

WASH Practices-A Determinant of Gastrointestinal Community Health: A Community Study from Rural Odisha, India

Sonali Kar^{1*}, Samantaray PC², Sarma NN³, Mistry C³ and Pal R³

¹Department of Community Medicine, Kalinga Institute of Medical Sciences, Bhubaneswar, India

²ICMR Study, Kalinga Institute of Medical Sciences, Bhubaneswar, India

³Department of Community Medicine, Kalinga Institute of Medical Sciences, Bhubaneswar, India

*Corresponding author: Sonali Kar, Department of Community Medicine, Kalinga Institute of Medical Sciences, Bhubaneswar, India, Tel: 011-7205857316; E-mail: sonsam72@yahoo.co.uk

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Abstract

Background: Rural Odisha, a state in Eastern India, lags far behind much of India in access to toilet facilities and safe drinking water, with 88% of the rural population lacking access to improved sanitation facilities. However recently there has been a political advocacy at the national and regional level in the wake of Swachh Bharat Abhyan (Clean India Campaign) wherein a lot of changes have been witnessed in the state. Hence, the current study was contemplated to assess the Water and Sanitation Hygiene (WASH) access in the state and improvements if any.

Objectives: a) To assess the wash amenities and practices of 2 sampled districts.

b) To determine the association of gaps in wash and disease incidence in the sample.

Methodology: Current study explores the wash practices of 2 districts which were randomly selected out of the Human Development Index (HDI) ranking of the state i.e. Khurdha and Jagatsinghpur. The households were selected randomly from 2 blocks of the district; 50 households each and the respondent were the women of the house, as they are considered to be the propagators of all WASH practices in the house. Study tool was a predesigned pretested questionnaire which elicited information on sociodemographic information, housing, key questions on toilets on drainage and general sanitation and hygiene. Incidence of diarrheal disease in the household and its course was taken as a proxy of illness and health behaviour. Focus group discussion was also done in order to know the opinion of the women towards toilet in every home.

Results: A total of 100 women respondents participated in the study wherein safe access to drinking water was available to 70% of sample, out of which Khurdha had better access in terms of piped water supply in the house itself (14%). Open defecation was practiced by 45%; which was more among men of the house (86.3%) and among the ladies mostly among those over 40 years of age. Hand hygiene was very good in Khurdha and incidence of diarrhoea in the last one month was reported 5.6 times in those who said that they washed their hands with ash and water. Diarrheal incidence was more than double in Jagatsinghpur ($P=0.001$). 92% women lauded the government's initiative to make toilets but almost all insisted that the move would be a success only if regular water supply is ensured.

Conclusion: The study brings out largely that the community mandate of a developing state with regards to urgent addressal of WASH initiatives in terms of mobilization and availability of cost effective basic amenities to improve the living conditions of the community.

Keywords: Wash practices; Women of reproductive age group; Odisha; Gastrointestinal morbidity

Introduction

The World Health Organization estimates that 50% of malnutrition around the globe is associated with repeated diarrhoea or intestinal worm infections from unsafe water or poor sanitation or hygiene [1]. For India, which presents a good mix of development, yet under development too, where the issue in this era is not an astute lack of food, but a lack of toilets for its one-half population; at least 620 million people in our country, defecate outside. Hence, though India

has made commendable improvement in tackling the communicable diseases, yet the vicious cycle of malnutrition and diarrhoea continues to plague not only its rural but also the unorganized urban slum population. Diarrheal or gastrointestinal infection is often caused by a lack of clean water for drinking and proper hand-washing. A lack of toilets further exacerbates the problem as faeces on the ground contaminate drinking water and water resources in general.

Waking up to this problem, many international agencies working for health had perpetuated an integrated approach to improve water, sanitation, and hygiene, known as WASH programs. One of the United Nation's Millennium Development Goals is to halve by 2015 the

proportion of the population without sustainable access to safe drinking water and basic sanitation [2].

This is a short article that explores the effects of the recent WASH initiatives that have happened in Odisha, a state in India and extract a public opinion regarding the problems and the plausible reasons or solutions.

Aims and Objectives

- a) To assess the WASH (Water, Sanitation and Hygiene) amenities and practices of 2 sampled districts.
- b) To determine the association of gaps in WASH and diarrhoeal disease incidence in the sample.

Methodology

Odisha is one of the Eastern states in India, which is tagged under the Empowered Action Group (EAG) states besides other 7 states, identified way back in 2001 and vested with major proportion of the funds available under the Rural Connectivity Scheme, Drinking Water Supply Scheme etc. to cater to the requirements of the state [3]. All this was also compounded with political will and advocacy from Centre in 2015, which reinforced programs of WASH. The state which is primarily rural and agrarian, faced a daunting task to push the programs against the community rigidity and easy acceptability of open field defecation.

