



## Research Article

# SANITATION AND HYGIENE PRACTICES OF TRIBAL CHILDREN AND WOMEN IN BHADRADRI KOTHAGUDEM DISTRICT

V. VIJAYA LAKSHMI AND M. MILCAH PAUL

Department of Resource Management & Consumer Science, College of Community Science, Professor Jayashankar Telangana State Agricultural University, Hyderabad, 500004, India

\*Corresponding Author: Email - vijikeetu@gmail.com

Received: July 06, 2022; Revised: August 23, 2022; Accepted: August 24, 2022; Published: August 30, 2022

**Abstract:** Sanitation and hygiene are essential for good health and well-being, survival and development of any individual. Most of the countries are facing challenges in providing minimum sanitation facilities to its people as there are certain factors like population explosion and resource depletion which hinder the provision process. Due to this, people are becoming vulnerable to risks in terms of their health, nutrition, and basic survival. In India, there are many interior areas where the tribal population is dominant. Most of them do not follow or maintain basic sanitation and hygiene practices due to various issues like lack of education; gender biased disparities; improper access to basic facilities like water, toilets etc., which effect their well-being, nutritional and health status. The study tried to explore and compare the sanitation, hygiene and nutritional practices of tribal children and women in the district of Bhadradi Kothagudem, Telangana State, India.

**Keywords:** Sanitation, Hygiene, Tribal, Children, Women

**Citation:** V. Vijaya Lakshmi and M. Milcah Paul (2022) Sanitation and Hygiene Practices of Tribal Children and Women in Bhadradi Kothagudem District. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 14, Issue 8, pp.- 11574-11578.

**Copyright:** Copyright©2022 V. Vijaya Lakshmi and M. Milcah Paul, This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

**Academic Editor / Reviewer:** Dr L. Nirmala, Jothiprakash Gitanjali, Asik Ikal

## Introduction

Sanitation and hygiene must be maintained by any individual irrespective of age, gender, occupation etc. Basic sanitation is described as having access to facilities for the safe disposal of human waste (feces and urine), as well as having the ability to maintain hygienic conditions, through services such as garbage collection, industrial/hazardous waste management, and wastewater treatment and disposal [1]. Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases (WHO). These two have an inter-linked effect on each other. According to WHO, the 5 pillars of sanitation include: (1) clean drinking water, (2) access to toilets, (3) personal hygiene, (4) menstrual hygiene (for women and adolescent girls) and (5) good nutrition.

Tribal women and children may not have proper awareness on the importance of sanitation. Some of the reasons which hinder the development of their awareness levels is due to various issues like lack of education, improper access to basic facilities like water, toilets etc. To get more insights about the current study, review of existing literature was done. The results related to few research studies done earlier are presented below. A study on menstrual hygiene practices among tribal women from Vellore, Tamil Nadu revealed that many women respondents involved in the study were less aware about the menstruation process and its causes. They expressed difficulty in travel and maintenance of sanitary products. Due to lack of basic water & toilets facilities, they had difficulty in maintaining cleanliness during periods. Most of them used cloth over a sanitary pad due to its low cost. They felt that menstruation was a secret issue which must not be revealed socially. They were isolated and put in separate places outside their homes, restricted from talking or seeing male members or even attending to jobs during periods. Overall study findings showed that the women in tribal communities had varying degrees of menstrual hygiene practices which were both healthy and harmful to reproductive health. The study emphasized the vital role of nurses in creating awareness and clear understanding of menstruation and related hygiene practices [2]. Another study tried to explore the hygienic practices among tribal communities in Orissa. The results revealed only 4.26 per cent tribal households involved in the study were using safe water i.e., from tube well and majority (89.36%) were using spring water for drinking.

But 55.56 per cent of general population were using safe sources for their drinking purpose. Awareness among the tribal community regarding sanitation and handling of drinking water was not adequate. They had no interest on personal toilets and preferred open fields for excretion (94.68%). Only 5.32 per cent of tribals had their personal toilet facility; but 77.78 per cent of general population had the facility. 86.17 per cent of tribals were not having a definite practice of washing hands before taking food, mainly without a soap and this was also attributed to the water problem in their living areas. The study results highlighted that like other parts of the country; the women and girl children were primarily responsible for collection, storage of water for household use and maintaining hygiene and sanitation. Hence, they must be educated mainly which can also help in improving the quality of life of the tribal families [3].

