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Original Research Article

Awareness about sanitary toilets in a rural area of north Karnataka, India: a cross sectional study

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ABSTRACT

Background: As improvement in sanitation is one of the goal among Millennium Development Goals, awareness and lack of sanitary toilet in rural areas is still a major public problem. The objectives were to study the awareness level about sanitary toilet in a rural area.
Methods: Study participants included 400 adults from Sonatti village of Belgaum district of north Karnataka. Pre-tested questionnaire was used to collect necessary information including socio demographic variables by house to house survey. Ethical clearance was obtained from IEC on human subjects of Jawaharlal Nehru Medical College, Belgaum. Informed consent was taken before collecting data from all the participants.
Results: In this study most of study participants 173 (43.3%) were aged between 18 to 30 years. Majority of 164 (41.0%) were farmers and most of them 197 (49.2%) belonged to Class IV socioeconomic strata. Only 3(0.7%) had a household latrine. About 80% of participants showed average knowledge, 50% of participants showed good attitude and 62% of participants showed average practice. Awareness of sanitary toilet use was significantly associated with higher socioeconomic status and higher education.
Conclusions: The present study revealed that awareness about sanitary latrine was very poor. Practice of open air defecation was very high. The overall assessment of participants revealed that there is a need to create more awareness regarding sanitary toilet use in rural areas.

Keywords: Awareness, Sanitary toilet, Rural

INTRODUCTION

Human excreta is one of the cause of environmental pollution and a potential source of infection. The health hazards of improper excreta disposal are soil pollution, water pollution, contamination of foods and propagation of flies thus resulting in the spread of diseases like typhoid, cholera, dysenteries, diarrheas, hookworm diseases, ascariasis, viral hepatitis and similar other intestinal infections.[1]

As majority (about 70%) of Indian population live in villages, the health of the rural population reflects general health of our country.[2] Sixty per cent of the "global total" that do not have access to toilets live in India, and hence are forced to defecate in the open. In actual numbers, sixty per cent translates to 626 million. This makes India the number one country in the world where open defecation is practiced. The next country, Indonesia with 63 million is a far second.[2]

According to 2012 update report of UNICEF and WHO, of 2.4 lakh gram Panchayats in India only 29000 are free of open air defecation.[4] According to 11th five year plan of India, rural sanitation coverage was only 1% in the 1980s. With the launch of central rural sanitation program in 1986, the coverage improved to 4% in 1988 and then increased to 22% in 2001. The program was modified as total sanitation campaign in 1999. Five hundred forty districts are covered under this program and the population coverage is expected to increase to about 35% by the end of the 10th plan.[3]

Although sanitation access is improving gradually in India since 2000, the progress made in this regard is too slow. If the current trend continues, India will not reach the Millennium Development Goals for sanitation and the world will not be able to achieve the target without the strong efforts made by the India. Clearly, mentioning the access to and use of sanitary toilet has become the first and foremost challenging priority in India.[4] In 2007, in Karnataka the coverage of household sanitary toilets has showed that by the end of march 2007 there were 36% households having sanitary toilets.[5] Hence this study was planned to know the awareness regarding sanitation in a rural area.

