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FREEDOM FROM OPEN DEFECATION AN EMPIRICAL STUDY FROM TWO ADIVASI VILLAGES

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ABSTRACT

Background: *Ending open defecation has been identified as a top priority for reducing global inequalities in water and sanitation (WASH). It is explicitly referenced in sustainable development goals (SDGs) target 6.2 and closely associated with more comprehensive efforts to end extreme poverty by 2030. Since 2000, the global rate of open defecation has decreased from 21% to 9% (0.7 percentage points per year). However, the 673 million people still practicing open defecation in 2017 were increasingly concentrated in a small number of countries, and these will need to be the primary focus of efforts to end open defecation by 2030.*

Objectives: *To study the socio-economic background of Adivasis, to study the status of sanitation in rural areas, to examine whether economic conditions affect open defecation, to examine whether better sanitation facilities improve health conditions and to examine whether improved sanitation facilities impact the quality of life and thereby dignity of tribal women.*

Methods: *Essentially it is an empirical study and a multi-stage random sample design was adopted. Data were collected from 120 sample households from two villages, i.e., Bandarigudem and Nadikudi of Khammam districts in Telangana State through a structured questionnaire. Statistical tools like frequency distribution, percentages, cross-tabulation with Chi-Square test, and a case study method were used.*

Results & Discussion: *This paper found that 35% of Adivasis have health problems, and 73% said that they are getting treatment with RMP. 87% have toilet facility and more than 12% still defecate openly. 18.3% said that they faced different problems at open defecation, and 50% of women not using sanitary napkins. Nearly 90% of respondents wash their hands after toilets and coming from outside of the home. Ten per cent of respondents said that they do not have an awareness of sanitation. Therefore, the study confirmed that the sanitation facilities considerably made the women's dignity and quality of life better in the study area. Moreover, four case studies also focused on open defecation problems in the study area.*

Keywords: Sanitation, Economic Conditions, Open Defecation, Gender, Health and Adivasis.

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INTRODUCTION

Globally, one in ten individuals' practices opens defecation. However, despite media speculation that it increases women's risk of sexual violence, little empirical evidence supports the claims. We investigate the relationship between household sanitation facilities and women's risk of non-partner sexual violence (NPSV) in India, where nearly half of the population lives without a pit or Toilet Apoorva (2016). Although the percentage of people with access to some form of improved water supply and excreta disposal facilities rose during the 1990s, there is still considerable need. At the beginning of 2000, over a billion people lacked access to an adequate and safe water supply. The majority of these people live in Africa and Asia, predominantly in rural areas. The population living in rural areas has to work very hard for their water, often fetching it from distant and polluted sources. This task is usually performed by women and children, which leaves them less time for other productive activities, such as income generation, housework or attending school.

REVIEW OF LITERATURE

Open defecation (OD) is a widespread and persistent practice in India that spreads diarrhoeal disease accounting for an estimated 13% of the deaths in India, creates undignified and unsafe conditions for women and girls, transmits community-acquired multidrug-resistant infections across borders, and contaminates the Environment Exum(2020).

Access to an improved water source is often assumed to be related to latrine use. However, access to improved drinking water is high in rural India; more than 90% of rural Indians have access to improved drinking water. One more piece of evidence that lack of water is not to blame for India's open defecation rates is the fact that many households that have piped water nevertheless defecate in the open, Coffey(2016).

Inadequate sanitation, poor hygiene and lack of safe water supply result not only in more sickness and death but also in higher health costs, lower worker productivity, lower school enrollment and retention rates of girls and perhaps most importantly, the denial of the rights of all people to live in dignity, Kavitha(2013).

Chambers (2009) the strong links between diarrhoeas and related diseasesand open defecation (OD), lack of access to, or use of, means for the safe disposal of human excreta, lack of hygienic practices and contaminated water, is not in dispute.

Despite recent progress, access to improved sanitation remains far lower in India compared to many other countries with similar, or even lower, per capita gross domestic product. For example, Bangladesh, Mauritania, Mongolia, Nigeria, Pakistan, and Viet Nam-all with a lower gross domestic product per capita than India are just a few countries that achieved higher access to improved sanitation, Kavitha (2013).

A study revealed that only 5.7% of the households in our sample had access to underground drainage. Furthermore, 53.7% of the households in our sample did not have access to any form of drainage. This leaves many families without an option for waste management, Anoop (2019).

Access to sanitation is a significant factor in understanding sexual violence against women, and utilizing toilets may substantially mitigate some women's risk of non-partner sexual violence Apoorva (2016).