The WaSH practices among the children under - 5 who belonged to the households of Sugali tribe of Chittoor District, Andhra Pradesh, India were analysed in a study. A WaSH score was generated from 4 indices i.e., water, sanitation, hygiene, and hand washing practices. Of the total 500 households surveyed, 69 per cent reported doing nothing at home to make the drinking water safe. Over 90 per cent households reported storing water in a utensil covered with a lid and taking water by dipping glass in the utensil. Open defecation was a commonly reported practice (84.8%); mainly at the open drains and streets by the children under 5 years which increased the risk of waterborne diseases. Nearly 50 per cent of mothers reported leaving stools of them under 3 children uncovered. Around 59.4 per cent households reported using water and soap for cleaning dirty hands. Over 90% reported cleaning their hands with water only before and after meals. Soap was used when hands were thought to be dirty. Only 37.4 per cent reported using water and soap after defecation. Only 43.8 per cent reported washing vegetables with water before eating. In the hierarchical stepwise multiple linear regression, socio-economic variables were significantly associated with WaSH score [4].

An observational analysis on Water quality, sanitation, and hygiene (WaSH) among the tribal community residing in Jawadhi hills, Tamil Nadu revealed that majority (96.7%) of the household water samples showed the presence of fecal coliforms.

Low per capita income ( $\leq 1000$  INR) was strongly associated with the poor WaSH score. Most of the households stored drinking water in traditional wide-mouthed metal or plastic containers (97.3%), without purification (57.3%) before drinking, and extracted water with the help of a vessel by dipping their hand inside (98.6%). Open-air defecation was a universal practice in the study area. Key study findings indicated that WaSH practices in the study area were substantially poor that can be often associated with (a) low per capita income; (b) activities of household members, especially women are forced to spend considerable time to fetch drinking water from distant places; (c) drinking water which was almost commonly infected with coliforms [5].

The results of the above-mentioned studies highlighted that the hygiene and sanitation practices of tribal communities were not good due to various underlying reasons. The current study hence tried to deeply explore the underlying reasons for poor sanitation and hygiene practices of the tribal children and women in the selected tribal areas.

### Materials and Methods

An exploratory study was conducted on 30 tribal women and 30 tribal children residing in the district of Bhadradi Kothagudem, Telangana state. The data was collected using an interview questionnaire. The respondents of the study were selected using purposive sampling technique, with an intention to study the sanitation and hygiene habits of tribal population. The study was conducted in the following locations: (1) Garimellapadu (V), Chunchupalli (M); (2) Pokalagudem (V), Chandrugonda (M); (3) Sarvaram (V), Sujathanagar (M); (4) 3 Incline (V), Chunchupalli (M) and (5) Chitti Ramavaram (V), Kothagudem (M). The data collected was analysed using frequency and percentages.

### Results and Discussion

#### Age of the respondents

The results in the [Table-1] depicted that more number (33%) of the child respondents belonged to the age group of 9-10 years, followed by 13-14 years (23%), 15-16 years (20%), 7-8 years (13%) and 9-10 years (10%). Among the women respondents, a greater number of respondents belonged to the age group of 21-30 years (60%); followed by 31-40 years (30%) and 41-50 years (10%).

Table-1 Distribution of respondents based on their age

Age (in years)	F	%
<b>Children</b>		
7 - 8	4	13
9 - 10	10	33
11 - 12	3	10
13 - 14	7	23
15 - 16	6	20
<b>Women</b>		
21 - 30	18	60
31 - 40	9	30
41 - 50	3	10

#### Occupation of the women respondents

All the child respondents were studying in schools, and hence their occupation belonged to the student category. More number (33%) of women respondents were working as farm labour; followed by housewives (27%), wage labour (13%), tailors (10%), salaried employees (10%). The remaining 7 per cent were doing two works i.e., business and tailoring. Agriculture was the primary occupation in the areas where the women respondents were staying. Hence, we can see that more number were dependent on performing agricultural activities.