METHODS

This cross-sectional study was conducted in a selected rural area called Sonatti which has a population of 1043 residents. It comes under Vantamuri Primary Health Centre, which is the field practice area of Department of Community Medicine, J.N.Medical College, Belgaum, north Karnataka. The study was conducted between March 2014 to October 2014. The sample size of 400 was calculated using the formula n= pq/d2. Assuming that the prevalence (p) of knowledge about sanitary toilet use to be around 50%, q=100-p and d for error as 5% at 95% confidence interval. A pilot study was conducted in the first week of March 2014 on 10% of the sample size which comes to 40 participants. They were selected randomly to ascertain the validity of the questionnaire and feasibility of the study. All the adults above 18 years from each household, who were permanent residents of the village were selected by simple random sampling technique using computer generated random table method. Informed consent was taken from the participants before the study. A pre-designed and pre-tested questionnaire was used to collect the data which included various questions regarding the knowledge, attitudes and practices related to their toilet use. For Knowledge assessment, Mean Standard Deviation of less than or equal to 2 was considered as poor, 3-4 as average and more than 4 as good. For Attitude, Mean Standard Deviation of less than or equal to 7 was considered as poor, between 8-9 as average and more than or equal to 10 as good. Coming to Practices, Mean Standard Deviation of 2 was considered as poor, 3 as average and 4-5 as good. Data was entered in Excel sheet and analyzed using SPSS 20 version software. Analysis was done using frequency and percentages. Chi-square test was used to find the association between important socio-demographic variables and knowledge, attitude and practices. Socio-economic status was calculated using Modified B. G. Prasad Classification using the average consumer price index for the year 2013. Ethical clearance was obtained from Institutional Ethical Committee of, J. N. Medical College, Belgaum.

RESULTS

In this study, most of study participants 173 (43.3%) were aged between 18 to 30 years and majority of 212 (53%) them were females. About 350 (87.5%) participants were illiterates. Only 37 (9.3%) had studied up to primary education followed by 12 (3%) up to high school. About 164 (41.0%) were farmers, 118 (29.5%) were house wives, 109 (27.3%) were laborers. About 197 (49.2%) of the study participants belonged to Class IV, 171 (42.8%) to Class V, 32 (8%) to Class III. Majority of the participants were married (90.8%) and belonged to joint family (99.5%).

Table 1: Socio-demographic distribution of the study participants (n=400).

Socio-demographic variable	Number	Percentage
Age (in years)		
18-30	173	43.3
31-40	126	31.5
41-50	64	16.0
>50	37	9.2
Sex		
Male	188	47.0
Female	212	53.0
Marital status		
Married	363	90.8
Unmarried	27	6.8
Widow	10	2.4
Type of family		
Nuclear	2	0.5
Joint	398	99.5
Education		
Illiterate	350	87.5
Primary	37	9.3
Secondary	13	3.2
Profession		
Farmer	164	41.0
Housewife	118	29.5
Daily wage workers	109	27.3
Business	4	1.0
Private sector	4	1.0
Government employee	1	0.3
Socioeconomic status		
Class III	32	8.0
Class IV	197	49.2
Class V	171	42.8

The overall knowledge was average among 316(79%) of the participants followed by poor (18%) and good levels

(3.0%). Attitude regarding sanitary toilet was good among 200(50.0%) followed by average (27.3%) and poor level (22.8%). Coming to practices, majority 248(62%) were having average levels followed by poor (29.5%) and good levels (8.3%).

When we compared the important socio-demographic variables like age, sex, education level and socio-economic status with knowledge, attitude and practices, it was found that, the participants who were less educated and belonged to low socioeconomic status had poor knowledge about the use of sanitary toilets. Similarly, as the age progressed, the attitude regarding toilet use changed from negative to positive. There was a positive attitude about use of sanitary toilet use in higher socioeconomic status people than low socioeconomic ones. It was observed that, people in the higher age group used toilets than those in lesser age group. Participants who were educated and those who belonged to higher socioeconomic status were using sanitary toilets than those who were illiterates and poor.

Table 2: Distribution of study participants according to their knowledge about sanitary toilets.

Knowledge questions	Frequency	Percentage
Is there any advantage of household toilet?	302	75.5
Can household toilet improve personal hygiene?'	308	77
Does household toilet improve health?	304	76
Is there any disadvantage of household toilet?	174	44
Is household toilet costly to maintain?	1	0.2
Did you hear any advice about use of household toilet?	0	0
Did ASHA worker give you information about sanitation & latrine?	0	0
Are you aware of any toilet provision services?	0	0
Is there any harmful effects of open defecation?	28	07
Can toilet avoid diarrhea?	10	2.7
Is Polio caused by open defecation through fecal contamination?	0	0
Can toilet causes any disease?	19	4.8

Table 3: Distribution of study participants according to their attitude about sanitary toilets.