The current short article is a part of a bigger study on women health, under which two districts from the state were sampled using the Human Development Index (HDI) that ranked the districts of the state as per life expectancy, education and per capita income [4].

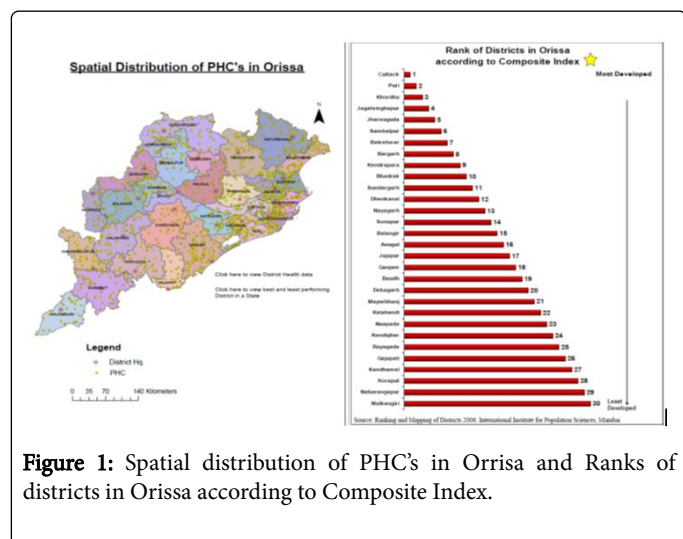


Figure 1: Spatial distribution of PHC's in Orissa and Ranks of districts in Orissa according to Composite Index.

There are 30 districts (administrative units) in the state as per the figures above and charts were made of the first 10 districts, as the districts after 10th ranking were plagued with multiple problems of difficult terrain and inaccessibility. The first randomly selected district was Khurdha and in order to match the districts as per HDI indices the next district was taken which was Jagatsinghpur, which was convenient for the researchers too as a field practice area of the institute, existed. Due to paucity of funds and manpower, more districts could not be selected and it was hoped that though the two districts may not be representative of the state, however it would definitely give us a

dipstick measure of the problem to be assessed. The above data was used only for sampling ease, as HDI ranking is an expensive exercise and is undertaken by some developmental agencies. We used the HDI ranking done way back in 2006 as after that it was not attempted and districts were ranked as per state specific composite priority indicators (Figure 1).

The households were sampled as a part of a bigger study done to assess the Women Mental Health, wherein 6 sub centers (the lowest level of health care delivery in our country) were selected from the selected districts by multistage sampling of the levels of health care delivery facility at the district level. Fifty women (18-49 years of age) were randomly picked up with the help of the ground level functionaries from the sub centers who maintain lists of the women as per pregnant, lactating and non-pregnant and non-lactating (NPNL). Hence, care was taken to take women from all the three categories.

The study respondents were women of the selected household, who consented to give information. In the rural community, they are considered as the propagators of the WASH practices. Chronically ill, mentally sick or uncooperative women were excluded from the study.

The study tool was a predesigned pretested questionnaire wherein sections were developed to find out demographic indicators, source of drinking water, sanitation, hygiene and any self-reports of incidence of diarrheal (taken as a proxy for gastrointestinal ill health) in the family in the last 3 months. A report of more than 3 diarrheal incidences in any family member was noted as poor gastrointestinal health.

Results

A total of 100 women, 50 each from districts Khurdha and Jagatsinghpur participated in the study.

Parameters	Khurdha	Jagatsinghpur	Total(%)
Religion Hindu	47(94%)	50(100%)	97(97%)
Muslim	3(6%)	0 (0)	39(3%)
Caste			
Gen	23 (46.9%)	13(26.0%)	36 (36.4%)
OBC	11(22.4%)	27(54.0%)	38 (38.4%)
SC	11(22.4%)	10(19.1%)	21(21.2%)
ST	04(8.2%)	01(0.9)	5 (5.0)
Women education			
Illiterate or just literate	13(26%)	9(18%)	22(22%)
Middle level	26(52%)	29 (58%)	55(55%)
Higher secondary and Professional	11(22%)	12(24%)	23(23%)
Women occupation			
Housewife	23(46%)	33(66%)	56(56%)
Working women	27(54%)	17(34%)	44(44%)
Women category			
Pregnant	10(20%)	26(52%)	36(36%)

lactating	16(32%)	14(28%)	30(30%)
NPNL	24(48%)	10(20%)	34(34%)
Age of women	Mean 27.2 years; SD 4.9 ; range 19 to 41 years		

Table 1: Sociodemographics of the sample.