Table-2 Distribution of women respondents based on their occupation

Occupation	F	%
Farm Labour	10	33
Housewife	8	27
Wage Labour	4	13
Tailor	3	10
Salaried Labour	3	10
Tailor and Businesswomen	2	7

### Source of drinking water and its treatment method

As seen above, the first pillar of sanitation is clean drinking water. The results related to the source of drinking water showed that majority of the children (83%) and women (80%) respondents drank bore water. Comparatively, a small percentage of children (17%) and women (20%) drank bottled water. The bottled water is claimed to be mineral water, by the suppliers. But how far this bottled water is made into the form of mineral water is still a question. Respondents just believed that the bottled water was treated with good minerals and hence it is safe to drink.

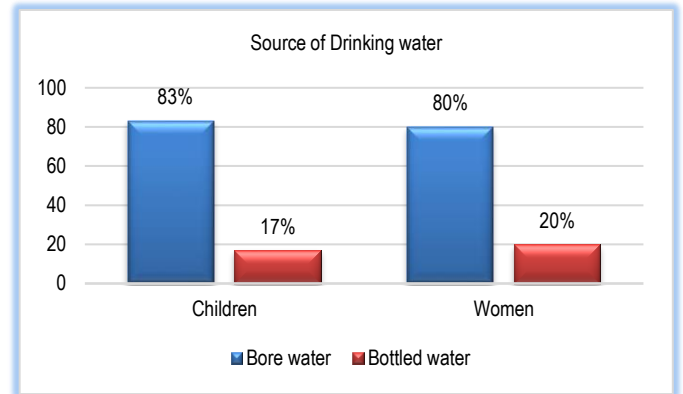


Fig-1 Source of Drinking water for the respondents

Table-3 Distribution of respondents based on treatment methods used for drinking water

Treatment methods used for drinking water	Children		Women	
	F	%	F	%
Boiling	4	13	-	-
Filtering	3	10	6	20
Boiling (only when health problems arise)	3	10	-	-
No Treatment	20	67	24	80

It is tragic to see that most of the children and women respondent households (80% and 67% respectively) did not do any treatment for drinking water to make it safe. Very few child respondent households used treatment methods for drinking water like boiling (13%) and filtering (10%). The remaining 10 per cent boiled the water only when some health issue/ problem arises among the family members. It also can be noticed that none of the women respondent households boiled the drinking water, even when the health problems arise. Only few respondents (20%) filtered the drinking water.

As most of the women respondents were uneducated, they did not try to understand the importance of boiling or filtering water though they were aware of. Apart from this, some of the areas where the respondents were living were situated in interior areas and hence did not have access to at least bottled water, which were assumed to be a better choice compared to the bore water without any treatment. Hence, some awareness programmes can be conducted for the children and women in all the study areas, majorly focusing on the importance of boiling or filtering drinking water in order to make the water safe and safeguard their health.

#### Presence of a toilet in the respondents' house

The results showed that majority (87%) of the child respondents had a toilet constructed at their house and the remaining (13%) did not have. Among the female respondents, 73 percent had had a toilet constructed at their house and the remaining 27 per cent did not have.

It is good to see that majority of the respondent households (both children and women) had a toilet constructed in their house. But there are some respondent households which do not have a toilet at their house. This shows that they practice open defecation, which is not safe for them and the environment. Hence, respondent households must be educated about the importance of having a toilet at home and eradicate the practice of open defecation. Some Government interventions can also be done in these areas like construction of community toilets in the village, so that all the residents can have accessibility to them.

