices relation to teeth cleaning and other bodily cleanliness as responsible for many diseases those occur among the Jaunsaris. Choudhury (1986) attributed malaria of tribals to the unhygienic conditions of Purulia district of West Bengal. The level of sanitation and hygiene among the rural and tribal folk is believed to be at a very low level. Dutta Choudhury and Ghosh (1984) in their study among the Idue Mishmis of Arunachal Pradesh noticed a very low level of hygiene and sanitation.

During the last 70 years of independence of India, the Government has given utmost attention for safe drinking water and Sanitation in rural areas, but a large section of the

society is yet to receive these facilities.

Objectives

Considering the above facts the objectives of the study are:

1. To find out the usage pattern of different sources of drinking water available in the Hill Kharia habitation.
2. To know the personal hygiene practices among the Hill Kharia of the studies villages.

Materials and Methods

Considering this background, the present work was undertaken among the Hill Kharia, one of the Particularly Vulnerable Tribal Groups of Odisha inhabiting in the Bajatola Block (lying on Longitude of 85°40' and 87°11' East and Latitude of 21°16' and 22°34' North). They are semi-nomadic and Mundari speaking groups. Now they have completely forgotten their own language and have adopted Odia as their Mother Tongue. They are living in the small house. However, they inhabit in multiethnic villages, but staying their own hamlet is nearer to the hilly, forest and water sources. As Similipal and other nearest forest and hilly region as their habitat, they are entirely depending upon the forest for their livelihood. They do major seasonal collections along with agricultural labourer in agricultural season. Honey, Sal resin (*jhuna*), arrowroot (*Paluo*) collection are the major activities among the Hill Kharias.

Sample Selection

Bijatola Block of Mayurbhanj district in Odisha is selected for the present study. The research design was developed based on a pretested study of 25 samples of the subjects. The present study was carried out among the 85 Hill Kharia households having 158 males and 143 females. The block is about 80 km. from the district headquarter town of Baripada and 8 km. from the Rairangpur Township. To fulfil the objectives of the study; stratified random sampling procedure was followed. The names of the studied five villages from Baijatola Block are as follows: Dalaki, Kolatomak, Judia Khadiahahi, Bhalujudi and Chodheipahadi.

The selected studied villages were in a very poor condition with regards to the communication. These villages were surrounded by dense forest with hilly terrain. From the sanitary point of view, the villages' sites become dirty and unhygienic. During the rainy season, the approach road becomes extremely dirty and very difficult to approach to their hamlets. There were no regular public transport systems in these villages, so people had to walk a long distance to reach the market, hospital or other public facilities (Table-1).

Table-1: Name of the selected studied villages

Sl. No.	Villages Name	Sampled Households	Distance from Block (km.)
1	Dalaki	20	15
2	Kolatomak	27	27
3	Judia Khadia Sahi	16	11
4	Bhalujudi	10	10
5	Chodheipahadi	12	35
	Total	85	

Results

Importance of the Drinking water and Sanitation

Water is a potent component of life and its quality is directly related to the efficacy of personal and community life. It is the most important aspect on which health completely depends. Water is life and we cannot live without it. Pure water is highly essential for our life but Hill Kharia people have no such knowledge and they manage themselves with the water they get from their nearest surroundings. The water is used for multifarious purposes such as cooking, drinking, washing clothes, bathing, defecation, scrubbing their domesticated animal and also for cleaning their utensils. Pig and buffaloes lie down in the stream water most often, which makes the water impure. Besides the stream and pond, water always carries decomposed leaves and other vegetative matters, which provide an appropriate milieu for the breeding of various kinds of parasites. It is for this reason that incidence of diarrhoea and stomach related diseases are very common with these people. To eradicate water problem, Government has sunk tube well and deep borewell in the tribal areas. However, the surroundings of the tube wells, as well as wells, are swampy, dirty and utterly unhygienic as the used water stagnates and people also throw all sorts of dirty materials and also often toilet there. Besides, sometimes people take bath over there sometimes, housewives clean utensils, dirty linen and anal washing of children after defecation around the tube wells and well. The polluted surrounding and water are said to be the main causes of a number of diseases.

Dental Hygiene

All age groups of the Hill Kharia people that expressed that they eat a variety of foods in solids, semi-solid and liquid forms and also often they eat foods in unprocessed form. Good and strong teeth for a long time enable them to bite, grind and chew appropriately. Hence, both male and female are very consciousness of dental hygiene. The native people perceived that properly maintained teeth are healthy and look beautiful. To maintain healthy teeth they brushed their teeth daily by using different twigs of the plant, salt or charcoal. In spite of some care, many elderly men and women suffered from a dental problem like tooth decay due to the habit of tobacco and betel nut chewing.

