

# A CROSS SECTIONAL STUDY ON THE USE OF SANITARY LATRINES AMONG RURAL POPULATION OF NORTHERN KARNATAKA.



## Original Research Article

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## ABSTRACT

**Background:** The world's remaining open defecation is increasingly concentrated in rural India. Countries which are having lower GDP than India including neighboring countries; have achieved much better progress in ending open defecation. There was a need to explore the reasons for this unhealthy practice prevalent in northern part of Karnataka and to recommend remedial measures.

### Objectives:

- To study the factors associated with open defecation practices in rural field practice areas of Sri Dharmasthala Manjunatheshwara College of Medical Science and Hospital, Dharwad.
- To assess the usage of sanitary latrines among rural population.

**Methodology:** A cross sectional study was conducted in rural health training centre, Yadwad from 18 June 2016 to 07 July 2016. Subjects were selected by Convenience sampling technique.

**Results:** A total of 200 subjects were interviewed, with 57.5% males and 42.5% females. 75.5% of the subjects had finished schooling and 19.5% of them were illiterate. 42% of them were from lower middle class and 30% of them from middle class. 59.5% of subjects had toilets at homes and 40.5% didn't have one. Among those who had toilets, only at 77.3% of the houses, everyone from the family used the toilets. The most common reason for not having a toilet was space constraint (54.3%). 66% of the subjects were aware of Swachh Bharat Abhiyan campaign. Factors like socio economic status, educational status and footwear usage habit had statistically significant association with the presence of toilets at home.

**Conclusion:** Intensified health education campaign, highlighting the benefits of using toilets may bring about beneficial attitudinal changes.

### Keywords:

Open defecation,  
 Swachh Bharat Abhiyan,  
 Toilet,  
 Rural population

## I. INTRODUCTION

India was one of the cradles of ancient civilization with well-developed sanitation facilities including disposal of human excreta. Indus valley civilization had well developed solid and liquid waste disposal facilities including human excreta<sup>1</sup>. India's relationship to sanitation and the environmental movement more broadly, is a function of India's colonial past and influence by Great Britain, as well as the Hindu caste system. Such cultural factors have, and continue to have, a role in shaping access to and willingness to construct sanitation facilities in India.<sup>2</sup> Before the influence of Great Britain, sanitation and health were given high priority in Indian society. In fact, the origins of the importance of sanitation and health in India date back to the Vedic Period (2500 BC): the Smritis, the oldest scriptures in Hindu religion, outlined the code of conduct for family and society. One of the Vedic-period literatures, the Manu Samhita, delineates proper sanitation and hygiene maintenance of Hindu followers. It calls for a holistic approach to internal and external cleanliness, with a particular attention given to spiritual health: "Believing in the omnipresence of God, the human body is treated as a temple where God resides so it is mandatory that the body should be kept clean."<sup>2</sup> However, sanitation's holistic representation advocated for in Hindu scriptures was slowly lost in pre-independent India, as it was no longer seen as a high national priority by the British Indian Government.<sup>2</sup>

Though we are closing in to celebrate the 70<sup>th</sup> Independence Day this year, the world's remaining open defecation is still increasingly concentrated in rural India. It is now clear that behaviour change must be the priority if progress on ending open defecation is to be made. While community-led strategies have proven effective in various developing countries context, there are serious reasons to question whether similar methods can work in rural India. Strict social hierarchies that continue to govern daily interactions in rural life even today, obstruct the spirit of cooperation upon which such methods rely. Additionally, caste-based notions of purity and pollution make the simple latrines used all over the developing world unattractive to rural Indians.<sup>3</sup>

Open defecation refers 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. The practice is rampant in India, and the country is home to the world's largest population of people who defecate in the open and excrete close to 65,000 tonnes of faeces into the environment each day<sup>4</sup>.

The Research Institute for Compassionate Economics (RICE) study found that out of 3,235 rural homes, 43% had a working toilet. Of those, over 40% had at least one member of the household who nevertheless opted to defecate in the open. When asked why, almost 75% said they did so because it was pleasurable, comfortable and convenient<sup>5</sup>.