The risk of maternal complications increases with poor sanitation as it exacerbates the impacts of poor nutrition due to faecal-oral transmission of infections in pregnantwomen; a cluster-randomized efficacy trial demonstrated that low body mass index (BMI) and low haemoglobin (Hb) levels occurred in pregnant women of Cambodia who defecate in open in comparison to women with improved sanitation facility (closed pit latrine), Saleem (2019).

The Community-Led Total Sanitation (2011) approach prioritizes action learning, creative innovation, and critical awareness. In addition, CLTS uses dignity and self-respect as incentives to change behaviour. We have adopted these ideas for our gender-based, community health worker approach by teaching that open-defecation is shameful and proper sanitation involves self-respect.

OBJECTIVES

1. To study the socio-economic background of Adivasis.
2. To study the status of sanitation in rural areas.
3. To examine whether economic conditions affect open defecation.
4. To examine whether better sanitation facilities improve health conditions.
5. To examine whether improved sanitation facilities impact the quality of life and thereby dignity of tribal women.

METHODS

Essentially it is an empirical study and a multi-stage random sample design was adopted. Data were collected from 120 sample households from two villages, i.e., Bandarigudem and Nadikudiof Khammam districts in Telangana State through a structured questionnaire. Statistical tools like frequency distribution, percentages, cross-tabulation with Chi-Square test, and a case study method were used.

In accordance with the set out objectives stated above the following hypotheses are formulated to be tested by applying chi-square test to the cross tabulated responses of the empirical data.

HYPOTHESES

Null Hypothesis: H0: There is no relationship between poor economic conditions (occupation, earnings per month and possession of land) and toilet facility/ open defecation.

Alt. Hypothesis: H1: Poor Economic conditions compel them to go for open defecation.

2. Null Hypothesis: H0: There is no relationship between sanitation facilities and health problems of tribes.

Alt. Hypothesis: H1: Improved sanitation facilities lead to better health conditions.

3. Null Hypothesis: H0: There is no relationship between sanitation facilities and women dignity & quality of life.

Alt. Hypothesis: H1: Improved sanitation facilities enhance women’s dignity and quality of life.

STUDY AREA BANDARUGUDEM AND NADIKUDI

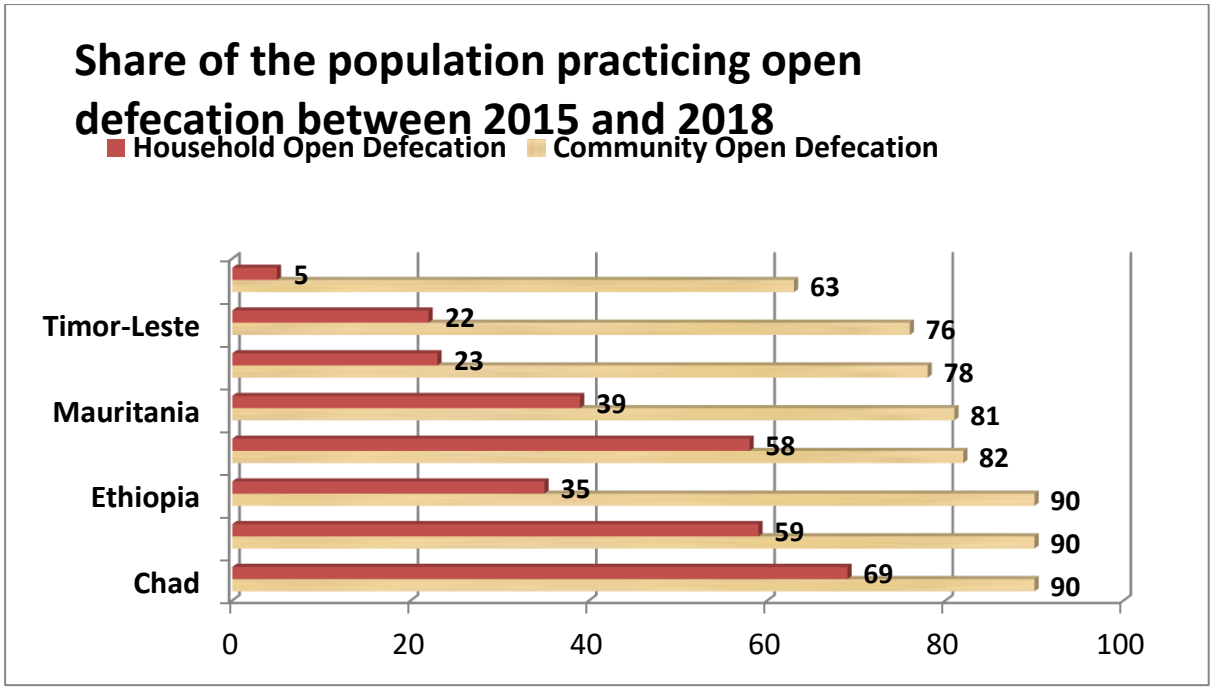
Bandarugudem and Nadikudivillages are located in Dummugudem Mandal of Khammam District of Telangana State, India. It is located 120 KM towards the East of District headquarters Khammam. Total households in the village 186. The total population is 646. Among the total population, 334 are male, and 312 are female, whereas 68 are children below six.