Table 2: Behaviour of Tooth Brushing of the Respondent and Using Material (N=301)

Status	No.	%
Toothbrush	13	4.31
Tooth stick	239	79.40
Stick + Gudakhu	28	9.30
Do not Brush	21	6.98
Total	301	99.99

Hill Kharia brush their teeth daily in the morning after they wake up. Using twigs of particularly trees or clean rubbing with fingers and twigs using some medium. Using twigs from different trees like *neem*, *sal*, *amm*, *khejur*, bamboo, *sargee* and so on. The general observation reveals that those who go forest for daily collection, while they return to home, they bring some twigs. They never pay any single coin for buying twigs from the market. The table: 2 shows that majority of the

respondents preferred tooth stick for teeth brushing. Only 4.31% of them using toothbrush, 9.30% of the people used different twigs with *gudakhu* paste. The only adult uses *Gudakhu* for teeth cleaning.

Bathing Practices

Bathing is to be necessary hygiene care for keeping the body free from infections, particularly skin infection. The skin diseases are locally termed as *kundali* (itching) which supposed to be a contagious disease is attributed to irregular bathing. The Hill Kharia normally takes bath once in a day. While they return from field or forest around 1 P.M to 3 P.M. They take bath either in pond, stream, and river or in any nearest water sources. Only during the summer season, some members of the family prefer to take bath twice a day. Otherwise, most of them prefer only one time bath in a day. The time-frequency of bath also depends on age, season and the works type on a particular day. School going children take bath before or 9 A.M. Some old men or sick person reported skipping bath often as they are in need of assistance. It has also seen that mothers of infant and children (under age of 5 years of age) are taken bath daily. Before bath, the mother massaged oil to the baby and bath. Their parents in regards to their bath do not monitor children from the age of 7th years to 15th years.

People suffer a lot during the summer season concerning getting sufficient water for bathing. During this period, people take bath with restricted water, where they also washing their regular usage utensils and take bath their domesticated animals.

Table 3: Distribution of household's according to their preferred places for bathing

Preferable Bathing Places	No.	%
Pond	43	50.59
River	14	16.47
Open well	11	12.94
Tubewell	17	20
Total	85	100

The above table-3, shows that the distribution of the sources of bathing places at the studied area. The Hill Kharia at the studied villages mostly prefer to take bath in four places like; River, Tube well, Pond and at Open well. Out of the total household majority, 50.59% of the household preferred to take bath in the pond, 16.47% prefers to take bath in the river. It has also been seen that in the studied villages, the respondents like to take bath near of the tube well and they wash their clothes too. Around 20% of the sampled households like to take bath near tubewell water.

Washing Clothes:

Practicing regular washing of clothes are important hygiene care for prevention of many diseases. While discussion with the native people it is found that, they wash their clothes twice to thrice in the week by using soap or detergent powder. Otherwise, they just washed only in water. Clothes are not washed in soap on a day-to-day basis. Washing of the clothes is usually taken to the pond, river, near water sources or either on the concrete road that closes to be the tube well or public tap. Most of the people using the round shape soap (*mundha*)

for washing purpose. Sometimes women can also use this soap to clean their hair. Some of the people were observed using detergent powder, which bought from the nearby market or *saptahik haata*. Women wash their menstrual linen directly in the river water.

Table 4: Distribution of Household as per the Material used for washing clothes

Material used for washing clothes	No.	%
Only in normal water/ boil water	27	31.76
Washing powder (Surf, wheel, Nirma, tide)	5	5.89
Washing soap (<i>mundha</i>)	53	62.35
Total	85	100

The above table-4, shows that distribution of the household as per the material used for washing clothes. Out of the total selected households, maximum 62.35% of households were using washing shop (*mundha*), followed by 31.76% of the household cleaning their clothes only normal water/ boil water. Only 5.89% of the households were using different types of washing powder while washing their clothes.

The practice of Washing Hands

Hands are an important body part, which helps us to work and use the tools. However, it is risky to eat food without washing the hands properly. Hill Kharia peoples both adult and children wash their hands before eating, after labour work, and after defecation. They washed their hand either with soap or without soap. The children groups are observed without washing their hands before they eat, which may cause for stomach pain, vomiting, dysentery, and so on. The accumulation of dirt in the nail is one of the major factors for the bacteria and others germs to enter our body (intestine) through food. Hence, it is vital to cut or trim nails regular to avoid contamination of food when handling eating items.

