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Original Research Article

Factors associated with open air defecation in a rural field practice area of a medical college: a cross sectional study

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ABSTRACT

Background: Open defecation is the practice where people go out in fields, bushes, forests, open bodies of water or other open spaces rather than using the toilet to defecate. The health hazards due open air defecation are soil and water pollution, contamination of foods and propagation of flies which results in the spread of diseases like typhoid, cholera, dysenteries, diarrheas, hookworm diseases, ascariasis, viral hepatitis and other intestinal infections.
Methods: A cross sectional study was conducted at Singanodi village. 122 houses were selected for interview. One member from each household, preferably the head of the family was interviewed. The questionnaire included the socio-demographic features, practices about sanitary latrine usage and awareness about the diseases due to open air defecation. Data was entered in MS Excel and analysed using SPSS vs 20.
Results: In the study the prevalence of open air defecation was found to be 63.1%. Majority of the study participants (52.5%) had sanitary latrines in their houses. 15.6% of the household practices open air defecation in spite of having toilets in their homes. Significant association was found between education and overcrowding with open air defecation.
Conclusions: The study reinforces the importance of creating awareness about the importance of sanitary latrines and involvement of Government, NGO and communities is essential to stop open air defecation practices.

Keywords: Karnataka, Open air defecation, Rural area

INTRODUCTION

Open defecation is the practice where by 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 ninety per cent of the people in South Asia and fifty nine per cent of the people in the world who practice open defecation.[2] The health hazards due open air defecation are soil and water pollution, contamination of foods and propagation of flies which resulting in the spread of diseases like typhoid, cholera, dysenteries, diarrheas, hookworm diseases, ascariasis, viral hepatitis and other intestinal infections.[3] Sixty percent of the "global total" that do not have access to toilets live in India. As majority (seventy percent) of the Indian population live in villages and hence are forced to open air defecation. This makes India the number one country in the world where open defecation is practiced.[4] Open air defecation is widely prevalent in rural India and even today not more than 3% population has access to sanitary latrines. In the past efforts have been made by governmental and non-governmental agencies for popularize the sanitary latrines in Indian villages.[5] The government of India launched the Swach Bharat Mission (SBM) in 2nd October 2014, has a target to make India "open defecation free" by 2019.[6] For the successful latrine promotion program which requires the knowledge of the local area and people, selection of appropriate messages and technology and community involvent.[7]

Hence with this background the study was conducted to assess the prevalence of open air defecation and factors associated with it in the rural field practice area of a medical college.

Objectives

- To study the prevalence of open air defecation in a rural field practice area of a medical college.
- To study the factors associated with open air defecation in a rural field practice area of a medical college

METHODS

A cross sectional study was conducted among the residents of Singanodi Village which is the rural field practice area of Navodaya Medical college, Hospital and Research Centre, Raichur during 1st August to November 2019. People who are the resides for more than 6 months in that village were included in the study. Refugees, nomads, brick kiln workers and other temporary residents. Those whose house remain closed on three repeated visits were excluded from the study. Ethical clearance was obtained from Institutional Ethical Review Board. Informed consent was obtained from each respondent prior to the interview. A total of 122 houses were visited. The investigator had visited and interviewed from each household and conducted face-to-face interview (preferably with the head of the family) using a structured questionnaire. The questionnaire containing demographic characteristics such as age, sex, religion, education, occupation, socio-economic status, type of family and housing conditions. Socioeconomic status was classified according to modified B. G. Prasad classification.[8] Questions related to open air defecation and sanitary practices were taken from SBM-G questionnaire/schedule for open defecation free (ODF) verification for household surveys.[9] Data was entered in MS excel and presented in the form of frequencies. Analysis was carried out by chi square test to find out the association between open air defecation and factors associated with it.

RESULTS

In this study, 122 household were studied. Majority (44.2%) of the study participants were belonged to >51 years of age, males were more in number (59%). Majority of the participants were illiterates (72.9%) which was significantly associated with open air defecation. Majority of them were Farmers by occupation (84.5%), belonged to class III socioeconomic status and residing at joint families (49%) but no significant association was found between socio-demographic factors with open air defecation. The association of open air defecation with socio-demographic factors are explained in the Table 1.

In this study based on housing condition, majority of the participants were residing in their own houses (92.5%). Majority of the study participants were residing at detached houses (63.1%). Overcrowding was present in majority of the houses (53.0%) which was significantly associated with open air defecation. The association of open air defecation with housing conditions are explained in the Table 2.

Table 1: Association of socio-demographic factors with open air defecation.

Variables		Open air defecation		Total (122)	χ^2 value	P value
		Present	Absent			
		N (%)	N (%)	N (%)		
Age (yrs)	<30	12 (9.8)	11 (9.0)	23 (18.8)	5.07	0.79
	31-50	25 (20.5)	20 (16.3)	45 (36.8)		
	>51	40 (32.7)	14 (11.5)	54 (44.4)		
Sex	Male	45 (36.8)	27 (22.1)	72 (59.0)	0.29	0.510
	Female	32 (26.2)	18 (14.7)	50 (40.9)		
Education	Illiterate	59 (48.3)	30 (24.6)	89 (72.9)	7. 94	0.047
	Primary	9 (7.3)	0	9 (7.3)		
	High school	6 (4.9)	7 (5.8)	13 (10.7)		
	PUC	4 (3.3)	7 (5.7)	11 (9.0)		
Occupation	Farmers	64 (52.5)	39 (31.9)	103 (84.4)	0.27	0.472
	Non farmers	13 (10.7)	6 (4.9)	19 (15.6)		
S.E.S	Class II	11 (9.0)	10 (8.2)	21 (17.2)	3.64	0.302
	Class III	31 (25.4)	19 (15.5)	50 (40.9)		
	Class IV	24 (19.6)	14 (11.5)	38 (31.1)		
	Class V	11 (9.0)	2 (16.4)	13 (100)		
Type of family	Nuclear	25 (20.5)	23 (18.8)	48 (30.3)	0.27	0.402
	Three generation	10 (8.1)	4 (3.3)	14 (11.4)		
	Joint	42 (34.4)	18 (14.7)	60 (49.1)		
Total		77 (63.1)	45 (36.9)	122 (100)		

Table 2: Association of housing conditions with open air defecation.