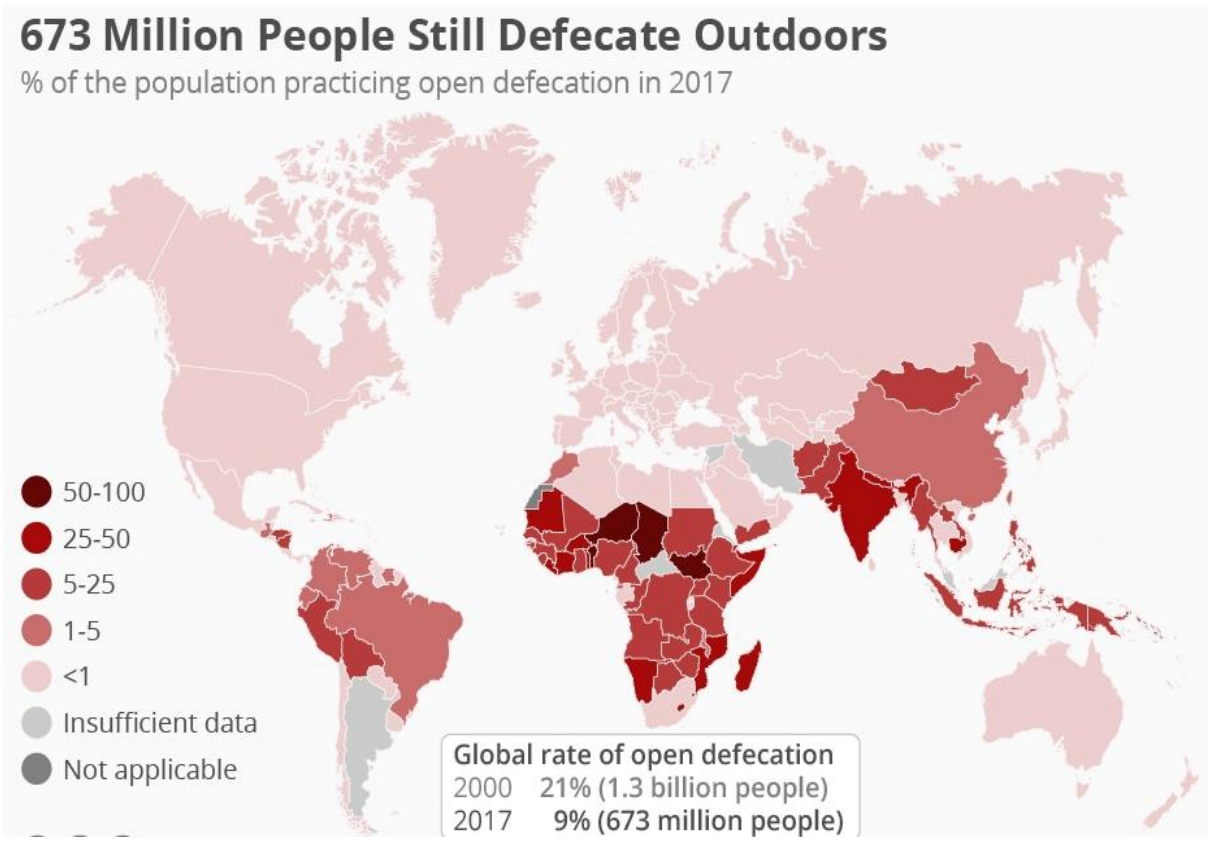
The total tribal population is 321- 180 male, and 141 are female—no scheduled Caste population in this village. Total literacy is 54.5 per cent. 61.56 are male, and 47.18 per cent is female literacy. Total workers are 428 out of 646 total populations in the village; among total workers- 229 are primary workers, and 199 are marginal workers. Nadikudi1251 People are living in this village, 605 are males, and 646 are females. Literate people are 534 out of 318 are male, and 216 are female. Nadikudi depends on multiple skills, and total workers are 640 out of which men are 326 and women are 314. A total of 300 Cultivators are dependent on agriculture farming. Out of 181 are cultivated by men, and 119 are women. One hundred eighty-three people work in agricultural land as labour in Nadikudi. Men are 82, and 101 are women as per the 2011 census.