Now the Anganwadi workers play a very vital role to train the preschool-going children to wash their hand regularly right after defecation and before going to eat in a proper manner. However, some people using detergent powder to clean their hand. During the field visit, it was observed that the box of soap and powder are not kept clean and dry daily. In the case of Hill Kharia, the practice of washing hand with soap or any detergent powder before and after eating is is very negligible. Most of the people i.e. 68.77% are washing hand before taking food with water only. Whereas 12.30% noticed that they do not wash their hand most of the time, it is because of the unavailability of the pure water (Table- 5).

Table 5: The practice of washing hand before Eating

Option	No.	%
Water only	207	68.77
Soap/ detergent powder and water	17	5.64
Ash/ mud/ sand	40	13.29
Don't wash every time	37	12.30
Total	301	100

People choose the open field for defecation. All men, women of all age groups adapted use of water. They manage most of the time in a bucket or *dabba* of water. Some use soap after defecation, but many rub their hand on mud and applying

water on hand for cleaning. It has not been observed that they were washing their hand after urination. Few people are often using chappal while going for defecation. It is also very important things that, washing hand prior to collect of drinking water and preparation of food is as important as washing before food. Women rarely follow these things. They rarely practice washing their hands prior to collection of water from public taps or from well for drinking and others domestic purposes like cooking. However, they clean their pot very well.

Housing Pattern

Housing pattern plays a major role in determine health condition of the people, which also very much depend on the economic status of the individual. There are three different types of housing patterns found among the Hill Kharia.

1. **Semi Pukka:** single roomed, having a small window, extended verandah, concrete floor, cemented with bricked wall and asbestos type roof, whitewashed wall.
2. **Semi Kutcha:** single roomed, rarely having a small window, small verandah, concrete floor with mud with brick wall and tiles/ *khappar* roof.
3. **Kutcha:** single roomed, no ventilation or window, fully thatched house, mud wall and plastered by cow dung with red mud.

There is no availability of bathroom and latrine room. They sweep their house daily or within two days interval. Waste materials are thrown or kept just in front of the house. They have no special room, which they can use for kitchen purpose. Therefore, the villagers prefer to make a wall on one side of the verandah and make it as their kitchen room. The other one side of the verandah was used by them as a shed for domestic animals. Firewood is their main source of cooking. During the rainy season, while cooking by firewood, creates more smoke and later on it results in the breathing problem of the people.

Water Management

Water is the key element for the survival of the living organism. A living organism can survive without food for few days, but without water, one cannot live. Human beings consume water for their daily life such as cleaning of the utensil, washing of their clothes, bathing self and their domestic animals, drinking and others purpose. Safe drinking water is essential to sustain life; it is the basis for human health, survival, growth and development. Therefore, access to safe drinking water is a basic human right. Unsafe water blended with inadequate sanitation and hygiene still contributes to some 8, 42,000 death every year representing 58% of deaths caused by diarrhoea.

In most of the study area, people collect water from *chua* (a small open well, maximum 5 to 10 feet depth) in the paddy field. Women were also cleaning their used utensils/ clothes nearby that *chua* and wastewater again goes into that *chua* and people also use this water for drinking purpose. Villagers also collect drinking water from bore well, tube well, public tap in steel/ aluminium or mud vessel. If the tube well becomes dry or not working properly then they have to depend only on the *chua*. They never put some bleaching powder into the *chua* water. They feel that the bleaching

powder will give more smell and cause indigestion.

Table 6: Distribution of the Household as per their uses of source of drinking water

Sources Of Drinking Water (Multiple Responses)	No.	%
Tubewell	277	92.3
Open Well (deep)	127	42.3
Open well (Chua)	78	26.0
Pond/ River/ Canal	65	21.7
Supply Pipe water	34	11.3

The above table-6 shows that the Hill Kharias of Bijatola block has been using the five main sources of drinking water like tube well, deep open well, *Chua*, bore well with solar connecting, pond/ as well as river and stream, and Panchayat supply pipe water. According to the responses of respondents, maximum 92.3% of households prefer to take water from a tube well, Similarly, 42.3% households prefer only open well to use drinking purposes while 26% of prefers only *chuas* are hardly found at riverside or inside the paddy field with a depth of 3-5 feet. Minimum households i.e. 11.3% only depend on supply pipe water for both drinkings as well as for other purposes.

