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Original Research Article

Socio-cultural determinants of open defecation in rural households of Perambalur district, Tamil Nadu

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ABSTRACT

Background: In many areas of the world, including India, open defecation still remains the predominant norm and poses one of the biggest threats to the health of the people particularly in rural areas.
Objectives were to study the prevalence and socio-cultural determinants of open defecation in rural area of Perambalur district.
Methods: The present cross-sectional was done in a three randomly selected villages falling under rural field practice area of Department of Community Medicine of Dhanalakshmi Srinivasan Medical College and Hospital in Perambalur district (Tamil Nadu). Data was collected on 330 houses using pre-tested interview schedule developed using SBM-G questionnaire/schedule for ODF verification for household surveys which was modified for present study. Statistical analysis was done using Epi Info version 7 software.
Results: Most (89.1%) of the study participants were above 30 years of age. Majority of respondents (39.4%) were illiterate. Prevalence of open defecation was 78.8%. Only 70 (21.2%) houses were using household sanitary latrines. Various reasons reported for open defecation were unawareness about availability of public latrine (41.5%), inadequate water (15.3%), insufficient space for latrine construction (16.9%), inadequate money (10%), considering open defecation better (16.6%) and caste based discrimination (0.4%). The study found sex, education and occupation of head of family to be significantly associated with open defecation.
Conclusions: This study highlights the need for implementation well planned behavior change communication strategy to stop the menace of open defecation.

Keywords: Open defecation, Sanitation, Socio-cultural, Sanitary latrine

INTRODUCTION

Open defecation referred to the practice whereby people go out in fields, bushes, forests, open bodies of water, or other open spaces rather than using the toilet to defecate.[1] In India, around 626 million people practice open defecation. India accounts for 90 per cent of the people in South Asia and 59 per cent of the people in the world who practice open defecation.[2]

Open defecation perpetuates a vicious cycle of disease and poverty. The countries where open defection is most widespread have the highest number of deaths of children aged under 5 years as well as the highest levels of malnutrition. In addition, open defecation also exposes women to the danger of physical attacks and encounters such as snake bites. Poor sanitation also cripples national development: workers produce less, live shorter lives, save and invest less, and are less able to send their children to school. Further, with a growing population and increasing agricultural cultivation and urbanization,

the number of spaces available for open defecation continues to reduce.[3]

The Government of India, through the Swach Bharat Mission has a target to make India "open defecation free" by 2019.[4] Current sanitation promotion methods and programs are not meeting the growing need for proper treatment of human waste around the world. Open defecation still remains the predominant norm and poses one of the biggest threats to the health of the people particularly in rural areas.[5]

The habit of indiscriminate fouling of the surroundings with human excrement is generations-old, and rooted firmly in the cultural behaviour of the village people.[6] Awareness campaigns, media exposure, and pressure from school-age children, is some of the drivers of increased awareness towards behaviour change. Basis for a successful latrine promotion program required knowledge of the local area and people, selection of appropriate messages and technology, and community involvement.[7]

The present study was therefore, conducted in villages of Perambalur, Tamilnadu (India) with the following objectives: (1) to study the prevalence of open defecation and (2) to study the social determinants of open defecation.

METHODS

The present cross sectional was done in a three randomly selected villages falling under rural field practice area of Department of Community Medicine, Dhanalakshmi Srinivasan Medical College in Perambalur district (Tamil Nadu) during January to July 2013. These villages have been adopted by the medical college for training of under graduate in community medicine and for provision of health services to the villagers. The permission from head of institution and clearance from institutional ethics committee was obtained before conducting this study.

Data was collected by trained medical students using pre-tested interview schedule. Interview questions were prepared using SBM-G questionnaire/schedule for ODF verification for household surveys which was modified for present study.[8]

All the houses in the selected villages were included in the study. Total houses in the selected village were 434. It was planned to interview one member per house so total number of households required to be surveyed were 434. The investigator visited each household and conducted face-to-face interview with the head of the family using a structured questionnaire. One person (preferably the head of the family) was interviewed from each house. The purpose of the study was explained and informed consent was obtained before the interview started. Medical social worker came along with the interviewer to overcome the difficulty expected to occur in comprehending the local language (Tamil).

Some interviews were rescheduled as the interviewees were busy with other jobs at the stipulated time. The interviews lasted for 10-15 minutes.

All the questionnaires were manually checked and edited for completeness and consistency. Coding of the variables was done. The collected data was entered and analyzed in Epi Info version 6 software. Analysis was done by using appropriate statistical methods. The $p<0.05$ was taken as significant.

RESULTS

Overall response rate was 76.72% i.e. only 330 out of the 434 persons were available and consented to participate in study. Out of total 330 persons most (89.1%) of the study participants were above 30 yrs of age. Gender wise males (84.5%) outnumbered females. Majority of respondents (39.4%) were illiterate. Twenty one percent completed their education up to primary level. Similar percent of subjects completed their secondary schooling. Only 4.5% had completed their graduation or post-graduation studies. Most of study participants were laborers (43%) followed by farmers (31.2%), business/service (15.5%). Another 10.3% subjects were involved in household works. Annual income of most of the study subjects were less than Rs 50000 (Table 1).

Table 1: Socio-demographic profile of study participants (n=330).

Variable	Total	%
Age (in years)		
<30	36	10.9
30-50	151	45.8
>50	143	43.3
Sex		
Male	279	84.5
Female	51	15.5
Education		
Illiterate	130	39.4
Primary	70	21.2
High school	44	13.3
Secondary	71	21.5
Graduate and above	15	4.5
Occupation		
Household work	34	10.3
Labour	142	43.0
Farmer	103	31.2
Buisness/ Service	51	15.5
Annual Income (in Rupees)		
<50000	184	55.8
50000-100000	120	36.4
>100000	26	7.9

Prevalence of open defecation was (260 out of 330 subjects) 78.2 %. Only 70 (21.2%) houses were using household sanitary latrines. None of study participants reported using public latrine.

