

Original Research Article

# Study of factors associated with open defecation in a rural area of Nalanda District

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	International Archives of Integrated Medicine, Vol. 4, Issue 8, August, 2017.	
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	Available online at <a href="http://iaimjournal.com/">http://iaimjournal.com/</a>	
	ISSN: 2394-0026 (P)	ISSN: 2394-0034 (O)
	Received on: 27-05-2017	Accepted on: 26-07-2017
	Source of support: Nil	Conflict of interest: None declared.
<b>How to cite this article:</b> Laxman Kumar, Prabhat Kumar Lal, Dhirendra Kumar, Jitendra Kumar, Sunil Kumar. Study of factors associated with open defecation in a rural area of Nalanda District. IAIM, 2017; 4(8): 64-67.		

## Abstract

Open defecation has many health hazards. Still, it is rampant in different parts of the country. The present study was conducted to find the prevalence of open defecation and factors associated with this behaviour among residents of rural area of Nalanda District. Open defecation was practiced by 35% of rural population. It was significantly associated with age ( $p=0.02$ ), sex ( $p=0.01$ ), education ( $p=0.00$ ) and occupation ( $p=0.00$ ). Association with caste ( $p=0.23$ ), type of family ( $p=0.63$ ) and type of housing ( $p=0.053$ ) was not significant. Open defecation has strong roots in our culture and access/availability of toilets poses many challenges.

## Key words

Open defecation, Factors, Rural, Bihar.

## Introduction

WHO has commented that more than half of Indians do not have access to toilets [1]. Most of them do not have personal toilets. Public toilets

are unhygienic, dirty and not usable. Hence, people have to go for open defecation. Open defecation is a major environmental hazard and cause of many bacterial infections leading to

diarrhoea, worm infestation, malnutrition and consequent retardation of physical and mental growth of children [2]. Understanding the importance of the condition, “Swachh Bharat Abhiyan” was launched in 2014 [3]. Many NGOs like UNICEF, BMGF and Sulabh International are working hard in this area. Studies have shown that a large proportion of rural population goes to field for defecation [4]. Monitoring of trends and finding the areas of intervention is essential for proper planning. No study has been done in Nalanda in this regard. Hence, this study was conducted.

### **Aims and objectives**

The present study was conducted to find the prevalence of open defecation and factors associated with this behaviour among residents of rural area of Nalanda District.

### **Materials and methods**

The present study was cross-sectional descriptive in nature conducted in rural area of Nalanda District between April 2016 to June 2016. Multi stage sampling was used. At first level, four blocks out of 20 were selected by simple random sampling. From each block two villages were selected for the study randomly. From each village, 25 households were selected. One respondent was selected from each house randomly. Thus, a total of 200 respondents were selected. Severely ill respondents were excluded from the study.

In the study conducted by Shankar, et al. (2013) [4], it was observed that 78.3% respondents were practicing open defecation. Using 10% relative precision and 20% non-response, the sample size was calculated as below-

Sample size =  $(Z^2 \times p \times q / d^2) \times 1.2 = 132$ . A total of 200 respondents fulfilling eligibility criteria participated in this study.

Village head was approached and informed about the study. ASHA's support was taken in data collection. Data collection was done by personal interview using semi-structured pre-tested

questions containing open and closed ended. Detailed information was collected regarding socio-demographic profile of participants as well as excreta disposal practices. This was followed by health education session regarding importance of healthy lifestyle and ill effects of open defecation. Informed consent was obtained from all the respondents.

The data was coded and entered in Microsoft Excel 2007, cleaned and analyzed by using SPSS version 16.0. Categorical variables were summarized as percentage while continuous variables were presented as Mean  $\pm$  SD.

### **Results and Discussion**

The present cross-sectional study was conducted among 200 adults from the selected houses in rural area of Nalanda District. The socio-demographic details were as per **Table - 1**.

It was observed that majority of the respondents were in the age group 40-59 years. 63.6% were males, 54.8% belonged to OBC category, 32.4% were illiterates, 33.7% belonged to nuclear family and 23.4% lived in mud houses.