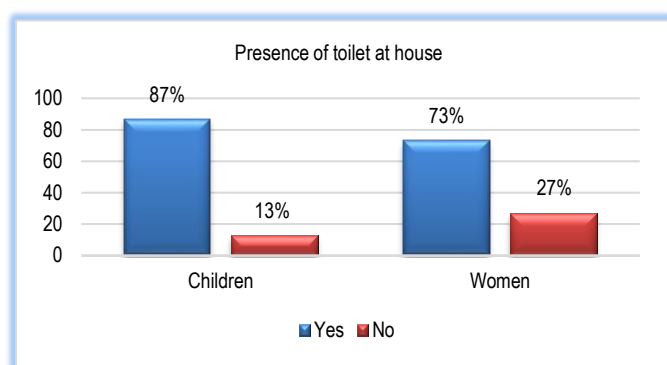


Fig-2 Presence of toilet at the house of the respondents

### Personal hygiene habits of the respondents

The results regarding the personal hygiene habits of the respondents showed that all (100%) the child and women respondents had good habits like brushing teeth daily in the morning, taking bath daily and wearing washed clothes after bath. Regarding the use of footwear, around 40 per cent of the child respondents and 70 per cent of the female respondents do not use footwear while walking around their house or in their street or in their village. They only used footwear when they go out of their street or village. In the case of nail cutting habits, majority (53%) of the child respondents cut the nails once in a week; the next majority group (40%) cut only once in a month. A small percentage of the respondents cut their nails twice in a week (3%) or twice in a month (3%). Regarding the women respondents, majority (50%) cut their nails occasionally; followed by once in a week (23%), once in a month (17%), once in 10 days (7%) and twice in a week (3%). Some personal hygiene habits like brushing teeth, taking bath daily and wearing washed clothes after bath are good in study respondents. Some habits like use of footwear while walking outside the house and cutting nails regularly (by women respondents) were not practiced by majority of the study respondents. Though these habits seem to be insignificant, these are important to follow as there is a chance of dust entry into the body through nails (when food is eaten with dust accumulated nails which are grown) and through feet (if there are any cuts or injuries in the feet). Hence, they must be educated on importance of using footwear and regular cutting of nails. As there is a lot of dust outside the house, there are more chances of getting dust accumulation into the houses and this may also lead to some respiratory problems for the residents.

Table-4 Distribution of the respondents based on their personal hygiene habits

SN	Personal hygiene habits	Children		Women	
		F	%	F	%
A.	Brushing Teeth daily				
1.	Yes	30	100	30	100
2.	No	-	-	-	-
B.	Taking Bath daily				
1.	Yes	30	100	30	100
2.	No	-	-	-	-
C.	Wear washed clothes after bath				
1.	Yes	30	100	30	100
2.	No	-	-	-	-
D.	Use of footwear outside the side				
1.	Yes	18	60	9	30
2.	No	12	40	21	70
E.	Cutting Nails				
1.	Twice in a week	1	3	1	3
2.	Once in a week	16	53	7	23
3.	Once in 10 days	-	-	2	7
4.	Twice in a month	1	3	-	-
5.	Once in a month	12	40	5	17
6.	No specific time	-	-	15	50

### Hand washing habits of the respondents

The results regarding the use of soap/ other cleaning agents for washing hands showed that majority (77%) of the respondents use a soap for hand wash. Around 20 per cent of the respondents do not use a soap for washing hands and the remaining (3%) used it only after visiting the toilet. It is good to see that

majority of the study respondents had a habit of using soap for handwashing. Around 23.33 per cent had no habit of washing hands with soap or using it only after visiting the toilet. These respondents majorly belonged to Sarvaram and 3 Incline Areas. The people here must be educated about the importance of handwashing with soap/ other effective cleaning agents as they have the capacity to kill germs, which will help in safeguarding themselves from diseases and infections. Regarding the handwashing habit after/ while/ before performing some activities showed that all the respondents (100%) washed their hands before eating food and after touching things which are dirty. Majority (77%) of the respondents washed their hands after visiting the toilet, whereas the remaining (23%) did not wash. Majority (90%) of the respondents washed their hands before entering their house after coming from outside work/ play, whereas the remaining (10%) did not wash. Majority (53%) of the respondents do not wash their hands after coughing or sneezing. Around 33 per cent washed; and the remaining minor percentage washed their hands, but not immediately (7%); and only after Sneezing (7%). Majority of the study respondents, irrespective of the area; do not have the habit of washing hands after coughing or sneezing. All the study respondents who do not wash hands after visiting a toilet are from Sarvaram and 3 Incline areas. As Coughing, Sneezing, Urination and Defecation are some of the activities which bear a chance of spreading germs; it is necessary to educate the children to wash hands after doing these activities.