WORLD SCENARIO OF SANITATION

In 2017, 45% of the global population (3.4 billion people) used a safely managed sanitation service.31% of the global population (2.4 billion people) used private sanitation facilities connected to wastewater treatment.14% of the global population (1.0 billion people) used toilets or latrines where excreta were disposed of in situ. Thus, 74% of the world's population (5.5 billion people) used at least a basic sanitation service. However, 2.0 billion people still do not have basic sanitation facilities such as toilets or latrines. Of these, 673 million still defecate in the open, for example, in street gutters, behind bushes or into open bodies of water. At least 10% of the world’s population is thought to consume food irrigated by wastewater. Cropland in peri-urban areas irrigated by mostly untreated urban wastewater is estimated to be approximately 36 million hectares (equivalent to the size of Germany). Poor sanitation is linked to cholera, diarrhoea, dysentery, hepatitis A, typhoid and polio and exacerbates stunting. Poor sanitation reduces human well-being, social and economic development due to impacts such as anxiety, risk of sexual assault, and lost educational opportunities. Inadequate sanitation is estimated to cause 432 000 diarrheal deaths annually and is a significant factor in several neglected tropical diseases, including intestinal worms, schistosomiasis, and trachoma. Poor sanitation also contributes to malnutrition WHO (2019).

In 2010, the UN General Assembly recognized access to safe and clean drinking water and sanitation as a human right and called for international efforts to help countries provide safe, clean, accessible and affordable drinking water and sanitation. Sustainable Development Goal target 6.2 calls for adequate and equitable sanitation for all. The target is tracked with the indicator of “safely managed sanitation services” – use of an improved type of sanitation facility that is not shared with other households and from which the excreta produced are either safely treated in situ, or transported and treated off-site, WHO (2019).





RESULTS AND DISCUSSION

The study focused on the respondent's opinions on selected attributes such as income, debt, sanitation facilities and awareness, literacy, health, and dignity &quality of life.

Table-1 Social and Demographic Conditions of Sample Respondents

S.NO	Variables	Parameters	Frequency	Percentage
1	Age Group	20-30 Years	19	15.8
		31-40 Years	53	44.2
		41-50 Years	39	32.5
		51-60 Years	09	7.5
		Total	120	100.0
2	Sex	Male	55	45.8
		Female	65	54.2
		Total	120	100.0
3	Marital Status	Married	101	84.2
		Unmarried	10	8.3
		Widow	09	7.5
		Total	120	100.0
4	Education Status	Illiterate	91	75.8
		Primary	08	6.7
		Secondary	06	5.0
		Intermediate	12	10.0
		Under Graduate	03	2.5
		Total	120	100.0
5	Type of Family	Nuclear Family	100	83.3
		Joint Family	20	16.7
		Total	120	100.0
6	Size of Family	Up to 3 members	63	52.5
		4-6 members	44	36.7
		7-9 members	13	10.8
		Total	120	100.0
7.	Type of House	Tiles	52	43.3
		Semi Pucca	07	5.8
		Hut	61	50.8
		Total	120	100.0

Sources: A field study

The table-1 presents the age group, sex, marital status, education status, type of family, family size, and type of house of sample respondents in the study areas. It is observed that out of the 120 sample respondents, 15.8 per cent are in the age group of 20 to 30 years; most of them (44.2 per cent) samples respondents are in the age group 31 to 40 years. Thirty-nine per cent of the sample respondents are in the age group of 41 to 50 years. Only 9 per cent of the respondents are in the age of group 51 to 60 years. It is found that on the gender details of the respondents, based on filed data out of 120 sample respondents, 45.8 per cent males and 54.2 per cent of the respondents are females. The marital status of sample respondents in the study area 84.2 per cent got married, and 10 per cent of the respondents is unmarried, remaining 8.3 per cent widow. Education is a critical parameter to create awareness and understand society. 75.8 per cent (91) of respondents'ill-literates. 12% completed up-secondary education, and another 12% completed intermediate and graduation. The type of family particulars of the sample respondents observed from the study that 83.3 per cent of respondents followed the nuclear family system, and the rest, 16.7 per cent of the respondents, said they are in a "joint family system". The table presents the size of family particulars of the respondents. Out of 120 samples, 52.5 per cent of sample respondents are in a small family group (Up to 3), and 36.7 per cent of the sample respondents are in a medium-size family (4 to 6 Members). Only 10.8 per cent of the sample respondents are in prominent families (7 to 9 Members).

The table reveals that more than 50.8% (61 respondents) live in huts, 52 respondents (43.3%) live in tiles houses, and the remaining 5.8% live in semi-pucca houses in the study areas.