Table 1 show that the respondent women were on an average aged 27 years; nearly 30% were from all the 3 categories i.e. pregnant, lactating and NPNL. Khurdha district had 54% women engaged in some work that sought them to go four to five hours outside home and earn some money. Though Jagatsinghpur was low on HDI, women education was better in this district and reserved caste groups were much more in Jagatsinghpur.

Table 2 shows differences in the WASH practices in the two districts and the outcome of gastrointestinal immunity of the community is reflected in terms more incidence of diarrhoea cases in Jagatsinghpur i.e. 18 cases in the last 6 months which turned out to be highly significant. Other health determinants like cooking fuel availability and disposal of faeces were better in Khurdha district. Data on incidences of fever and sporadic reports of typhoid and worm infestations too were higher in Jagatsinghpur even though the women education was better in the district. But probably the community practices like open field defecation and storage of drinking water neutralized the advantage offered by education and clean water availability.

Parameters	Khurdha	Jagatsinghpur	Total
Drinking Water facility			
Piped water in house	14.00%	4.00%	9.00%
Tube well/bore well	50.00%	90.00%	70.00%
Pipe water in community	10.00%	6.00%	8.00%
Open well	26.00%	0.00%	13.00%
Time for fetching water			
<30 min	92.00%	96.00%	94.00%
>30 min	8.00%	4.00%	6.00%
Water storage container			
Steel	70.00%	70.00%	70.00%
Mataka	6.00%	0.00%	3.00%
Plastic	24.00%	30.00%	27.00%
Storage container covered			
Yes	94.00%	92.00%	93.00%
No	6.00%	8.00%	7.00%
Use a can with stick to take out water			
Yes	44.00%	32.00%	38.00%
No	56.00%	68.00%	62.00%
Water quality			

Clean	#####	98.00%	99.00%
Use any mode of purification -No	76.00%	88.00%	82.00%
Toilet in house- yes	60.00%	50.00%	55.00%
Breeding sites around house			
Potholes	40.00%	66.00%	53.00%
Filthy heaps	Garbage	56.00%	28.00%
			42.0% p=0.031
Cooking gas -Yes	52%	28%	40%; p=0.014; OR 1.6
Washing hands with soap after handling faeces - Yes	100%	94%	97% p=0.079
Family falling sick last 6 months	22%	30%	26% p=0.32
Diarrhoea incidence (n=26)	8/26=30.7%	18/26=69.3%	P=0.001

Table 2: Water and sanitation access in 2 districts.

The results of the Focus group discussion were that 92% women lauded the government's initiative to make toilets but almost all insisted that the move would be a success only if regular water supply is ensured. Open defecation was practiced by 45%; which was more among men of the house (86.3%) and among the ladies mostly among those over 40 years of age and they did so in wee hours of the morning, to ensure privacy, though ironically it turned out to be more unsafe. This short study reaffirms the need to advocate toilets not only for health but also for social and developmental betterment of the state.

Discussion

The study reiterates the pertinent and hard hitting fact that globally, water and sanitation hygiene practice are responsible for 90% of diarrhea-related mortality, which is much higher than combined mortality from malaria and HIV/AIDS [5-7]. The sanitation target 7C (target 7C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation) to reach 75% of global coverage by 2015 from the present 63% has been already missed in India [8] and calls for intense retrospection by policy makers and health advocates [8]. With health services being decentralized at the lowest level, such studies can help the local authorities assess the gaps and bring about locally feasible and optimum solutions.

Kuberan et al. study from another rural settings of India i.e. Chennai reported 45% of its participants not using any purification methods in spite of the knowledge regarding transmission of diarrhoea and one fourth of its sample practising open field defecation [9]. In our study too only 55% of the sample had toilets in the house, less in the average performing district. Interestingly in this study the women from Jagatsinghpur were more educated till the middle level; however WASH practises were poor, ascertaining that habits have nothing to do with education and knowledge. The behaviour change can be brought about only by providing a complimentary conviction that these practices are worthy to maintain health. In our study, the main reason for not going to the toilet is that regular supply of water is not there,

hence to maintain the toilet within the house becomes cumbersome. Propagators of open defecation reason that the practice limits the use of water, doesn't call for regular maintenance and adds to natural enrichment of soil. However, after the study when the villagers were shared the information that diarrhoea (other ill health like worm infections, typhoid and fever) was more due to such practices as well as evidences from similar studies, they appeared convinced that their practices needed change [10].

The study results were communicated to the local planners and rigorous brainstorming was organized for the residents as well as funding to construct community toilets and assure regular supply of water and purification of drinking water.

Middle level countries need to give a lot of forethought and attention to quality living conditions to ensure community gastrointestinal health.

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