There might be a correlation between the presence of toilet in house and the habit of washing hands after visiting the toilet. An observation was made in the results that the children who do not have a toilet at their home, do not have the habit of washing hands after defecation as they do not have an immediate availability to water and soap. Hence, presence of toilet in home can increase their access to water, improve their handwashing habits and finally safeguard their health.

Table-5 Distribution of the respondents based on their handwashing habits

SN	Activity	Children		Women	
		F	%	F	%
A.	Use of soap/ another cleaning agent				
1.	Yes, always	23	77	20	67
	Yes, sometimes	-	-	1	3
2.	No	6	20	9	30
3.	Yes, but only after visiting the toilet	1	3	-	-
B.	Before eating food				
1.	Yes	30	100	30	100
2.	No	-	-	-	-
C.	Before cooking food				
1.	Yes	NA	NA	13	43
2.	No	NA	NA	17	57
D.	After washing clothes/ utensils				
1.	Yes	NA	NA	3	10
2.	No	NA	NA	27	90
C.	After visiting the toilet				
1.	Yes	23	77	24	80
2.	No	7	23	6	20
D.	After touching things which are dirty				
1.	Yes	30	100	30	100
2.	No	-	-	-	-
E.	Before entering the house after coming from outside work/ play				
1.	Yes	27	90	30	100
2.	No	3	10	-	-
F.	After coughing or sneezing				
1.	Yes	10	33	6	20
2.	No	16	53	24	80
3.	Yes, but not immediately	2	7	-	-
4.	Only after Sneezing	2	7	-	-
G.	After playing/ touching/ handling pets/ cattle/ poultry/ other animals				
1.	Yes	28	93	21	70
2.	No	-	-	9	30
3.	Do not touch/ play with pets/ other animals	2	7	-	-

Majority (93%) of the respondents wash their hands after playing with pets/ other animals. The remaining 7 % expressed that they do not touch/ play with pets/ other animals, which shows that among the respondents who play/ touch pets/ other animals, all the respondents wash their hands. All the women and child respondents washed their hands before eating food and after touching things which are dirty.

Results related to the hand washing habits of the women respondents showed that majority (67%) used a soap for hand washing. Around 30 per cent of the respondents do not use a soap for washing hands and the remaining (3%) used it, but only sometimes. It is good to see that majority of the study respondents had a habit of using soap for handwashing.

Regarding the handwashing habit after/ while/ before performing some activities showed that all the women respondents (100%) wash their hands before eating food, after touching things which are dirty and before entering the house after coming from outside work. Around 43 per cent does not wash their hands before cooking food. Majority (80%) of the respondents wash their hands after visiting the toilet, whereas the remaining (20%) do not wash. Majority (80%) of the women respondents do not wash their hands after coughing or sneezing. Majority (70%) of the women respondents wash their hands after handling pets/ cattle/ poultry. Majority (90%) of the respondents do not wash their hands after washing clothes/ utensils. Women must be educated about the importance of washing hands before cooking food, visiting the toilet, coughing or sneezing and after washing clothes/ utensils as there are some chances of spread of germs while/ after performing these activities.

### Menstrual hygiene habits of the women respondents

Among the respondents who have menstrual cycles (90%), all of them were using sanitary napkins and the remaining 10 per cent do not have menstrual cycles.

Around 83 per cent of the respondents have the habit of cleaning their hands and private parts after changing the sanitary napkins and visiting the toilet.

### House maintenance habits of the respondents

The results showed that majority (97%) of the child respondent households sweep their house once in a day and the remaining 3 per cent sweep once in a week.