The National Sample Survey Office (NSSO) under India's Ministry of Statistics and Programme Implementation (MOSPI) conducted the survey on "Swachhta Status" during May-June 2015. As per this survey 52% population in rural and 7.5% in urban still defecate in the open<sup>6</sup>.

Swachh Bharat Mission (SBM) is a national campaign by the government of India to clean streets, roads and infrastructure of the country. It aims to eradicate open defecation by year 2019, by constructing 12 million toilets in rural India. The key components of SBM Gramin include start up activities including preparation of state plan, construction of household toilets, construction of community sanitary complexes as well as construction of toilets in government schools and Anganwadi centres<sup>7</sup>.

Open defecation is more prevalent in rural areas compared to urban. Majority of the population residing in rural India, so this study was carried out to assess the factors associated with open defecation practices and the usage of latrines among the rural subjects of Northern Karnataka.

## II. METHODOLOGY

The present study was a cross sectional study, carried out among the subjects from rural field practice areas of Sri Dharmasthala Manjunatheshwara College of Medical Science and Hospital (SDMCMS&H), Dharwad, Karnataka. Patients who visited the outpatient department of rural health training centre (RHTC), located in the village 'Yadwad' was selected for the study. The RHTC caters to the health need of a population of nearly 31,000 from 11 villages including Yadwad. The study included those patients who were willing to be a part of the study, aged above 18 years. And only one person was interviewed from a household, preferably the head of the family if available. The study was conducted during the months of June and July, 2016. The study sample size was 200. The subjects were selected among the patients visiting the RHTC within the study period by convenient sampling method. The study instrument used was a pre designed and pre tested questionnaire, which had the details on basic socio economic information of the individual and the family, availability of toilet at home, knowledge about the health hazards of open defecation, various factors associated with and responsible for open defecation. All the subjects were interviewed by the principal investigator in the OPD premises. The purpose of the study was explained before each interview. Informed consent was obtained from the study participants. Each interview lasted for a little more than 10 minutes.

## III. STATISTICAL ANALYSIS

All the questionnaires were manually checked for completeness and consistency at the end of interview. Then variables were coded appropriately for the computer data entry. The collected data was entered in Epidata data entry client, version 3.0. The software SPSS, version 22 was used for the analysis. Interpretation of the collected data was done by using appropriate statistical methods like percentage, proportion and Chi square test.

## IV. RESULTS

Among the 200 study subjects, male were 115 (57.5%) and 85 female (42.5%). Majority of the subjects were from Yadwad village, constituting 74 (37%) of the subjects. Lakmapur village subjects were 37 (18.5%), Shibargatti village subjects were 60 (30%) and subjects from other smaller villages accounted to 29 (14.5%). The number of subjects aged less than 25 years accounted to 50 (25%), subjects aged between 26-50 years-were 113(56.5%) and those aged more than 50 years were 37(18.5%). The mean age of the subjects was 37.23±14.89 years.

**Table 1: Distribution of Educational status and Occupations of the study subjects.**

Variables	Frequency	Percentage
<i>Educational status</i>		
Illiterate	39	19.5
Under matriculate	121	60.5
Matriculate	30	15
Graduate & Post graduate	10	5
<i>Occupation</i>		
Agriculture	84	42
Business	16	8
Semi & Unskilled workers	5	2.5
Housewife	37	18.5
Others	58	29
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 2: Distribution of socio economic status (Modified BG Prasad scale 2015)**

Variables	Frequency	Percentage
<i>Socio-economic status</i>		
Lower class	28	14
Lower middle class	84	42
Middle class	60	30
Upper middle class	28	14
Upper class	0	0
<b>Total</b>	<b>200</b>	<b>100</b>

Out of the 200 respondents in the study, only 119 (59.5%) of the households had toilets at their homes and 81 (40.5%) houses didn't have one. Among those houses where toilets were present (119), only in 92 (77.3%) of the houses, everyone in the house used the toilet and in 27 (22.7%) of the houses, some family members used it and some didn't.