Drinking Water Storage

Most the household having the aluminium container for the collection of water and water is stored in the same pot or mud pot.

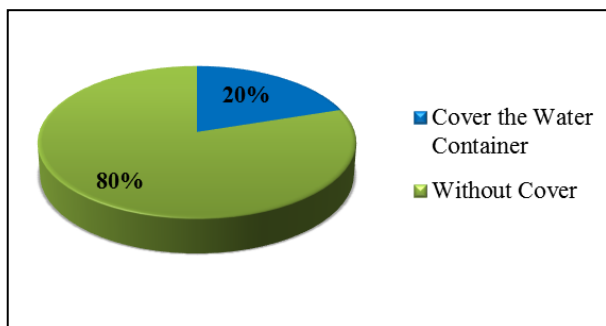


Fig 1: Drinking water storage facilities in the households

The above figure-1, shows that the 20% of the Hill Kharia are covered the water container. They are using the container called “*Gaira or handi*”. The size of the container varies from household to household.

Table 7: Knowledge about Water-related Health Problem noticed among the Hill Kharia in the studied villages

Responses	Drinking unsafe water can cause health problem	
	No.	%
Yes	133	44.18
No	127	42.20
No Idea	41	13.62
Total	301	100

The table- 7 highlights that the water-related health problem noticed among the native people in the studied villages. Maximum 133 (44.18%) of the respondents have experienced

the health problem due to the unsafe water drinking. 13.62% of the people have no idea.

Types of Health Problem

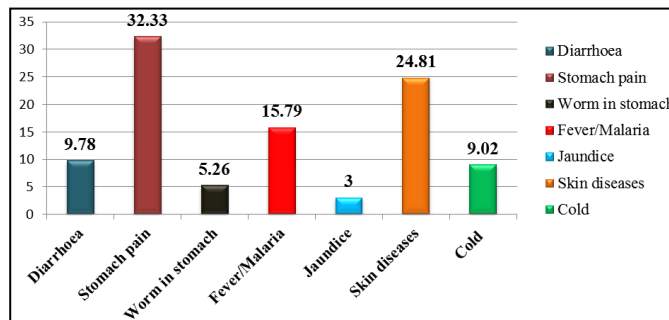


Fig 2: Types Diseases caused due to drinking unsafe water

The above figure-2 reveals that responding of the individual gave the multiple answers to the questions about the diseases that cause due to the drinking of unsafe water from different sources. 32.33% of the respondent has suffered stomach pain, followed by Skin diseases i.e. 24.81%. Whereas, minimum 3% of the people have suffered from Jaundice due to the drinking of unsafe water.

Waste Management

Waste is the severe threat to public health and cleanliness. In the villages, the waste generated being pre-dominantly organic. Incorrect disposal can lead to the serious health problems including the growth of water-borne diseases. The Hill Kharia frequently suffers from different diseases like Diarrhea, Dysentery, Stomach pain, Malaria, Scabies, and Typhoid. The goals of sanitation will not be met unless this waste is safely disposed of. In rural as well as tribal area this aspect is often ignored due to lack of proper infrastructure, non-availability of sustainable and affordable technology or the lack of awareness among the villagers.

Open Defecation

Due to unavailability of the personal toilet, villagers go for open defecation in either agricultural field or near river/ pond or place surrounding near the main residential area. They washed directly in the water. Besides, the river and pond water always carried decomposed leaves and other vegetative matter, which provide an appropriate milieu for the breeding of various kinds of parasites. In the study area, no toilet was provided to the Hill Kharia people under Swachh Bharat Mission. Both male and female Hill Kharia usually defecate near the vacant field, or nearby river surrounding the village habitation. Children below 7 to 10 years of age defecate in the village settlements and roaming pigs and dogs or hens eat up the excreta. Similarly, the excreta of babies are disposed of in the garbage heap located in the backyard of almost every house. The accumulated garbage decomposes, emits foul smell and functions as a favourable receptacle for breeding varieties of parasites.

Unhygienic Due to Domestication

Since the human started the domestication of animals for

his/her needs, the animals are also acting as a vector for carrying the disease-causing germs. Most of the villagers rear goats and hen to supplement their incomes and to manage their livelihood. It was noticed that some of the households keep around 15- 30 goats in the front yard or verandah of the house. The goat shed is not clean.

