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ORIGINAL ARTICLE

Hand hygiene behavior among urban slum children and their care takers in Odisha, India

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Key words

Hygiene • Hand washing • Slum • Knowledge • Attitude

Summary

Objective. *To study the knowledge and practice of hand washing among mothers and children of shikharchandi slum of Bhubaneswar, Odisha and to recommend possible measures to improve the current practices.*
Methodology. *Present cross-sectional study was carried out in the Shikharchandi slum located in the Bhubaneswar city of Orissa state in India. 150 women and 80 children were interviewed. Children questionnaire were prepared to suit to their age and according to local context. Components of sanitation like food handling and hand washing were covered in this questionnaire.*
Results. *Hand washing before preparing food is being practiced by 85% of women. Of all women interviewed, 77% wash hands before serving food. Only 15% children said soap was available in their school to wash hands. Out of total children interviewed, 76% told that their teachers tell about sanitation and hand washing in the class. Only 5% children told they were consulted by doctor/health worker during last 3 months. As many as 81% children told that they wash their hands before taking food and 19% children said they take their food without washing hands. Though most of the children told that they wash hands before taking food, but only 17.5% told that they use soap for hand washing. Only 29% children told that their teachers check hand washing in school. When asked about critical timing of hand washing, 44% children told about at least two critical timings and 56% were unaware about the critical timings of hand washing.*
Conclusion. *Inadequate knowledge on this among our study participant is a point of concern. Systematic integration of health and hygiene education in schools through curricular modifications could be an appropriate strategy.*

Introduction

Communicable diseases continue to be the major contributor to global morbidity and mortality [1]. Sixty two percent and 31 % of all deaths in Africa and south-Asia, respectively are due to infectious diseases [2]. According to WHO estimates, 3.8 million children aged less than five die each year from diarrhea and acute respiratory tract infections [3]. An estimated 88 percent of diarrheal deaths worldwide are attributable to unsafe water, inadequate sanitation and poor hygiene [4]. Clean water and hand-washing are viewed as the most cost effective intervention for preventing diarrheal diseases [5]. Various studies have highlighted that simple act of hand-washing and basic hygiene behavior could prevent diarrhea, acute respiratory infection and skin infections [6,7]. Despite much evidence supporting the effectiveness of personal hygiene behavior, they are yet to be practiced widely. It is observed that young children and their mothers in developing countries fail to wash their hand adequately after fecal contact [8]. Magnitude of the problem is more in urban slums with reduced access to safe water and sanitation.
Children from poorest urban are three times more likely to die before the age of five than children from wealthiest urban and rural areas [9]. A study conducted in Mumbai slum shows that 30% of all morbidity can be accounted for by water related infection [10]. Understanding usual hand-washing is an important baseline assessment for any programme intended to improve sanitation, hand hygiene and water quality. However, there are limited data that have assessed the hand hygiene behavior of children and their mothers particularly in slums.
Keeping this in view the present study was taken up to understand the knowledge, attitude and practices relating to hand-washing of urban slum children and their mothers. The objective of the study was to access hand-washing behavior among the participants so as to identify and overcome barriers to proper hand hygiene practices.

Methodology

The present cross-sectional study was carried out in the Shikharchandi slum located in the Bhubaneswar city of Orissa state in India. Sikharchandi slum is authorized and the largest slum of the city with 1,500 hundred household and total population of around 6,000. It was decided to take 10% of all households for the study purpose. Thus a total of 150 households were selected. This slum is divided into three clusters. There are total 600 households each in cluster one and cluster three and 300 households in cluster two. Stratified random sampling was carried out to select the households

Tab. I. Demographic Characteristics of participant (Mother).