Regarding the frequency of washing/ cleaning the house, the results showed that majority (43%) of the child respondent households washed/ cleaned their house for festivals; followed by once in a week (30%), once in a month (17%), daily (3%), twice in a week (3%) and twice in a month (3%). Majority of the respondent households swept their house daily and this is a good indicator for the maintenance of cleanliness. Majority of the respondent households (from Sarvaram, 3 Incline and Chitti Ramavaram areas) wash/ clean their house only during festivals. Hence, the children in these areas can be explained about the importance of cleanliness and dust removal in their houses and in the school regularly.

The results related to the house maintenance habits of the women respondents showed [Table-6] that all (100%) of the women respondent households sweep their house daily. Regarding the frequency of washing/ cleaning the house, the results showed that majority (27% each) of the respondents washed/ cleaned their house once in a week or once in 2-3 months; followed by once in a month (17%), festival times (17%), daily (10%) and twice in a month (3%).

Table-6 Distribution of child respondents based on their house maintenance habits

SN	Activity / Frequency	Children		Women	
		F	%	F	%
A.	Sweeping the house				
1.	Once in a day	29	97	30	100
2.	Once in a week	1	3	-	-
B.	Washing/ Cleaning the house				
1.	Daily	1	3	3	10
2.	Twice in a week	1	3	-	-
3.	Once in a week	9	30	8	27
4.	Twice in a month	1	3	1	3
5.	Once in a month	5	17	5	17
6.	Once in 2 - 3 months	-	-	8	27
6.	Festival Times	13	43	5	17

### Food habits of the child respondents

Food Habits in this study refers to the frequency of which the foods are consumed by the respondents from the different food groups. The results showed that all (100%) the respondents consumed one or the other Cereals, Roots and Tubers; and Fats and Oils. Regarding the consumption of Pulses, Nuts and Oil Seeds; majority of the respondents (37%) consumed them daily, followed by 2-3 times in

a week (30%), once in a week (27%) and once in a month (7%). Regarding the consumption of Milk and Milk Products; majority of the respondents (77%) consumed them daily, followed by once in a week (10%). Around 10 per cent of the respondents do not eat these products and the remaining 3 per cent do not eat due to their unaffordability to buy these products.

Regarding the consumption of Meat and Meat Products; majority of the respondents (57%) consumed them once in a week, followed by twice in a week (17%), thrice in a week (3%), 2-3 times in a month (3%) and once in a month (3%). Around 13 per cent of the respondents do not eat these products and the remaining 3 per cent do not eat due to their unaffordability to buy these products.

Regarding the consumption of Fruits; majority of the respondents (40%) consumed them once in a month; followed by once in a week (23%), daily (20%) and twice in a week (10%). Around 7 per cent of the respondents do not eat fruits due to the unavailability of fruits in their village and their unaffordability.

Regarding the consumption of Vegetables, majority of the respondents (90%) consumed them daily and the remaining 10 per cent consumed them for about 2-3 times in a week.

Table-7 Distribution of child respondents based on their food habits

SN	Food group / Consumption Frequency	Children		Women	
		F	%	F	%
A.	Cereals, Roots, Tubers				
1.	Daily	30	100	30	100
B.	Pulses, Nuts and Oil Seeds				
1.	Daily	11	37	14	47
2.	2-3 times in a week	9	30	13	43
3.	Once in a week	8	27	2	7
4.	Once in a month	2	7	-	-
5.	Do not eat due to health issues	-	-	1	3
C.	Milk and Milk Products				
1.	Daily	23	77	29	97
2.	Once in a week	3	10	-	-
3.	Once in a month	-	-	1	3
3.	Do not eat	3	10	-	-
4.	Do not eat, due to unaffordability	1	3	-	-
D.	Meat and Meat Products				
1.	Once in a week	17	57	21	70
2.	1 - 2 times in a week	-	-	6	20
2.	Twice in a week	5	17	-	-
3.	Thrice in a week	1	3	-	-
4.	2 - 3 times a month	1	3	-	-
5.	Once in a month	1	3	3	10
6.	Do not eat	4	13	-	-
7.	Do not eat, due to their unaffordability	1	3	-	-
E.	Fruits				
1.	Daily	6	20	2	7
2.	Twice in a week	3	10	-	-
3.	Once in a week	7	23	19	63
4.	2 - 3 times in a month	-	-	1	3
5.	Once in a month	12	40	8	27
6.	Do not eat, due to unavailability and unaffordability	2	7	-	-
F.	Vegetables				
1.	Daily	27	90	30	100
2.	2 - 3 times in a week	3	10	-	-
G.	Fats and Oils				
1.	Daily	30	100	30	100
H.	Sugar and Jaggery				
1.	Daily	8	27	1	3
2.	2 - 3 times in a week	3	10	1	3
3.	1 - 2 times in a week	-	-	1	3
4.	Once in a week	8	27	6	20
5.	Once in a month	7	23	5	17
6.	Festival Times	4	13	16	53

