

A study on Hand washing practices among mothers of under-five children in urban slums

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Abstract

Introduction: Evidence suggests that improved hand washing can have a major impact on public health and significantly reduce diarrheal disease and acute respiratory infection-the two leading causes of childhood mortality. Understanding the hand washing practices of mothers residing in poor environmental settings such as urban slums is essential for planning any health education intervention.

Materials and Method: The study was a cross-sectional descriptive type carried out among 250 mothers of under- five children residing in five urban slums at Coimbatore. Demographic data and information on hand washing at different times were recorded.

Results: Overall 67.2% of the study group practiced hand washing with soap at critical times, whereas at other instances(after touching pet animals or toys, after changing child's diaper, after coughing or sneezing) the level was below 50%. The age of mother, literacy status and joint family was significantly associated with good practices(P<0.05).

Conclusion: The study highlights the need for improving the hand washing practice by continuous and intensive health education programmes targeting the mothers which in turn will have a positive impact on the health of their children.

Keywords: Hand washing, Practices, Mothers, Under-five, Urban slum

Introduction

Communicable Diseases continue to be the major contributor to global morbidity and mortality among children making the progress to reach the objective of Millennium Development Goal-4 insufficient in many regions. According to WHO about 5.9 million children under the age of five died during the year 2015 of which one third are due to infectious causes like diarrhoea and respiratory tract infections, which could be easily preventable. Not surprisingly the burden of under-five mortality is concentrated in the world's developing countries and regions. India contributes to 25% of the under five deaths occurring Worldwide every year.⁽¹⁾ The magnitude of the problem is more in urban slums than compared to the wealthiest urban and rural areas. In cities with population of over a million , nearly one-fourth of the urban population reside in slums posing problems such as poor housing conditions ,overcrowding ,reduced access to safe water and sanitation and lack of personal Hygiene. Between the years 1991 and 2001, a total of 14.3 million migrated from rural to urban areas.⁽²⁾

Hands are the most exposed parts of the body to germs and it is the most common medium by which these agents are transferred to food from the skin, nose, and bowel etc. as well as from other foods. The transmission takes place directly (hand-to-mouth) or indirectly. The importance of hand washing and their role in disease prevention was demonstrated by Semmelweis as early as eighteenth century.⁽¹⁾ A review suggests that hand washing with soap particularly after contact with faeces can reduce diarrheal diseases by 42 to 47% while another work by Rabie et. al showed a reduction in respiratory tract infections by 6 to 44%.^(3,4)

In India a study found that 25% fewer diarrheal episodes, 15% fewer ARI episodes and 27% fewer school absences due to illness after practicing proper hand washing.⁽⁵⁾ A previous review of the cost effectiveness of intervention for the prevention of diseases put hygiene promotion including hand washing at the top, costing only about five dollars for each disability adjusted life years saved.⁽⁶⁾ Hence practicing hand washing may be more effective than a single vaccine in preventing the transmission of pathogens. Despite the irrefutable evidence in favour of hand washing, it is observed that young children and their mothers in developing countries fail to practice this habit at critical times.⁽⁷⁾ Understanding the existing practices in hand washing and the demographic determinants among mothers will provide baseline data for planning and implementing programmes to improve hand hygiene and behaviour change communication strategies. In this context the present study was conducted to assess the hand washing practices among the mothers of under- five children in urban slums.

Materials and Method

The study was a cross-sectional descriptive type undertaken during three months period (Jan to March, 2017) among mothers of under-five children residing in urban slums located in the field practice areas of medical college, Coimbatore, India. It was decided to survey 40% of the enumerated list of mothers in five slum settlements, to derive a sample size of 250. A purposive sampling method was adopted to choose the subjects.

After obtaining prior clearance and informed verbal consent, data was collected from the willing

participants using a pretested semi-structured schedule. Socio-demographic details was recorded in one part and Hand washing practices at different times as reported by the subjects was noted in the second part of the schedule. The socio-economic status of study group was determined by Modified Kuppaswamy scale and Illiterate in the present study refers to those who could not write in any language.⁽¹⁾ Hand washing with water only (HWWO) and Hand Washing with water and soap (HWWS) was the core information sought from mothers with regard to their practice.

Data collected was entered in Microsoft Excel 2007 and analysis was done using Epi Info version 7 statistical software. The results were expressed in percentages and Chi- square statistical test was done to find associations between groups. A 'P' value of <0.05 was considered as statistically significant.

Results

A total of 250 mothers of under-five children were surveyed. The mean age of the mothers was 27.3±4.5 years. Majority of the mothers belonged to the age group of 26 to 30 years (40.8%). About 12.8% were illiterate, 21.6% completed up to 5th class, and only 11.2% had graduated or above. Most of the study group belonged to lower and upper lower social class (60.4%) and the remaining were from Middle class (39.6%) according to Modified Kuppaswamy scale. Almost two-third (65.2%) mothers lived in nuclear families and a majority of study population (83.2%) belonged to Hindu religion [Table 1].