S. No.	Characteristics	Response	Number	Percentage (%)
11	BPL Cards	Yes	54	36
		No	96	64
22	Education	Literate	80	53
		Illiterate	70	47
43	House	Rent	53	35
		own	97	65
54	Household condition	Kutcha	83	55
		Pakka	67	45
65	Rooms in house	Less than 2	45	30
		Two	74	49
		More than two	31	21
76	Caste	SC	36	24
		ST	10	7
		OBC	72	48
		Other	32	21
87	Language	Oriya	76	51
		Hindi	19	13
		Telugu	52	34
		Bengali	3	2
98	Native state	Orissa	94	63
		Andhra Pradesh	41	27
		West Bengal	13	9
		Other states	2	1
19	Size of family	Less than 5	91	61
		6 to 9	48	32
		10 and above	11	7
110	Income(in rupees/month)	Less than 5000	33	22
		5000 to 10000	86	57
		Above 10000	31	21
111	Occupation	Housewife	57	38
		Skilled*	14	9
		Unskilled**	79	53

from each of these three clusters proportionately. For the study 10% of households are selected from each cluster. Total selected houses were 60 households each from cluster one and three and 30 households from cluster two. 150 women and 80 children were interviewed. Children between age group of 6 to 12 were separately interviewed. Questionnaire was prepared by adopting the theme of core questionnaire on sanitation by WHO and EHP. Semi structured questionnaire was developed which was suitable to local context. Children questionnaire were prepared to suit to their age and according to local context. Components of sanitation like food handling and hand washing were covered in this questionnaire. The questionnaire was pretested in non study area and necessary changes were made accordingly. Data was entered in MS Excel and analyzed using statistical software SPSS Version 17.0. Verbal consent was taken before interview of mothers and they were well informed about purpose of the study and confidentiality. Verbal consent of parents was taken prior to interview of children.

Results

A total of 150 participants were selected for study, out of which 36% were having the BPL card. Mean age of women participant was 31 years and the range was from 17 to 55 years. Participants were comprised of all castes, 24% of them belong to SC, 7% were from ST community, 48% belongs to OBC and 21% belongs to other caste. Main languages spoken in the community were Oriya, Telugu, Hindi and Bengali. Out of all households interviewed, 55% live in kaccha house and 45% live in pakka house; 30% families lived in single room, 49% living in two room house and 21% lived in more than two room house; 63% were from Orissa and 37% were migrated from neighboring states like 27% were migrated from Andhra Pradesh, 9% were migrated from West Bengal and 2% are migrated from Bihar. Participants are grouped as housewives and working women. Working women were either skilled or unskilled profession. Pre-primary teacher, ASHA, tailor were labeled as skilled workers. Those who are working as daily laborer, maid servant, sari seller, vegetable seller and rag pickers were grouped as unskilled workers. Among participants

Tab. II. Hand-washing Practices among women.

S. No	Characteristics	Options	Numbers (%)
11	Hand washing before preparing food	Yes No	128 (85) 22 (15)
22	Hand washing before serving food	Yes No	116(17) 34(23)
33	Hand wash with soap after toilet	Yes No	108(72) 42(28)
44	Use of slipper	Yes No	93(62) 57(38)
55	Hand washing with only water is as good as hand washing with water and soap	Yes No	7(4) 143(96)

38% are housewives, 9% were skilled workers and 53% were unskilled workers. Twenty two percent households have income less than 5,000 rupees per month, 57% households earn 5,000 to 10,000 rupees per month and remaining 21% households have monthly income more than 10,000 rupees (Tab. I).

Hand washing before preparing food is being practiced by 85% of women. Still 15% reports that they were not practicing hand washing. Of all women interviewed, 77% wash hands before serving food. When asked about who serves, 43% reported that mother serves the food while in 42% families children take food themselves and remaining 15% told other members like grandmother, sister or aunt serves the food (Tab. II). When asked about availability of soap in school, 15% children said soap was available in their school to wash hands but for 85% students soap was not available in school to wash hands. Out of total children interviewed, 76% told that their teachers tell about sanitation and hand washing in the class while 24% told that their teacher doesn't tell about sanitation and hand washing. Only 5% children told they were consulted by doctor/health worker during last 3 months. As many as 81% children told that they wash their hands before taking snacks in school and 19% children said they take their snacks without washing hands. Though most of the children told that they wash hands before taking snacks in school, but only 17.5% told that they use soap for hand washing. Only 29% children told that their teachers check hand washing in school. When asked about critical timing of hand washing, 44% children told about at least two critical timings and 56% were unaware about the critical timings of hand washing.