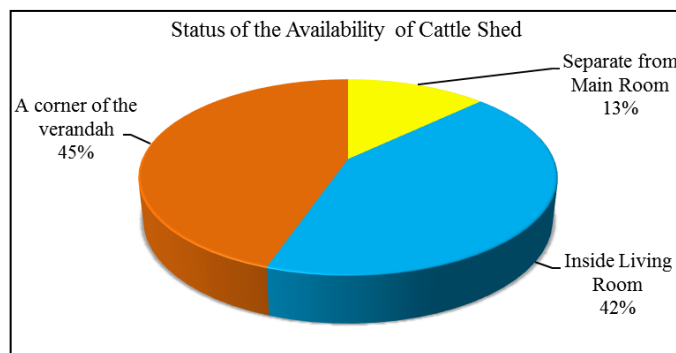


Fig 3: Status of the Availability of Cattle Shed

The figure-3 shows the Hill Kharia status of shelter/shed for domesticating animals. Only 12.94% of households have shed/shelter who were keeping their animals separate from the main living room, next 42.36% of households were keeping their animals inside their main living room, because of the shortage of room. Only both goat and fowl could be kept inside of the room, for cow they prepare cowshed separately from the main room. However, 44.70% of the households were keeping their goat and fowl at a corner of the verandah.

Conclusion

The present paper mainly deals to understand the knowledge and practices of the Hill Kharia about the health, hygiene, and sanitation as well as the uses of water. In the studied villages, the different sources of drinking water are available, but for the household activities and drinkable purposes, only few tube wells and open well are used. Most of the tube wells are having low water quality and few have functional. The incidence of iron in the water has resulted in fewer usages. Due to this, most of the native people were bound to use the *Chua* water for both cooking and drinking purposes. The incidence of tooth brushing, place of bathing practices, washing of clothes and utensils, open defecation as well as the unsafe drinking water are proved the poor knowledge of sanitary and hygienic behaviour.

The environment of Hill Kharia villages remains polluted and dirty for a variety of reasons. The village street is littered with animals dung, household refuse, and excreta of children and swamp of human and bovine urine. There is no arrangement for the disposal of household sewage water. The water used for such domestic purposes as the washing of utensils, cleaning of food materials, occasional washing of clothes and bathing of children; were logged outside the home.

Suggestion

1. A village-wide awareness campaign is necessary to make rural people as well as tribal people fully aware of the adverse effects of open defecation, which is mainly responsible for infections and a number of diseases.

2. The government should set up safe hygienic toilets to the Hill Kharia.
3. Safe and clean water should be provided to the people.
4. Education should be given at school level regarding the health, hygiene and sanitation.
5. Primary health care has to be developed as an integral part of the social infrastructure, socio-economic development.
6. Involving the youth of the community in sanitation movement is highly necessary and they should be trained regarding maintenance of their drinking water sources, masonry work to construct the drain, soakage pit and toilets.

References

1. Adak DK. Environmental sanitation and personal hygiene among the rural Jaintias (Meghalaya). *Journal of Northeast India conical for social science research*. 1991; 15(1):63-68.
2. Chaudhury B. Cultural dimensions of health: A study on West Bengal villages, in. *Tribal Health: Socio-Cultural Dimension* (eds.), B. Chaudhuri. New Delhi: Inter India Publication, 1986.
3. Dutta Chaudhury SS, Ghose GC. Indigenous health practices among the Iduie Mismi of Arunachal Pradesh. *Human Science*. 1984; 33:24-34.
4. Park K. *Textbook of Preventive and Social Medicine*. Jabalpur, M/S Banarasidas Bhanot Publisher, 2015.
5. Rizvi SNH. Health practices of the Jaunsaris. *Tribal Health: Socio-Cultural Dimensions*, In B. Chaudhuri (ed). New Delhi: Inter India Publication, 1986.
6. UNICEF. *Sanitation: A way of Life, A Sanitation Handbook for Community Organisers*. New Delhi: India Country Office, UNICEF, 73 Lodhi Estates, 2005.
7. World Health Organization. *Global Water Supply and Sanitation Assessment 2000 Report*, 2000.
8. World Health Organization. *Poor Sanitation Threatens Public Health: 6 in 10 African remains without access to proper toilet*. WHO/UNICEF Joint News Release, 2008. GENEVA. (<http://www.who.int/mediacentre/news/release/200/pro08/en/>- accessed dated-13/02/2008)