Table 1: Demographic data of study group

S. no	Variables	n	%
1	Age group(in years)		
	18-25	57	22.8
	26-30	102	40.8
	31-35	91	36.4
2	Social status		
	Lower middle & upper middle	151	60.4
	Upper lower& lower	99	39.6
3	Education of mother		
	Illiterate	32	12.8
	Up to 5 th class	54	21.6
	6 th to 12 th class	136	54.6
	Graduate and above	28	11.2
4	Religion		
	Hindu	208	83.2
	Others	42	16.8
5	Type of family		
	Nuclear	163	65.2
	Joint	87	34.8

Table 2 shows the Hand washing practices of the study group at different times. During critical times, which denote after defecation, after cleaning the child who has defecated, before preparing food, before feeding a child, the prevalence of HWWS was 78.4%, 67.2%, 72.8% and 80.4% respectively. About 8% and 4.8% of mothers reported never washing hands by any method after cleaning the child who has defecated and before feeding their children. During the times of changing child's diaper an equal proportion of 46% subjects practiced HWWS or HWWO. Majority of women (80%) washed with soap after handling garbage, while 41% washed only with water at instances after blowing nose, coughing or sneezing. Almost 41% of the under- five mothers reported never washing their hands after touching pet animals or toys.

Table 2: Hand washing practices of mothers

Instances	HWWS (%)	HWWO (%)	Never washed (%)
After defecation	196 (78.4%)	54(21.6%)	-
After cleaning the child who has defecated	168(67.2%)	62(24.8%)	20(8%)
Before preparing food	182 (72.8%)	68(27.2%)	-
Before feeding the child	201 (80.4%)	37(14.8%)	12(4.8%)
After changing the child's diaper	114 (45.6%)	115(46%)	21(8.4%)
After touching pet animals or toys	68(27.2%)	79(31.6%)	103(41.2%)
After blowing nose coughing or Sneezing	76(30.4%)	102(40.8%)	72(28.8%)
After handling garbage	198(79.2%)	52(20.8%)	-

Table 3: Association between demographic factors and hand washing practice at critical times.

Determinants	Practicing HWWS at critical times(n=168)	P Value [†]
Age in years		0.005*
18-25	54.7%	
26-30	75%	
31-35	76%	
Literacy		0.00001*
Illiterate	40%	
Up to 5 th Std	59.5%	
6 th to 12 th Std	82.3%	
Graduate and above	85.7%	
Social Class		0.312
Upper Middle & Lower Middle	76.6%	
Upper Lower & Lower	70.6%	
Religion		0.235
Hindu	74.5%	
Others	55%	
Family Type		0.033*
Nuclear	68.6%	
Joint	81.8%	

†Chi-square test, *significant

The prevalence of HWWS always at all critical times among the subjects was found to be 67.2%. Socio-demographic factors that showed significant association with HWWS are age of mother, literacy status and type of family ($P < 0.05$). The socio-economic status and religion of the participants were not significantly associated with HWWS ($P > 0.05$) [Table 3].

Discussion

The present study shows that majority of the respondent mothers washed their hands using either water only or with soap at different times. But considering the mothers who use the method of hand washing with soap (HWWS), which is now promoted globally the proportion, comes down. Hand washing with soap removes potential pathogenic organisms from hands and removes the possibility of transmission to children by direct contact or through a vehicle.

Hand washing with soap after defecation and after cleaning their children who has defecated was found to be 78.4% and 67.2% in the current study. Rafath UB et. al, Yerpude et. al, and Patti et. al in their study reported HWWS after defecation in the range of 72% to 79.3% mothers which agree with the result of present study.^(8,9,10) Literature review explores an increasing trend in the proportion of hand washing with soap after defecation as it was 16% in Calcutta (1987), 35% in Kerala (2003) and 59% in Bengal (2009).^(11,12,13) This may be an indication of raising awareness levels among the mothers over the years. About two third of subjects practiced HWWS after cleaning a child who has defecated and similar level was reported in a study done at Nigeria.⁽¹⁴⁾ Mech K et.al in their survey at Guwahati

slums reported less prevalence (47.2%) than the present study.⁽¹⁵⁾ In many urban slums and rural areas babies' feces are regarded as "innocuous" and so the caretakers neglect hand washing after cleaning the child who has defecated. The findings also lag behind the prevalence reported for both practices in studies conducted at areas other than slums showing a prevalence of more than 87%.^(16,17) Urban slum people live in underprivileged condition with lack of basic amenities and sanitation facilities compromising personal hygiene.

At times of before preparing food and before feeding the child the practice of HWWS was found to be 72.8% and 80.4% respectively, which was in accordance with a study done by Khan et.al at Moradabad slums and far better than the findings (37% & 25%) reported by Shukla et.al conducted at Lucknow.^(18,19) This practice will eliminate any stray organisms from the hands contaminating food or water. Also around 80% of subjects washed their hands with soap after handling garbage which was satisfactory compared to the results shown in another study where majority (87%) used only water for washing after handling dirty material.⁽¹⁵⁾

The practice levels of hand washing was sub optimal during times of changing the child's diapers (45%), after touching pet animals or toys (27%) and after blowing nose, coughing and sneezing (30%). As respiratory and enteric pathogens are often transmitted by fomites mothers need behavior change communication to cultivate HWWS during such instances apart from doing so at critical times.