Table-2 Economic Conditions of Sample Respondents

S.NO	Variables	Parameters	Frequency	Percentage
1	Occupation	Daily Labour	48	40.0
		Agriculture	69	57.5
		Employee	01	0.8
		Others	02	1.7
		Total	120	100.0
2.	Agriculture working day (pm)	20 Days	82	68.3
		25 Days	30	25.0
		30 Days	06	5.0
		Not Applicable	02	1.7
		Total	120	100.0
3.	Earning per month	Below 1500	05	4.2
		1500-2000	20	16.7
		2000-2500	41	34.2
		3000-3500	22	18.3
		Above 4000	32	26.7
		Total	120	100.0
4.	Possess land	Yes	91	75.8
		No	29	24.2
		Total	120	100.0
5.	How much land	Below2 Acres	54	45.0
		3-4 Acres	27	22.5
		5-7Acres	10	8.3
		Above 10n Acres	01	0.8
		Landless	28	23.3
		Total	120.	100.0
6.	Type of land	Irrigated	02	1.7
		Non-irrigated	90	75.0
		Not applicable	28	23.3
		Total	120	100.0
7.	Do you have debt	Yes	94	78.3
		No	26	21.3
		Total	120	100.0
8.	Purpose of debt	Marriage	25	20.8
		Ceremonies	15	12.5
		Health Problem	24	20.0
		Land purchase	30	25.0
		Not applicable	26	21.7
		Total	120	100.0
9.	Source of debt	Moneylenders	47	39.2
		Friends & Relatives	03	2.5
		Landlords	02	1.7
		Banks	42	35.0
		Not Applicable	26	21.7
		Total	120	100.0

Sources: Field study

The table-2 presents the information of sample respondents in the study areas, i.e., occupation, agricultural working days, earning per month, possession of land, type of land, debt details, including the purpose of debt and source of debt. The occupational distribution of the sample respondents forty-eight per cent (48 respondents) of the sample respondents working as a daily labour. Most of the respondents are depending on agricultural practices for their livelihood. In the study area, 57.5 (69 respondents) per cent of the sample respondents depends upon agriculture. Only one respondent is a regular employee, and two respondents are doing other (Business) activities. More than 68.3 per cent of sample respondents find work in agriculture for at least 20 days, and 25 per cent of sample respondents find work in agriculture for 25 days, and five per cent of sample respondents are employed all days of the month.34.2 per cent of sample respondents are earned rupees 2000/- to 2500/ per month, 26.7 per cent getting rupees above 4000/-, 18.3 per cent are earning rupees 3000/- to 3500/- another 16.7 per cent of sample respondents earned rupees 1500 to 2000/- and remaining four per cent are earning below 1500 per month. The land is considered the most critical aspect of production, especially agriculture production, and enables long term food security. Out of the 120 sample respondents, 75.8 per cent have agricultural land, and 24.2 per cent of respondents do not have land. The majority of the respondents have a small size of landholding. Forty-five per cent of sample respondents possess below 2 acres of land, and 22.5 per cent of respondents possess 3 to 4 Acres of land, 8.3 per cent possess 5 to 7 acres of land and, 0.8per cent of land respondents possess above 10 acres of land in the study area. Surprisingly 23.3 per cent of respondents are landless. Only 1.7per cent of land is under irrigated, and the rest of 75per cent of land is non-irrigated. 78.3 per cent of respondents possess debt. 21.7 per cent of respondents do not have debt. Twenty per cent of respondents spent on productive purposes like land purchase. Nearly 33.3 per cent of respondents get debt for marriages and ceremonies—another 20 per cent for a health problem. The source of debt examined during the field survey indicated in the table ismoneylenders, followed by banks and friends.

Table-3 Health Conditions of Sample Respondents

S.No	Variables	Parameters	Frequency	Percentage
01.	Do you have any health problem (Specific)	Yes	43	35.8
		No	77	64.2
		Total	120	100.0
02.	What are the health problem (Specific)	Anemia	04	3.3
		TB	06	5.0
		Asthma	07	5.8
		BP	23	19.2
		Diabetic	01	0.8
		Heart (CVD)	02	1.7
		No Health problems	77	64.2
		Total	120	100.0
03.	What health General Problems	Fever	44	36.7
		Headache	12	10.0
		Stomach pain	06	5.0
		Malaria	23	19.2
		Irregular periods and pain	06	5.0
		Cough and cold	05	4.2
		No health problems	24	20.0
		Total	120	100.0
04.	Go to the hospital while pregnant	Yes	50	41.7
		No	70	58.3
		Total	120	100.0
05.	Go to the hospital for delivery	Yes	52	43.3
		No	68	56.7
		Total	120	100.0
06.	Do you have health Facilities	RMP	88	73.3
		Special Camps	18	15.0
		Not Applicable	14	11.7
		Total	120	100.0