Discussion

In this study of urban slum mothers we assessed the knowledge attitude and practices of hand hygiene. Of the mother surveyed, seventy two percent were found to practice hand washing by soap after defecation. This is lower than the WHO study where they found this was practiced by 84% women. The lower level could be due to non availability of soap and decreased perceived susceptibility to diarrhea. Although, 96% of the women were of the opinion that hand

Tab. III. Hand-washing Practices among children.

S. No.	Characteristics	Options	Number (%)
1.1	Soap is available in school to wash hands.	Yes No	12 (15) 68 (85)
2.2	Teacher tells about sanitation and hand washing in class.	Yes No	61 (76) 19 (24)
3.3	Visited by health worker/Doctor in school during last 3 months.	Yes No	4 (5) 76 (95)
64	Hand washing before taking food.	Yes No	65 (81) 15 (19)
75	Use soap for hand washing before taking food.	Yes No	14 (17.5) 66 (82.5)
86	Teacher checks hand washing in school.	Yes No	23 (29) 57 (71)
97	Who enforce to wash hands.	Mother Sister Other family members teacher	47(59) 20 (25) 18 (22) 23 (29)
18	Tells at least 2 critical time of hand washing.	Yes No	35 (44) 45 (56)
19	Hand washing with soap after toilet.	Yes No	49 (61) 31 (39)

washing with water and soap is better compared to simple hand washing, it is not reflected in their practice. This could be explained by the fact that women are not able to link infections like diarrhea directly with their own hand washing behavior. Limited knowledge appears not to be constraint in this case. However, the translation of knowledge into sustainable behavior needs to be reinforced. Behavioral Intervention aimed to improve hand hygiene practices should focus on this important issue should be taken up in order to improve the hand hygiene practices of the respondents. Earlier studies by Ray et al. have also highlighted similar findings [11]. In our study area 85% of the mother use hand washing before preparation of food, which encouraging. This differs from the study by Ray *SK* in two communities of eastern India where hand washing was not practiced before "preparing food" and after handling "raw vegetables" [12]. Another encouraging finding of the present study was 77 % women practicing hand washing before serving food. These behaviors need to be reinforced for preventing Fecal-Oral transmission of infectious agent. Use of slippers was found to be practiced by 62% of the mothers, which could be taken as satisfactory, considering their socio-economic condition.

Our study additionally explored the knowledge, attitude and practices of hygiene among school children (6-12 years) from the same households. We attempted to find the contextual factors contributing to hand washing practices of the children. It included both school and family level influencers. As many as 81% children practiced hand washing before taking food out of which only 17.5% use soap for hand washing. Sixty one percent children used soap for hand washing after toilet. This could be due to Non or limited availability of soap in both school and household. In a similar study on hand washing among school children in Colombia, it was observed that only 33.6% of children were washing hands with soap before eating and after defecation [13]. Our participants have better hygiene practice which could be attributed to increased awareness. There appears to be low supervision by the teachers when compared to mothers for enforcing hand washing. This might lead to decreased motivation among the students for regular hand washing. Educating teachers to inculcate hygiene behavior among the students is of prime concern. Future school based hand hygiene interventions should take this into account. Health educators (physician, nurse, health worker) play an important role in this regard. Bearing in mind that, the school has been recognized as a vital setting for health promotion, our findings display a strong deficit of such initiatives. When asked about at least two critical times of hand washing only 44% of surveyed students could answer correctly. In a KAP study of hygiene in Ethiopia found that 52% of the students have adequate knowledge of proper hygiene, which is higher than the present study [14]. Critical times of hand washing are crucial in breaking the chain of fecal oral contamination, a major cause of diarrheal diseases. Inadequate knowledge on this among our study participant is a point of concern. Systematic integration of health and hygiene education in schools through curricular modifications could be an appropriate strategy.

Due to the restricted time period and resource constraint, the study was conducted only in one slum and it cannot represent the entire situation of the other slums of the Bhubaneswar and that of entire state. So the results of this study cannot be generalized to the other slums. So it is suggested that more similar studies should taken up to assess sanitation status of slum areas in future.

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