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Sundarbans Health Watch

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Open defecation and childhood undernutrition in the Indian Sundarbans:

A case study from rural West Bengal

About one third of children between 0-5 years of age are chronically malnourished and defecate in the open in the Patharpratima block of the Indian Sundarbans.

A recent, study carried out by Future Health Systems (FHS) India has revealed that about one third children (aged 0-6 years) are stunted and 38.6 percent children are under weight in the Indian Sundarbans. Earlier FHS study has revealed that the region suffers from higher burden of malnutrition compared to state and national average[i]. Among the several determinants of child malnutrition – ranging from individual factors to societal ones – recent evidence[ii] indicates open defecation as an important determinant responsible for child malnutrition. This research brief explores the association between underweight children (0-6 years) and open defecation in the context of Indian Sundarbans, where low body weight is considered as an indicator of childhood malnutrition.

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Future Health Systems is a research consortium working to improve access, affordability and quality of health services for the poor. We are a partnership of leading research institutes from across the globe working in a variety of contexts : in low-income countries (Bangladesh, Uganda), middle-income countries (China, India) and fragile states (Afghanistan) to build resilient health systems for the future.

Background

According to UNICEF and WHO (2012) estimates for 2010, 15 percent of people in the world, and 19 percent of people in developing countries, defecate in the open. Of this 19 percent, nearly 60 percent live in India. These alarming figures correspond with the estimates in the Indian Government's 2011 census: 53.1 percent of all Indian households and 69.3 percent of rural households “usually" do not use any kind of toilet or latrine. In West Bengal 55 percent of households (DLHS, 2007-08) do not have access to a toilet facility. Recent literature[ii] establishes a strong association between childhood stunting and open defecation, through reduced absorption of nutrients and diarrhoea.

Additionally, Indian children suffer from some of the highest rates of average stunting (i.e. low height for age) in the world, with lifelong implications for health and human capital. This is a major policy concern that has recently attracted the attention of many researchers[iii].

In rural India, 50.7 percent of children under the age of five are stunted. In rural West Bengal the figure is 48.4 percent (NFHS, 2005-06). The Sundarbans experience slightly lower percentage (35.2 percent) of stunting compared to both the state and national average.

The scenario is equally bleak in terms of nutrition, with acute undernutrition being more the norm than the exception. Thirty-nine percent of the children are underweight (i.e. low weight for age). In West Bengal, 40.7 percent of children in the rural areas suffer from undernutrition, while the percentage at the national level (rural) is 43.7 (NFHS, 2005-06).

Data and method

FHS carried out a household study in the Patharpratima block of South 24 Parganas district during April-May 2012. The household survey was carried out by two-stage stratified purposive random sampling using structured questionnaires in delta and non-delta *Gram Panchayat* (village communities). A total of 1,200 households in 30 villages were surveyed. The study defines people practising open defecation as 'people who defecate in open space like bush, field or bodies of water'.

Results

Out of 1,503 children from the sampled households, 71 percent have access to either *pucca or kuchha* latrines (with and without septic tanks and flush mechanisms) at home. The rest of the children share others' latrines or defecate in open space. The findings indicate that 28 percent of the children in the study area defecate in the open. Out of the 418 children who admitted to practicing open defecation, 32.6 percent are stunted and 31.5 percent are underweight. The prevalence of malnutrition, stunting and low body weight is higher among households practicing open defecation than among households practicing non-open defecation (Figure 1). The results were statistically significant for malnutrition and stunting too.

Figure 1: Child Nutritional Status by Type of Defecation Practice

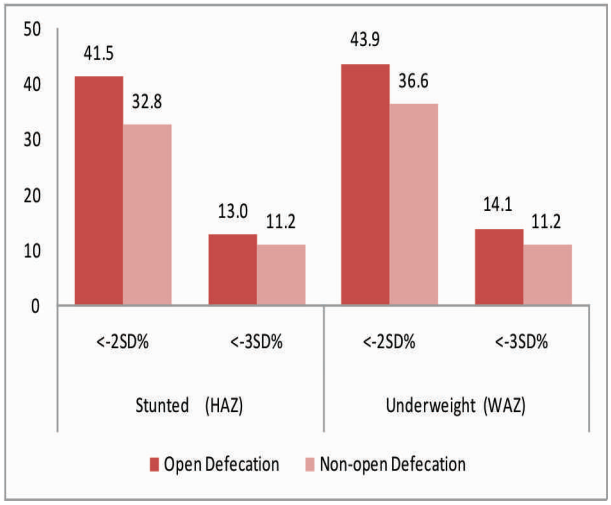
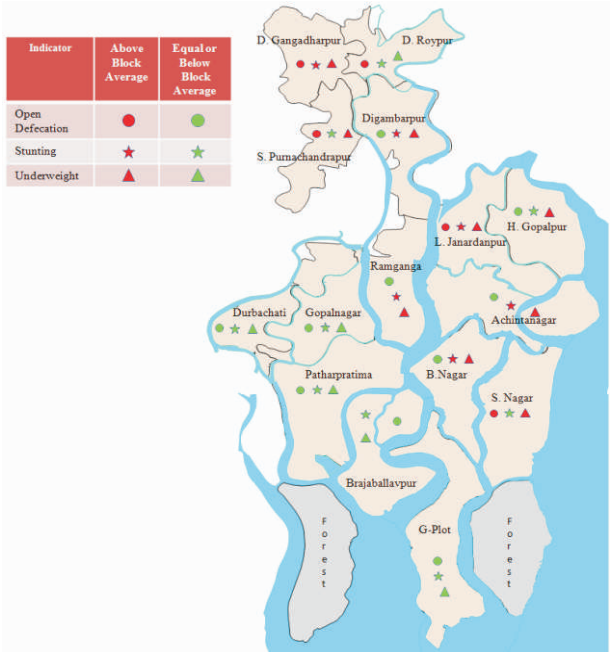