Sources: Field study

The table-3 shows that the health conditions of sample Adivasis respondents. 35.8 per cent of the respondents suffering from different types of health problems. i.e., Anaemia, Tuberculosis (TB), Blood pressure (BP), Asthma, Diabetic, and Cardiac Vascular Disease (CVD)**.** 66.7 per cent of respondents do not have health problems. The table further shows that 80 per cent of respondents are facing general health problems due to lack of sanitation, lack of clean and neat environment. 36.7 per cent of Adivasis suffering from fever, followed by 19.2% malaria and 10% headache, another 5% stomach pain and irregular periods. The remaining 4.2% cough and cold. The quality of healthcare depends on the availability and accessibility of hospital facilities. As the field data shows that there is no hospital facility in the study area. The respondents are mainly depending upon a registered medical practitioner (RMP) and occasionally special health check-up campstheir percentages 73.3% and 15% respectively.

Table-4 Sanitation facilities of Sample Respondents

S.No	Variables	Parameters	Frequency	Percentage
01.	Do you have toilet facilities	Yes	105	87.5
		No	15	12.5
		Total	120	100.0
02.	If no, where do you go	Open fields	14	11.7
		Not applicable	106	88.3
		Total	120	100.0
03.	Do you carry water for going open fields	Yes	08	6.7
		No	04	3.3
		Not applicable	108	90.0
		Total	120	100.0
04.	Do you face any problems (open field)	Yes	22	18.3
		No	98	81.7
		Total	120	100.0
05.	What type of problems	Physical abuse	07	5.8
		Snakebite	09	7.5
		Scorpio bite	06	5.0
		Insects	07	5.8
		Never go open field	91	75.8
		Total	120	100.0
06.	Do you use Sanitary Napkins	Yes	41	34.2
		No	60	50.0
		Do not know	19	15.8
		Total	120	100.0
07.	If not reasons	No buying capacity	19	15.8
		Comfort with cloths	41	34.2
		Do not know	22	18.3
		Not Applicable	38	31.7
		Total	120	100.0
08.	Do you have Clean and Neat Environment	Yes	11	9.2
		No	109	90.8
		Total	120	100.0
09.	If no Reasons	Stagnated	52	43.3
		Un-useful plants	08	6.7
		Un-clean Environment	51	42.5
		Clean And neat	09	7.5
		environment	120	100.0
		Total		

Sources: Field study

The above table presents the toilet facility available in the study area. 87.5 per cent of the respondents have a toilet facility in their home; using toilets prevents germs from getting into the environment and protects the whole community's health. Moreover, 12.5 per cent of respondents do not have a toilet facility in their home. They goto open Fields (Open defecation). Open defecation can pollute the environment and cause health problems and diseases. Seven per cent of the respondents carry water for going open fields, and 4 per cent do not carry water for open defecation. While going to the open field, the respondents are sometimes facing different kinds of problems, 7 per cent of the respondents have facing physical abuse problems, and 9 per cent of respondents face snakebite and 6 per cent scorpion bite and 7 per cent Insect's bite. Women and adolescent girls are in good health by using sanitary Napkins. Out of the 120 sample respondents, 30.4 per cent of the respondents using sanitary napkins, and 50 per cent of respondents do not use sanitary napkins.

A clean and neat environment is essential for healthy living. The field study survey found that 90.8 per cent houses do not have the proper clean and neat environment, and only 9.2 respondents have a clean and neat environment. 43.3 per cent of the house surroundings are water stagnated, 6.7 per cent of the un-useful plant grown, and 42 per cent of respondents live in unhygienic environmental conditions.

Table -5 Sanitation Habits ofSampleRespondents

Sl. No	Variables	Parameters	Frequency	Percentage
01.	Do you wash hand after toilet	Yes	107	89.2
		No	13	10.8
		Total	120	100.0
02.	If yes	Always	88	73.3
		Sometimes	17	14.2
		Never	15	12.5
		Total	120	100.0
03.	If no reasons	Do not have awareness	13	10.8
		I don't know the importance	02	1.7
		Not Applicable	105	87.5
		Total	120	100.0
04.	Do you wash hand coming from outside	Yes	118	98.3
		No	02	1.7
		Total	120	100.0
05.	If yes	Always	96	80.0
		Sometimes	22	18.3
		Rarely	02	1.7
		Total	120	100.0
06.	Do you wash hand before eating	Always	115	95.8
		Mostly	02	1.7
		Sometimes	03	2.5
		Total	120	100.0