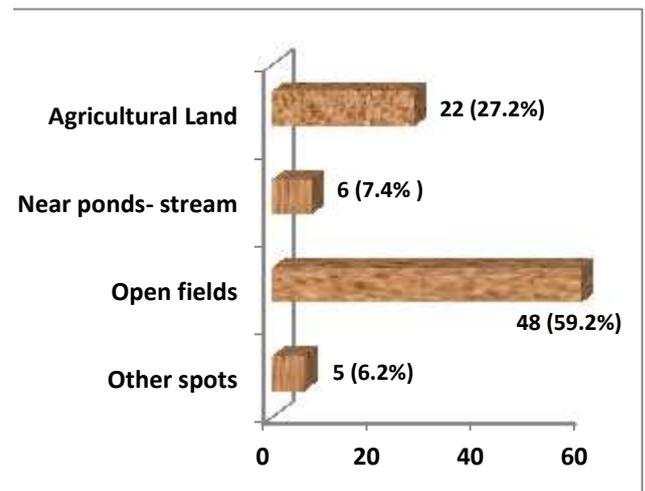
**Table 3: Distribution of factors among subjects having toilets at houses (n=119)**

Variable	Response	Frequency	Percent
Usage of toilet by the subjects	Yes	113	95
	No	6	5
Hand washing with soap post defecation	Yes	113	95
	No	6	5
Encouragement of U5 children to use toilet	Yes	96	80.7
	No	23	19.3
Subsidy to build toilet	Yes	46	38.7
	No	73	61.3

Among the subjects who had toilets (119), 113 (95 %) were using the toilet available in their houses and 6 (5%) of them were not using it. Usage of soap for hand washing post ablu-tion had similar results. 96 subjects (80.7%) informed that they encouraged under five years children to use toilet. 46 (38.7%) subjects had utilized the government subsidy for construction of toilet, which might be the reflection of recent change in the attitude of the subjects regarding having a toilet in the house.

Among the subjects who didn't have a toilet in their house (81), the most common reason for the same was that there was no place to construct it, which was among 44 (54.3%) subjects houses. 17 (21%) subjects didn't feel the need to have a toilet in the house and 20 (24.7%) of the subjects had other reasons for not having toilet in their houses.

**Figure 1: Distribution of preferred sites of open defecation (n=81)**



The preferred site of defecation was not far away from home for most of the subjects. Majority of them, 61 (75.3%) had preferred location less than 500 meters away arbitrarily, on an average from their houses. 19 (23.5%) of them informed that they went to locations up to a kilometre and only 1 (1.2%) subject preferred a place more than 1 kilometre away from the residence. This gives a rough estimate about the risk of contracting with diseases spread via faecal-oral route for the villagers.

The source of water for ablu-tion among those who indulge in open defecation is a matter of concern from public health perspective. In our study, 74 (91.4%) of the subjects carried water in a vessel for the purpose which is considered not of adequate quantity for ablu-tion. Pond water was used by 1 (1.2%) subject and stream water by 6 (7.4%) of the subjects. Following defecation, 38 (46.9%) of the subjects preferred hand washing without soap and only 43 (53.1%) of the subjects were using soap for hand washing, post open defecation.

Among the 200 study subjects, 187 (93.5%) of them had the habit of wearing footwear and only 115 (57.5%) of the subjects were aware of the common health hazards of open defecation with bare foot. Among these 115 subjects, only 48 (41.7%) subjects were aware of the link between open defecation and diarrhoeal diseases. 46 (40%) of the subjects were aware of fly nuisances and 21 (18.3%) subjects were aware of the link between worm infestations and open defecation. The subjects were enquired regarding the knowledge about the infective nature of children's faeces and awareness about Swachh Bharat Abhiyan (SBA). If affirmative, they were further enquired if the abhiyan has made any impact. Further, they were assessed about their knowledge regarding the availability of subsidy to construct toilet. Subjects who didn't have a toilet at home were also enquired if ever any women from the household has requested their male counterparts to build a toilet in their house.

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**Table 4: Assessment of factors related to construction of toilets**

Variables	Frequency	Percentage
Infective nature of feces of children	126	63
Swachh Bharat Abhiyan (SBA)	132	66
Any impact from SBA campaign (n=132)	83	62.9
Knowledge about the subsidy (n=200)	160	80
<b>Request from ladies for construction of toilets (n=81)</b>	<b>26</b>	<b>32.1</b>

The factors associated with the presence of toilet at home were evaluated using chi-square test. It was found that there was a statistically significant association between presences of toilet at home with the socio economic status of the family, educational status and habit of using footwear by the individuals. The presence or absence of a toilet at home is not the subject's individual choice. However, the habits like using footwear, knowledge about health hazards of open defecation and educational status of a family member are usually associated with the preference of having a toilet at home and probably played a proactive role in possessing a toilet for the home.