**Table - 2** shows that open defecation is practiced by 35% of rural population. It was significantly associated with age ( $p=0.02$ ), sex ( $p=0.01$ ), education ( $p=0.00$ ) and occupation ( $p=0.00$ ). Association with caste ( $p=0.23$ ), type of family ( $p=0.63$ ) and type of housing ( $p=0.053$ ) was not significant.

Shankar, et al. [4] found on univariate analysis that age, sex, caste and education were not significantly associated with open field defecation but occupation ( $p$  value =0.003), Socio- Economic Status ( $p<0.001$ ), types of family ( $p =0.001$ ), and environmental factors ( $p$  value =0.005) were significantly associated with open field defecation practices in rural areas. However, on logistic regression analysis, only socioeconomic status, occupation and type of family were influenced open field defecation practices in rural areas.

Demographic Characteristics		No.	%
Age (Years)	20-39	63	31.7
	40-59	94	46.9
	60 and above	43	21.4
Sex	Male	127	63.6
	Female	73	36.4
Caste	OBC	110	54.8
	SC/ST	59	29.3
	General	31	15.9
Education	Illiterate	65	32.4
	Primary	44	21.8
	Secondary	47	23.5
	Above Secondary	44	22.3
Occupation	Agriculture	113	56.6
	Service	34	17.2
	Others	52	26.2
Type of family	Nuclear	67	33.7
	Joint	133	66.3
Types of houses	Mud	47	23.4
	Brick and Cement	153	76.6

Characteristics		Sanitary		Open defecation		Significance
		No.	%	No.	%	
Age	20-39	49	78.1	14	21.9	$X^2 = 7.48, p= 0.02$
	40-59	58	61.5	36	38.5	
	60 & above	23	52.4	20	47.6	
Sex	Male	74	58.1	53	41.9	$X^2 = 6.93, p= 0.01$
	Female	56	76.6	17	23.4	
Caste	SC/ST	66	60.2	44	39.8	$X^2 = 2.88, p= 0.23$
	OBC	41	68.8	18	31.2	
	General	23	76.4	8	23.6	
Education	Illiterate	17	26.6	48	73.4	$X^2 = 78.2, p= 0.00$
	Primary	27	60.8	17	39.2	
	Secondary & above	86	94.9	5	5.1	
Occupation	Farming	53	47.1	60	52.9	$X^2 = 37.0, p= 0.00$
	Service	31	92.6	3	7.4	
	Others	45	85.7	7	14.3	
Type of family	Joint	42	63.4	25	36.6	$X^2 = 0.24, p= 0.63$
	Nuclear	88	65.9	45	34.1	
Environmental Factors	Kuccha	20	5	26	56.3	$X^2 = 3.75, p= 0.053$
	Pucca & Mixed	67	16.8	44	28.6	

Routray, et al. [5] in their qualitative study done in Odisha found that habits, socialising, sanitation rituals and daily routines varying with caste, gender, marital status, age and lifestyle hindered the adoption of latrines. Interest in constructing latrines was observed among male heads for their female members especially a newlywed daughter-in-law, reflecting concerns for their privacy, security, and convenience. This finding is similar to the observations of the present study.

Spears, et al. [6] in their ecological study done in 112 districts of India found that after adjustment for various potential confounding factors – including socio-economic status, maternal education and calorie availability – a 10 percent increase in open defecation was associated with a 0.7 percentage point increase in both stunting and severe stunting. Differences in open defecation can statistically account for 35 to 55 percent of the average difference in stunting between districts identified as low-performing and high-performing.

It is apparent from the above discussion that open defecation has strong roots in our culture and access/ availability of toilets poses many challenges. It has been rightly commented by Menezes [7] that *“If the Government is to achieve its goal of eliminating open defecation by 2019, it must concentrate on building demand for latrine use in India and initiate a large scale campaign to promote latrine use”*.

## Acknowledgements

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Authors acknowledge the support provided by participants of this study.

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