Sources: Field study

The table illustrates that how many respondents wash their hands after the toilet. 89.2 per cent of the respondents havewashed their hand after toiletand 10.8 per cent of the said No. 73.3% respondents wash their hands always, 14.2% sometimes and remaining 12.5% of the respondents never wash hands after the toilet. 10.8 per cent of the respondents do not have awareness, and 1.7 per cent respondents do not know the importance of washing hands after toilet. The table exhibited that 98.3 per cent of the respondents have washed their hands when coming outside. Only 2 per cent of the respondents have rarely washed their hands. As per the field data, 2 per cent of the respondents have rarely washed their hands. Eighty per cent of the respondents have always washed their hands when coming outside, and 22 per cent only some times. Washing hands before eating a meal is a simple method infection prevention method. Without washing hand wash, the bacteria and germs left on fingers and palms can be transferred to the inside of the mouth, which can cause illness. 95.8 per cent of the respondents always wash their hands before eating food, and 2 per cent of the respondents mostly wash their hands, and 3 per cent sometimes wash their hands before eating food.

To examine the impact of different socio economics factors on open defecation, it is proposed to study their inter relationships by cross tabulating the responses about these factors and also apply chi-square test. In accordance with the stated objectives of the study the following hypotheses are tested on the basis of chi-square test for the empirical data.

Hypotheses-1:

Null Hypothesis: H0: There is no relationship between poor economic conditions (occupation, earnings per month and possession of land) and toilet facility/ open defecation.

Alt. Hypothesis: H1: Poor Economic conditions compel them to go for open defecation.

To answer the question if poor economic conditions, (occupation, earnings per month and possession of land) compel the respondent tribals to go for open defecation, we have collected their responses on these variables; cross tabulated and presented them in the following three tables (tables 1,2 and 3) along with chi-square statistic. Since the variables are categorical (Yes/No) we have computed the chi-square to test if the relationship is due to chance or statistically significant.

Table-1(a): Cross-tabulated responses between Occupation and Toilet facility

Variables		Do you have Toilet Facilities		Total
		Yes	No	
Occupation	Labour	42	6	48
	Agriculture	61	8	69
	Employee	1	0	1
	Others	1	1	2
Total		105	15	120

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.766[a]	3	.429
N of Valid Cases	120		

a. 4 cells (50.0%) have expected count less than 5.

The minimum expected count is .13

Figures in table-1(a) show that there no significant variation of toilet facility among different occupations and also the data is inadequate as per the requirement of chi-square test. As the computed value of chi-square 2.766 is not significant at chosen level of 0.05 we are constrained to accept the null hypothesis.

Table-1(b): Cross-tabulated responses between Earnings per month and Toilet facility

Variables		Do you have Toilet Facilities		Total
		Yes	No	
Earning Per Month	Below 1500	4	1	5
	1500-2000	20	0	20
	2000- 2500	39	2	41
	3000-3500	17	5	22
	Above 4000	25	7	32
Total		105	15	120

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.967[a]	4	0.041
N of Valid Cases	120		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .63.

The figures presented in table 1(b) show that there is a significant positive relationship between monthly earnings and having toilet facility. In other words respondents having more earnings are having the toilet facility. The chi-square is significant at 0.041and hence we reject the null hypothesis and accept the alternative hypothesis.

Table-1(c): Cross-tabulated responses between Possession of land and Toilet facility

Variables		Do you have Toilet Facilities		Total
		Yes	No	
Possess Land	Yes	83	8	91
	No	22	7	29
Total		105	15	120

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.736[a]	1	.030
N of Valid Cases	120		

It is clearly visible from the table 1(c) that most of the respondents having land also have toilet facility, which indicates a positive relationship between them and since chi-square value is significant at 0.03 we reject the null hypothesis and accept the alternative hypothesis.

Hypotheses-2:

Null Hypothesis: H0: There is no relationship between sanitation facilities and health problems of tribes.

Alt. Hypothesis: H1: Improved sanitation facilities lead to better health conditions.

Table-2: Cross-tabulated responses between Illness problems and Toilet facility

Variables		Illness problem		Total
		Yes	No	
Do you have Toilet Facilities	Yes	85	20	105
	No	11	4	15
Total		96	24	120

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.476[a]	1	0.490
N of Valid Cases	120		

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00. b. Computed only for a 2x2 table.

The empirical analysis of the sample data, as presented in table-2 does not provide any significant evidence to support the claim that toilet facility ensures that there will be no health problems. 85 out of 105 respondents having toilet facility are still suffering from illness problems. The chi-square value is significant at 0.49 and hence we accept the null hypothesis because illness may be due to other factors.

Hypotheses-3:

Null Hypothesis: H0: There is no relationship between sanitation facilities and women dignity & quality of life.

Alt. Hypothesis: H1: Improved sanitation facilities enhance women's dignity and quality of life.