The study participants reported various reasons for open defecation. Most of the individuals (41.5%) were not aware about the available public latrine in the villages. Other reasons cited for not using public or household latrines were inadequate water (15.3%), insufficient space for latrine construction (16.9%), and inadequate money (10%), considering open defecation better (16.6%) and caste based discrimination (0.4%) (Table 2).

Table 2: Distribution of subjects according to reasons reported for open defecation (n=260).

Reasons for open defecation	Number	(%)
Not aware of the public toilet facility	108	41.5
Inadequate water for using latrine	40	15.3
Insufficient space latrine construction	44	16.9
Open defecation better	43	16.6
Inadequate money for latrine construction	26	10.0
Caste based discrimination	1	0.4

Study participants were asked about the perceived disadvantages of open-air defecation. Majority of subjects (35.2%) reported risk of getting diseases as perceived disadvantage of open-air defecation. Another 21.5% subjects perceived this act as unhygienic. Other perceived disadvantages were snake and insect hazard (10.3%), embarrassment (9.4%), foul odor (7.2%), fly breeding (8.2%), difficulty in rainy season (14.8%), and distance (4.5%) (Table 3).

Table 3: Perceived disadvantages of open defecation by study subjects (n=300).

Perceived disadvantages of open defecation	Number	(%)
Disease	116	35.2
Unhygienic	71	21.5
Embarrassing	31	9.4
Snake/insect hazard	34	10.3
Foul odor	23	7.0
Fly breeding	27	8.2
Difficulty in rainy season	49	14.8
Distance	15	4.5

The study found sex, education and occupation of head of family to be significantly associated with the practice of open defecation. Open defecation was more prevalent among females (90.2%) as compared to male (76.7%) participants. This association between sex and open defecation was found to be significant (X^2=3.92, df=1, p=0.047). Open defecation was significantly higher among illiterate subjects (93.1%) as compared to literate subjects (X^2=32.69, df=4, p<0.001). Similarly, open defecation was significantly higher among subjects engaged in labor (85.3%) or household work (87.3%) as compared to farmers (73.8%) or business/service (60.8%) work (X^2=18.64, df=3, p<001). The study didn't find significant association with age and income (Table 4).

Table 4: Association of socio-demographic factors and open defecation.

Variable	Open defecation (%) (n=260)	Use sanitary latrine (%) (n=70)	P value
Age (in years)			
<30	30 (83.3)	6 (16.7)	X^2=2.64 df=1 P=0.26
30-50	113 (74.8)	38 (25.2)	
>50	117 (81.8)	26 (18.2)	
Sex			
Male	214 (76.7)	65 (23.3)	X^2=3.92 df=1 P=0.047
Female	46 (90.2)	5 (9.8)	
Education			
Illiterate	121 (93.1)	9 (6.9)	X^2=32.69 df=3 P<001
Primary	52 (74.3)	18 (25.7)	
High school	34 ((77.3)	10 (22.7)	
Secondary	45 (63.4)	26 (36.6)	
Graduate and above	8 (53.3)	7 (46.7)	
Occupation			
Household work	29 (85.3)	5 (14.7)	X^2=18.64 df=3 P<001
Labour	124 (87.3)	18 (12.7)	
Farmer	76 (73.8)	27 (26.2)	
Business/ service	31 (60.8)	20 (39.2)	
Income			
<50000	148 (80.4)	36 (19.6)	X^2=1.73 df=1 P=0.42
500000-100000	94 (78.3)	26 (21.7)	
>100000	18 (69.2	8 (30.8)	

DISCUSSION

In the present study, the prevalence of open defecation is very high 78.8%. This finding is similar to the national figure in rural India (76%) and also to a study conducted in Maharashtra, India where prevalence of open defecation was 81.9%.[10,11]

We also tried to find out the cause for non-utilization of sanitary latrine. In spite of availability of public latrine in

the villages of our study a high percent (41.5%) of subjects were not aware about the facility. Another 15.3% reported that insufficient water availability at public latrine as the reason for not using public latrines which is similar to result of study done in Maharashtra, Haryana and Tamilnadu.[11-13] This indicates that people were not willing to take responsibility of maintaining the cleanliness of these latrines.

Around 17% of people felt that open defecation much more comfortable and better than using latrine which is similar to study in rural Maharashtra.[11] Another KAP study from north India and Tamilnadu reported fresh open air (64%) and morning walk (51%) as two top reasons perceived as main advantages of open by the open defecators.[12,13]

Insufficient space (16.9%) and inadequate money (10%) were other reasons cited for not constructing household sanitary latrine. Similar reasons were given in another study from Tamilnadu.[13]

Our study found that 35.2% of study subjects knew that various diseases can spread due to act of open defecation. Similarly study from Maharashtra found 34.7% subjects reporting fear of disease as a perceived disadvantage of open air defection.[11]

The significant social determinants of open defecation identified in our study were sex, education and occupation of head of family. Open defecation was higher when head of the family was female, illiterate, and doing labor or household work. An interventional study from Chandigarh observed that open defecation had significantly reduced and the awareness regarding diarrhea as hazard of unsafe water had improved significantly from 28.7% in baseline survey to 55.6% after awareness campaign.[14]

CONCLUSION

The prevalence of open defecation was 78.8 percentage. Sex, education and occupation of head of family were the significant social factors associated with open defecation.

This study highlights the need for implementation well planned behavior change communication strategy to stop the menace of open defecation.

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