Attitude questions	Frequency	Percentage
Can household toilet provide you privacy?	400	100
Can household toilet improve your dignity?	309	77.2
Is household toilet consuming more water?	295	73.8
Is there any stigma related to practicing household toilet?	400	100
Do you want to own a household toilet?	293	73.3
Do you feel it's too expensive to construct a toilet?	387	96.7
Do you want to use household toilet regularly?	110	27.5
Is it necessary to own a household toilet?	62	15.5
Do you feel comfortable going open air defecation?	70	17.5
Do you stop going open air defecation if household toilet made available?	338	15.5
Do you want to utilize public toilet if made available?	0	0
Do you feel discomfort to use public toilet?	400	100
Do you suggest anybody to use household toilet?	6	1.5
Is lack of water is the reason for not using toilet?	263	65.8
Is lack of information is the reason for not constructing household toilet?	33	8.2

Table 4: Distribution of study participants according to their practices.

Practice questions	Frequency	Percentage
Do you own a household toilet?	3	0.8
Do you practice open air defecation?	397	99.8
Do you have public toilet in your village?	0	0
Do you practice hand washing after each defecation?	400	100
Do you practice hand washing using soap?	33	8.2
Do you were footwear while going open defecation?	281	70.2
Do you have source of water in your home?	26	6.5
Do you dispose off excreta properly after defecation?	1	0.2

Table 5: Distribution of the study participants according to their overall awareness regarding sanitary toilets (n=400).

Awareness criteria	Number	Percentage
Knowledge		
Good	12	3.0
Average	316	79.0
Poor	72	18.0
Attitude		
Positive	200	50.0
Acceptable	109	27.3
Negative	91	22.8
Practices		
Good	33	8.3
Average	248	62.0
Poor	119	29.7

Table 6: Association between key socio-demographic variables and knowledge regarding sanitary toilets in study participants (n=400).

Socio-demographic factors	Knowledge				Chi-Square test	P value
	Good	Average	Poor	Total		
Age (in years)						
18-30	9	131	33	173	6.690	0.350
31-40	3	101	22	126		
41-50	0	53	11	64		
>50	0	31	6	37		
Sex						
Male	7	151	30	188	1.151	0.468
Female	5	165	42	212		
Education						
Illiterate	0	282	68	350	12.858	0.001
Primary	8	26	3	37		
Secondary	4	8	1	13		
Socioeconomic status						
Class III	7	21	4	32	46.735	0.001
Class IV	3	165	29	197		
Class V	2	130	39	171		

Table 7: Association between key socio-demographic variables and attitude regarding sanitary toilets in study participants (n=400).

Socio-demographic factors	Attitude				Chi-Square test	P value
	Positive	Acceptable	Negative	Total		
Age (in years)					21.131	**0.002**
18-30	98	41	34	173		
31-40	44	40	42	126		
41-50	34	19	11	64		
>50	24	09	04	37		
Sex					2.936	0.230
Male	102	49	37	188		
Female	98	60	54	212		
Education					4.048	0.400
Illiterate	172	93	85	350		
Primary	20	12	05	37		
Secondary	8	4	1	13		
Socioeconomic status					34.462	**0.001**
Class III	19	08	05	32		
Class IV	85	78	34	197		
Class V	96	23	52	171		

Table 8: Association between key socio-demographic variables and practices regarding sanitary toilets in study participants (n=400).

Socio-demographic factors	Attitude				Chi-Square test	P value
	Positive	Acceptable	Negative	Total		
Age (in years)						
18-30	26	109	38	173	32.080	<0.001
31-40	6	67	53	126		
41-50	0	48	16	64		
>50	1	24	12	37		
Sex						
Male	18	126	44	188	6.998	0.030
Female	15	122	75	212		
Education						
Illiterate	4	228	118	350	191.25	0.001
Primary	22	15	0	37		
Secondary	7	5	1	13		
Socioeconomic status						
Class III	14	16	2	32	143.212	<0.001
Class IV	17	157	23	197		
Class V	2	75	94	171		