Table-3(a): Cross-tabulated responses between Toilet facility and Quality life

Variables		Toilet Makes Quality Life		Total
		Yes	No	
Do you have Toilet Facilities	Yes	104	1	105
	No	1	14	15
Total		105	15	120

Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	102.411[a]	1	0.000
N of Valid Cases	120		

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.88.
b. Computed only for a 2x2 table.

The relationship between toilet facility and improvement in quality of life is strongly positive as is evident from the data in table 3(a), in the sense toilet facility improves the quality of life as per the opinion of the respondents. As the chi-square is significant a 0.00 level we reject the null hypothesis and accept the alternative hypothesis.

Table-3(b): Cross-tabulated responses between Toilet facility and dignity in life

		Toilet Makes Dignity		Total
		Yes	No	
Do you have Toilet Facilities	Yes	104	1	105
	No	1	14	15
Total		105	15	120

Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	102.411[a]	1	0.000
N of Valid Cases	120		

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.88.

b. Computed only for a 2x2 table

The cross tabulated responses presented in table 3(b) show that having toilet facility strongly ensures dignity in life. As the significance level of chi-square is 0.00 we reject the null hypothesis and accept the alternative hypothesis.

Sanitation related issues faced by Women respondents and evidence from the field.

The study has noted opinions expressed by respondents as they had faced sanitation-related problems five years ago when they don't have toilet facilities in their house premises as case studies, and the same has been presented below;

Case Study-1

Kavitha is 32 years old, working as labour got married having two kids, they do not have any land resources for cultivation, un season she used to go to the forest to collect forest produce due to the meagre economy able to construct toilet within house premises. She usually goes to the toilet on the open defecate evening, sometimes early morning, one fine evening she went open defecation. She got insect bites, immediately she runs away to home and checks the status and confirmed some insect bitted and approached RMP (Registered Medical Practitioner), got medicines for a week but suffered lot nearly two months from fever and swelling thighs. It was cost almost rupees 7000.00 (seven thousand).

Case Study-2

Lack of sanitation facilities in the rural and tribal villages creates numerous problems in general and women in particular. A tribal woman has faced problems related to a sanitation facility. When she was 20 years old, she had a diarrhoea problem. They do not have a toilet facility in their house premises. She frequently went for open defecation due to diarrhoea issues. One fine morning she was unable to even walk to the hospital. She got completely ill and sick, which leads to her gynaecological problem- pain in the abdominal, irregular periods, during discharge with bad smell and anaemia. She suffered nearly three years and spent an amount of Rs. 20,000/. It revealed by Sarika, a 25 years old working wage-earner.

Case Study-3

Ramya is 25 years old, working as a labour, got married, blessed one kid; her husband also labours with a meagre economy like a hand to mouth. This family also goes to everyday open defecation in nearby fields. When she was a bachelor at the age of 19, Ramya faced physical abuse by her neighbour in a dark time. She explained to her parent that an incident took place the next day, but she could produce no evidence, and the culprit escaped. She was suffered more than three years from health as well as psychological fear. After four years, she got married.

Case Study-4

Sulochana is 35 years old, working as wage-labour married having three children. Her husband Raju also wage-labour both are working in the agricultural field. Their economic position is inferior and cannot offer construction of individual sanitary latrine in their house premises. Typically, ladies go evening for the toilet, and gents go to the morning toilet, sometimes gents go to another area, and ladies go to another area for open defecation. One day Sulochana faced a snake bite while open defecating. She ran immediately to her home and informed her husband; both went to the RMP doctor and from there to Government Civil Hospital to Bhadrachalam, got treatment, and was out of danger after one week she got discharged from hospital again working as everyday life. However, she had developed a psychological problem; she used to fear while going for open defecation every morning. After constructing an Individual Sanitary Pit Latrine, she is happy and feeling safe.

CHALLENGES

Most of the rural and tribal people don't have an awareness of and importance of sanitation. Therefore, they were not using the toilet and going for open defecation by exposing abuses and insects' bites. It has to be tackled by motivating them and create awareness among them about sanitation. Inequalities in access to sanitation compounded in tribal areas.

SUGGESTIONS

Based on the findings, the following suggestions are offered to address sanitation and women health problems. First, as revealed by the study, especially women in the study area, most of the respondents are illiterates and working has agriculture labour; they need awareness of how to use sanitation facilities and their significance in day-to-day life, including dignity. In addition, girls are suffering from privacy how to deal with menstrual hygiene.

CONCLUSION

Achieving universal access to a primary drinking water source appears within reach. However, universal access to basic sanitation will require additional efforts, and the efforts continue to eliminate open defecation. Therefore, the study focuses on creating awareness among Adivasis for utilizing sanitation facilities and the benefits of sanitation. In addition, the government has to provide regular health workers and medical team to make aware and get health check-ups as well.

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