Figure 2 shows the *Gram Panchayat* (GP)-wise prevalence of childhood stunting and low body weight along with open defecation. It illustrates that in terms of all three indicators, deltaic GPs perform better than the non-deltaic ones. Laxmijanardanpur is the sole deltaic GP where all the indicators are above block average [underweight (<-2SD): 38.6 percent, stunting (<-2SD):35.2 percent, open defecation: 27.8 percent]. And yet, according to government data[iv], Laxmijanardanpur has the highest percentage of households with access to toilet facilities (80.8 percent). The findings, however, revealed under-utilisation of the service.

The percentage of children defecating in the open is higher in the non-deltaic region (34 percent) than the deltaic ones (24 percent). The children from non-deltaic regions are 1.4 times more likely to practice open defecation than children from deltaic regions (95 percent CI: 1.08-1.91).

Relatively more children from Muslim families and families belonging to lower castes defecate in the open. Muslim children are 1.8 times more likely to practice open defecation compared to children from other religions (95 percent CI: 1.17-2.64) and children from lower castes are 1.6 times more likely to practice the same compared to children from the general castes (95 percent CI: 1.22-2.19). Children

Figure 2: GP-wise Percentage of Children in Patharpratima by Stunting, Open defecation and Stunting, West Bengal, 2012



living in *kuchha* houses are more likely to practice open defecation than children living in semi-*pucca* or *pucca* houses (See Table 1). Children from Muslim households, living in *kuchha* houses are 1.7 times more likely (95 percent CI: 1.13-2.61) to practice the same.

As a rational consequence, more children from poor families (31 percent) practice open defecation compared to children from better-off families (27 percent). The percentage increases where the children's household has faced one or more climatic shocks during the last five years preceding the survey.

Mothers' education plays a vital role in sanitation practice. The data showed that the percentage of households practicing open defecation is higher among households with an illiterate mother. Similar to several other studies[v], in the Sundarbans the prevalence of diarrhoea is also higher among households practicing open defecation. However, the rate is lower than the state average (UNICEF, 2009). As the study was conducted during April-May when there were lower chances of diarrhoea occurrence, the result might not be

significant.

Policy Implication

- The study highlights the association between open defecation and childhood nutritional status. The findings are bolstered by a similar study conducted by Save the Children in the same block in 2013[vi].

Core emphasis on total sanitary campaigns needs to be a central strategy in this region characterised by a high percentage of under-nourished children. An important finding pertaining to the relatively more inaccessible deltaic region portrays a better situation in terms of child nutritional status and usage of sanitary latrines. Higher concentration of Community Based Organisations (CBOs) in that region may be the cause. It therefore becomes a core necessity to replicate the positive deviance practices in the more accessible non-deltaic zones. Relatively more focus should be given to people living in the *kuchha* houses and from non-Hindu communities and from the lower castes.

Table 1: Percentage of children practicing open defecation, by various background characteristics

N=418	Variables		chi2	Pr
Child	Stunted	Not stunted		
nutritional	32.6	25.0	8.7	0.003
status	Underweight	Not Underweight		
	31.5	25.3	6.1	0.014
Location	Non-deltaic	Deltaic		
	34.0	23.5	20.1	0.000
Religion	Muslim	Hindu		
	43.5	25.3	29.4	0.000
Caste	SC	General		
	57.7	24.8	27.8	0.000
House Type	*Kuccha*	Semi or *pucca*		
	30.5	16.0	24.0	0.000
Mothers Education	Illiterate	Literate		
	39.1	22.2	48.0	0.000
Self perceived	Poor	Less Poor		
poverty	30.9	27.2	1.3	0.252

- Future interventions in the Sundarbans also need to factor in the fact that the latrines should be built to be resistant to the periodic floods. Currently, a similar model - ECOSAN – is being piloted by a development agency to counter the frequent bouts of floods and insufficient water supply.
- Simultaneously, strategic and targeted communication on sanitation and child nutrition, coupled with advocacy exercises punctured with key messages, are needed to counter social norms backed by incentivised social marketing of the models. The channels and messages should reflect a critical convergence between the relevant line departments.

More detailed policy recommendations will be provided following a detailed study on water and sanitation practice in the study area.

[i] Kanjilal et. al. 2010.
[ii] Kosek et. al. 2013, Lin et. al. 2013, Hammer & Spears 2013, Spears &Lamba 2012, and Spears 2012
[iii] Deaton, 2007; Tarozzi, 2008; Jayachandran and Pande, 2012; Panagariya, 2012
[iv] http://tsc.nic.in/BLS2012/Block.aspx accessed on 18.12.13.
[v] Patil et al. 2013, Spears et al. 2013
[vi] Baseline Assessment of selected health parameters of women & children in Patharpratima block, West Bengal: A five-panchayat study' conducted by NICED, ICMR, with support of Save the children and Sundarban Social Development Centre, 2013.

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