DISCUSSION

This study was conducted to know the awareness level regarding sanitary toilets in a remote rural village of north Karnataka. Most of study participants 173 (43.3%) were aged between 18 to 30 years. A study from Pune, Maharashtra recorded majority (67.8%) of participants were in the age group of more than 50 years.[6] In a study from Mtawara, Tanzania, more than half (54.8%) were aged in between 40-49.[7] In our study, majority of the participants (53%) were females which was different from another study where majority of participants were males (79.1%).[7] Majority 350 (87.5%) of the participants were illiterates. A study from rural Bangladesh reported 55.3% had attended school at some point of time.[8]Almost all the study participants belonged to low socioeconomic status which was similar to other study conducted in Ethiopia.[9]

Only 3(0.7%) participants had a household latrine which was a cause of concern. Studies have shown that, even in remote rural areas, latrine coverage is better.[10-12]There is evidence to show that after the implementation of sanitation drive, the percentage of households with latrine increased from 8% to 66% in one year in rural India.[13]

In our study, almost all of them 397(99.2%) were practicing open defecation. Many studies conducted in India and African countries have similar finding which will guide the international agencies to focus their efforts in these areas.[12-14]

In our study of 400 participants all participants were practicing hand washing. Out of this only 33(8.2%) use soap while hand washing after defecation. A study from Maharashtra, India showed that hand washing with soap and water after defecation was practiced by 38%.[13] Most of them (70.1%) were using footwear while going for defecation which was similar to another study in Bangladesh.[15]

All participants opined that having a sanitary latrine provides them the privacy**.** Similar findings were observed in other studies conducted in African countries.[16,17] None of the study participants felt that having a sanitary privy is a stigma which was quite different from other study where about 75% of the participants felt that having a privy was a stigma.[12]

It was observed that 293 (73.2%) participants were willing to own a household toilet and only about 27% wanted to own it regularly. A baseline survey conducted in India revealed that about 51% of respondents were willing to own a household latrine and (71.7%) were willing to use household toilet regularly.[18] A study from Orissa India, reported that about 47% of the members reported using their latrines regularly at all times for defecation.[8] Although most of them were practicing open air defecation, about 82% were not comfortable by it. A study from Tamil Nadu, India reported that 90% were 'habituated' to open defecation and about 5% of them felt that it was not culturally feasible to have a privy.[19]

About 74% of the participants felt that there were some advantages of having a sanitary privy. Seventy seven percent thought that it will improve their personal hygiene and overall health. Scarcity of water was one of the main reason for not having a privy as reported by 34% of the participants. Other studies have shown that

easy access, privacy, convenience, cleanliness and health benefits as advantages and bad odour with difficulty in maintenance as the disadvantages.[17, 20] In this study only 28 (7%) of participants know the harmful effects of open air defecation. This finding is somewhat closer to the study which is done in Maharashtra reported that only 14.5% were aware of harmful effects of open air defecation.[13]

In our study, we found that, participants who were well educated and in the higher socioeconomic strata had a better knowledge about the importance of sanitary toilet. Attitudes changed as the age progressed and with the good living standards. Most significantly, it was found that participants who were old, with good education background and in a higher socioeconomic status were more like to follow good toilet practices. Similar studies conducted in South-East Asian countries also have shown that higher education and socio-economic status will affect the sanitary toilet use in a positive way.[8,21,22]

CONCLUSION

The present study showed that the knowledge, attitude and practices regarding importance of sanitary toilet is very relatively low in a study population. Majority of the villagers were practicing of open air defecation. Most of the households did not have a sanitary privy. There is a need to impart health education regarding importance of use of sanitary toilet and motivate the community to use them.

Recommendations

Based on the study findings the following recommendations would help to decrease the burden of fecal borne diseases.

- People especially small children should be educated on importance of household sanitary toilet for continuing use to prevent fecal borne diseases in the community.
- Government and other NGO's should be sensitized for implementation of toilet provision services.
- Effective information, education and communication activities will help to prevent the risk of getting fecal contamination of food and water.

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