Regarding the consumption of Sugar and Jaggery; majority of the respondents (27% each) consumed them daily and once in a week. Around 23 per cent consumed once in a month, followed by festival times (13%) and 2 - 3 times in a week (10%). Overall, the results showed good results that there is a frequent consumption of Cereals, Roots, Tubers; Pulses, Nuts and Oil Seeds; and Vegetables. But the consumption of Oils and Fats is seen daily in all the areas, and this is surely an unhealthy habit if they are consumed in high quantities.



It is pathetic to see that some of the study respondents do not consume Milk and Milk products; Meat and Meat products (due to their unaffordability as they find it difficult to buy these products due to their cost) and fruits (due to their unavailability in their location). Apart from this, a majority group of the study respondents, irrespective of the area consume fruits only once in a month.

Hence, children in all the areas should be educated through awareness programmes to: (1) Reduce their consumption of Oils and Fats on a daily basis (2) Maintain their consumption related to Cereals, Roots, Tubers; Pulses, Nuts and Oil Seeds; Milk and Milk Products; Meat and Meat Products; Vegetables; and Sugar and Jaggery. (3) Increase their fruit consumption as these contain important minerals and vitamins which are essential for the proper growth and development and to meet their daily nutrition requirements.

### Food habits of the women respondents

Food Habits in this study refers to the frequency of which the foods are consumed by the respondents from different food groups. All the respondents have the habit of washing fruits/ vegetables before cooking or consuming them. The results showed that all (100%) the respondents consumed one or the other Cereals, Roots and Tubers; Vegetables and Fats and Oils. Regarding the consumption of Pulses, Nuts and Oil Seeds; results showed that majority (47%) of the respondents consumed them daily, followed by 2-3 times in a week (43%), once in a week (7%) and do not eat due to health issues (3%). Regarding the consumption of Milk and Milk Products; results showed that majority (97%) of the respondents consumed them daily and the remaining 3 per cent had them once in a month. Regarding the consumption of Meat and Meat Products; results showed that majority (70%) of the respondents consumed them once in a week, followed by 1-2 times in a week and once in a month (10%). Regarding the consumption of Fruits; results showed that majority (63%) of the respondents consumed them once in a week, followed by once in a month (27%), daily (7%) and 2-3 times in a month (3%). Regarding the consumption of Sugar and Jaggery; results showed that majority (53%) of the respondents consumed them during festivals, followed by once in a week (20%), once in a month (17%), daily (3%), 2-3 times in a week (3%) and 1-2 times in a week (3%). Overall, the results showed good results that there is a frequent consumption of Cereals, Roots, Tubers; Pulses, Nuts and Oil Seeds; and Vegetables. But the consumption of Oils and Fats is seen daily in all the areas, and this is surely an unhealthy habit if they are consumed in high quantities. Hence, women in all the areas should be educated through awareness programmes to: (1) Reduce their consumption of Oils and Fats daily.

(2) Maintain their consumption related to Cereals, Roots, Tubers; Pulses, Nuts and Oil Seeds; Milk and Milk Products; Meat and Meat Products; Vegetables; and Sugar and Jaggery. (3) Increase their fruit consumption as these contain important minerals and vitamins which are essential for the proper growth and development and to meet their daily nutrition requirements.