**Table 5: Association between presence of toilet and other variables.**

Variables	Toilet in the house		$\chi^2$	p value
	Yes	No		
<b>Socio economic status</b>				
Lower class	14	14		
Lower middle class	44	40	19.651	<0.001
Middle class	21	39		
Upper middle class	2	26		
<b>Educational status</b>				
Illiterate	25	14		
Under matriculate	51	70	23.03	<0.001
Matriculate	5	25		
Graduate and above	0	10		
<b>Footwear wearing habit</b>				
No	12	1	15.486	<0.001
Yes	69	118		
<b>Health hazards of defecation</b>				
No	39	46	1.777	0.183
Yes	42	73		
<b>Swachh Bharath Abhiyaan</b>				
No	29	39	0.197	0.657
Yes	52	80		

The knowledge about Swachh Bharat Abhiyan, information on the availability of subsidy to build toilets and knowledge on the hazards of open defecation didn't have statistically significant association with the presence of toilet at home.

Also, 21(25.9%) of the 81 subjects who didn't have toilet, admitted that they didn't have any immediate plans to build a toilet. Only 19 (23.4%) of the subjects preferred to construct toilets and 41 (50.6%) of the subjects were not sure if they will be constructing the toilets in the near future.

**V. DISCUSSION**

The present study results were compared with the studies done elsewhere in India. In a community based cross sectional study on use of sanitary latrines in a rural Maharashtra by Bharadwaj A. et al, the composition of illiterates among the study subjects was 48.6%, which is much higher than the present study. The open defecation rate in that study is around 67% and in the present study, it was 40.5%. 21% of the subjects didn't feel the need to have a toilet in our study and 17.4% of the subjects felt open defecation is better than using a toilet in the Maharashtra study. Our study showed that the awareness on health hazards of open defecation was present among 57.5% of the subjects and in Maharashtra study it is 34.5%<sup>8</sup>

In a study done in Andhra Pradesh, in the year 2013 by Banerjee A.B et al. to study issues regarding open air defecation practice in Nandivargam village, space constraint was the major factor for not constructing toilets (86.27%) which was the major challenge in our study area as well (54.3%). In our study almost 75% of the subjects travelled less than half kilometer distance for open defecation and in Andhra Pradesh study, men travelled for longer distance than women for the same. In the present study, 95% of the subjects with toilets in the house did hand washing with soap after defecation and in Andhra study, 100% of the subjects did the same. The present study showed that in 77.3% of the households all the family members used toilets when present and in Andhra Pradesh study, it is 71.32%.<sup>9</sup>

According to Sanitation Quality, Use, Access and Trends (SQUAT) survey in India, over 55.4% of households with a working latrine had all the members who defecates in the open, and in 18.3% of the houses, some preferred open defecation and only 26.3% of the households, none preferred open defecation<sup>5</sup>

**VI. RECOMMENDATIONS**

- ▶ More vigorous campaign to promote toilet construction as well as its usage, based on health and convenience.
- ▶ Intensified health education especially targeting women folk, since house hold latrine is their "felt need". They may demand for toilet at their houses from men folk, both on health as well as on security and personal dignity grounds.
- ▶ Construction of community toilets to facilitate those who have constraints for space.
- ▶ Campaign promoting hand wash with soap and water after defecation and toilet usage.

**VII. CONCLUSION**

Toilets were present in 59.5% of the houses in our study, which was marginally higher than the rural national average. In our study not everyone used toilets in those houses where toilets were present. And their percentage was 22.7%. Majority of the subjects have the habit of wearing footwear in the present study but only 57% of the subjects knew health hazards of open defecation with bare foot. Even after vigorous campaign on SBA, both in print and electronic media, by concerned authorities, only 66% of the subjects are aware of Swachh Bharat Abhiyan movement.

**VIII. ACKNOWLEDGEMENT – Nil**

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