Variables.		Open air defecation		Total (122)	χ^2 value	P value
		Present	Absent			
		N (%)	N (%)	N (%)		
Type of house	Own	68 (55.7)	45 (36.8)	112 (92.5)	2.77	0.91
	Rented	9 (7.5)	0	9 (7.5)		
Construction	Attached	26 (21.3)	19 (15.5)	45 (36.8)	0.87	0.22
	Detached	51 (41.8)	26 (21.3)	77 (63.1)		
Overcrowding	Absent	42 (34.4)	14 (11.5)	56 (45.9)	6.28	0.010
	Present	35 (28.6)	31 (25.4)	66 (54.0)		

In this study majority of the study participants had the toilet in their houses (52.5%) which is explained in the Table 3.

Table 3: Distribution of study participants based on availability of toilet in home.

Reasons	Frequency	Percentage (%)
Presence of toilet	64	52.5
Absence of toilet	58	47.5

In this study the participants reported various reasons for having toilets at home. Most of the participants (54.6%) were reported that having sanitary latrine is hygienic. Other reasons includes it is safe (50.0%), privacy (31.2%), convenient (15.6%) and others (7.1%). which is explained in the Table 4.

Table 4: Reasons for having toilets (n=64).

Reasons	Frequency	Percentage (%)
Convenient	10	15.6
Safety	32	50
Hygienic	35	54.6
Privacy	20	31.2
Others	5	7.1

The study participants reported various reasons for not having toilets. Majority of the participants (60.3%) were reported the cause was lack of money. Other reasons cited for not having toilets were they did not feel it's needed (29.3%), old practice (22.4%), considering open defecation is better (10.3%) and inadequacy of water (8.6%) . The reasons are explained in the Table 5.

Table 5: Reasons for not having toilets (n=58).

Reasons	Frequency	Percentage (%)
Inadequacy of water	5	8.6
Did not have money	35	60.3
OAD is better	6	10.3
Did not feel need	17	29.3
Old practice	13	22.4

Table 6: Practices related to open air defecation (n=122).

Variables	Frequency	Percentage (%)
Footwear usage		
Uses footwear during defecation	90	73.8
Non users of footwear during defecation	32	26.2
Open air defecation in spite of having toilet in home		
Practiced	19	15.6
Not practiced	45	36.9
Washing hands with soap and water after defecation		
Practiced	83	68.0
Not practiced	39	32.0
Knowledge regarding government benefit for construction of toilet		
Knows	54	44.3
Do not know	68	55.7
Awareness about diseases due to open air defecation		
Knows	10	8.2
Do not know	112	91.8

In this study majority of the study participants (73.8%) were users of footwear during defecation, practices open air defecation in spite of having toilet at home (15.6%), washes hand with soap and water (68.0%), do not have knowledge regarding government benefit for construction of a toilet and majority of the participants (91.8%) do not have knowledge regarding diseases transmitted through open air defecation. Practices related to open air defecation are explained in the Table 6.

DISCUSSION

In the study prevalence of open air defecation was 77 (63.1%). This is similar to study conducted by Bathija et al and Bharadwaj et al.[13,17] In this study majority of the study participants has sanitary latrine in their houses (52.5%). This is similar to study done by Panda et al.[11] In this study 15.6% of households practiced open air defecation in spite of having toilets in their homes. This is

similar to a study done by Venkateswarlu et al.[14] In this study majority of the study participants belongs to >51 years of age, males were more in number and no significant association was found with open air defecation.

In this study majority of the study participants were illiterates and significant association was found with open air defecation. This is similar to study done by Jeratagi et al, Kumar et al and Panda et al.[11,12,15] In this study majority of the study participants were farmers by occupations. In this study the reasons for using toilets includes most of the participants (54.6%) were reported that having sanitary latrine is hygienic. This is similar to study done by Batija et al.[13] The reasons for not utilizing toilets in this study were not having money'. In this study the majority of the study participants were wearing footwear during defecation. This is similar to study done by others.[15,16]

In contrast to this a study done by Venkateswarlu et al showed that majority of the study participants do not wear footwear during defecation. In this study majority of the study participants practiced hand washing with soap and water after defecation.[14] In this study majority of the study participants were unaware of Government facilities of construction for toilets. This is similar to study done by Kumar et al and Panda et al.[11,12]

CONCLUSION

The prevalence of open air defecation in this study was found to be 73.8%. Lack of money, did not feel the need of toilet, practice of going outside for defecation in spite of having toilet at home, old practice and lack of awareness about the diseases transmitted by open air defecation were the important reasons for open air defecation. Significant association was found between education of the participants and overcrowding with open air defecation.

Creating the awareness about the diseases transmitted by open air defecation, importance of sanitary latrine construction, hand washing practices with soap and water, involvement of local village bodies, private sector and NGO for construction of toilet facilities will help to reduce the open defecation practices.

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