### Conclusion

The results gained from this children's survey showed that a greater number of positive observations were seen regarding the hygiene and sanitation practices of children from Garimellapadu, Chitti Ramavaram and Pokalagudem villages respectively. Contrary to that, a greater number of negative observations were seen regarding the hygiene and sanitation practices of children from Sarvaram and 3 Incline villages respectively. The results gained from this children's survey showed that a greater number of positive observations were seen regarding the hygiene and sanitation practices of women from 3 Incline, Garimellapadu and Pokalagudem villages respectively. Contrary to that, a greater number of negative observations were seen regarding the hygiene and sanitation practices of women from Sarvaram and Chitti Ramavaram villages respectively. Children and women involved in this study mostly drank bore water and were not using any treatment method to make them safe. Hence, this aspect must be considered, and the target groups must be educated about the diseases that can come by drinking unsafe water. They can be taught about the benefits of boiling/ filtering water.

Majority of the respondents in this study had access to toilets. But there were some respondents who had no toilets in their home and hence had to practice open defecation. Such respondents and their families have to be educated about

the importance of constructing toilets in their home as this will benefit their health. Children had better handwashing habits when compared to the women. This may be due to the education given in schools regarding the importance of washing hands which helps them in safeguarding their diseases. Another reason would be that the women were ignorant about their hygiene and sanitation needs as they were too busy to think about their need and importance; and follow them. The menstrual hygiene practices of the women were good.

The food habits were not up to the mark among the women and child respondents were not having the required food group items daily. Hence, the negative results observed from the study indicated that more educational programmes must be conducted for women and children to improve their sanitation and hygiene practices, and nutritional status. Some Government interventions can be planned to benefit these both target groups. Some non-Government organizations (NGOs) also can come forward in helping the children and women to understand the importance and benefits of maintaining good sanitation and hygienic practices; and, on how to improve their nutritional status.

**Application of research:** Study can be a motivating force for the policy makers to frame some rules and regulations regarding hygiene and sanitation, so that the well-being of the population is promoted, with a special focus on the tribal women.

**Research Category:** Resource Management & Consumer Science

**Abbreviations:** WHO-World Health Organization  
NGOs-Non-Government Organizations

**Acknowledgement / Funding:** Authors are thankful to Department of Resource Management & Consumer Science, College of Community Science, Professor Jayashankar Telangana State Agricultural University, Hyderabad, 500004, India

**\*\*Principal Investigator or Chairperson of research: Dr V. Vijaya Lakshmi**  
University: Professor Jayashankar Telangana State Agricultural University, Hyderabad, 500004, India  
Research project name or number: Research station study

**Author Contributions:** All authors equally contributed

**Author statement:** All authors read, reviewed, agreed and approved the final manuscript. Note-All authors agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

**Study area / Sample Collection:** Bhadradi Kothagudem, Telangana state

**Cultivar / Variety / Breed name:** Nil

**Conflict of Interest:** None declared

**Ethical approval:** This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

### References

- [1] Sanitation and Hygiene (2017) *Centres for Disease Control and Prevention*. <https://www.cdc.gov/healthywater/global/sanitation/index.html>
- [2] Ashwini K.N., Venkatesan L. and Saraswathy K. (2020) *International Journal of Scientific Research*, 9 (3), 34-35.
- [3] Pradhan G. (2015) *PARIPEX-Indian Journal of Research*, 4 (2), 236-238.
- [4] Reddy V.B., Kusuma Y.S., Pandav C.S., Goswami A.K. and Krishnan A. (2017) *J. of Environmental and Public Health*, Article ID 7517414.
- [5] Saha A., Kusum V.M., Devadason D., Samuel B., Daniel S.E., Lalithazuali Peter J.V., Jamshed J., Harigovind M.R., Manne M.R., Evangeline P.A., Alexander R.S., Issaac R., Senthil J.K., Roy S., Chaudhuri S. and Mohan V.R. (2020) *Journal of Family Medicine and Primary Care*, 9 (11), 5711-5718.