Demographic determinants such as age of mother, literacy, and joint family system was found to be

significantly associated with good hand hygiene practices. Similar correlation was also reported in other studies on hand hygiene.^(14,16,20) As age increases there is more association for HWWS, as the mothers acquire better practices by experience. Education of mother is a key investment for the health and well being of their children as well as their own. As there is great degree of interdependency there may be more scope of adopting good hygiene practices for the mothers living in joint family.

Conclusion

The hand washing practice among the mothers of under- five children living in urban slums was found to be fair in this study. The situation can be improved by conducting continuous and intensive Health education activities stressing the importance of proper hand washing with soap and water. Soap provision campaign should be organized frequently and hand washing infrastructure should also be developed. The activities could be integrated with the recently launched Swachh Bharat Abhiyan (clean India Mission), an initiative by the Government of India, to make it more effective.

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References

1. Park, K. Textbook of Preventive and social medicine. 23rd ed. Jabalpur, India: Banarsidas Bhanot;2015.
2. Sarkar et al: Burden of childhood diseases and malnutrition in a semi-urban slum in southern India. BMC Public health.2013;13:87.
3. Curtis V, Cairncross S. Effect of washing hands with soap on diarrhea risk in the community: a systematic review. The Lancet Infectious Disease.2003;3(5):275-281.
4. Rabie T, Curtis V. Hand washing and risk of respiratory infections: a quantitative systematic review. Tropical Medicine and International Health. 2006;11(3):258-67.
5. Nicholson J, Naeni M, Hoptroff, M, Matheson J, Roberts A, Taylor D, et al (2014). An investigation of the effects of a hand washing intervention on health outcomes and school absence using a randomized trial in Indian urban communities. Tropical Medicine & International Health.2014;19(3):284-292.
6. Jamieson D, Breman J, Measham A. Disease control priorities in developing countries. Oxford: Oxford university press,2006.
7. LiKosek M, Bern C, Guerrant RL. The Global burden of diarrheal disease, as estimated from studies published between 1992 and 2000.Bulletein of the WHO. 2003:197-204.
8. Begum R, Bhavani K. Study of knowledge and practices of hand washing among mothers having children under 5 years of age in urban field practicing area of Kakatiya Medical College, Warangal, Telangana, India. International Journal of Community Medicine and Public Health.2016;3(8):2035-39.
9. Yerpude PN, Jogdand KS, Sumra NA. A Cross - Sectional Study on Hand Washing Practices among Mothers in an Urban Slum Area. Int J Health Sci Res.2014;4(10):1-5.
10. Pati S, Kadam SS, Chauhan AS. Hand hygiene behaviour among urban slum children and their caretakers in Odisha, India. Journal of Preventive Medicine and Hygiene.2014;1-3.
11. Sircar BK, Sengupta PG, Mondal SK, et al. Effect of Hand washing on the incidence of diarrhea in a Calcutta slum. J Diarrhoeal Dis Res 1987;5(2):112-4.
12. Scott B, Curtis V, Rabie T. Protecting children from Diarrhoea and Acute Respiratory infections: The role of hand washing promotion in water and sanitation programmes. Regional Health Forum. 2003;7:42-7.
13. Ray SK, Dobe M, Lahiri A, Basu SS. Hand washing practices in urban and rural communities in and around Kolkata, West Bengal. Indian J Public Health. 2009;53(3):192-5.
14. Opara P, Alex-Hart B, and Okari T. Hand-washing practices amongst mothers of under-5 children in Port Harcourt, Nigeria. Pediatrics and International Child Health.2017;37(1):1-4
15. Mech K, Ojah J. A Study on the awareness and practices of hand washing amongst mothers of under-five children in the slums of Guwahati city. Journal of Evidence Based Medicine and Healthcare.2016;3(24):1075-78.
16. Seema Aithal K, Miti Judith Ogorchukwu, Vidya Prabhu, Prafulla Shriyan, Uday Narayan Yadav. Hand washing Knowledge and Practice among mothers of under-five children in coastal Karnataka, India: A cross-sectional study. Int J Med Health Sci. 2014;3(4):266-71.
17. Divya S, CR Saju, CJ Navya, Joshy VM, Jini MP, Radhamani MV. A study on selected behavioral factors of mothers influencing acute diarrhea in under-five children in a rural part of Kerala, India. Int J Community Med Public Health 2016;3(8):2211-6.
18. Khan S, Kumar V, Priya N, Yadav SS. Handwashing practices among the caregivers of under five children in rural and urban areas of Moradabad, India: a community based study. Int J Med Sci Public Health 2017;6(1):133-138.
19. Shukla M, Agarwal M. Hand washing practices of mothers attending immunization clinic at a tertiary care hospital of Lucknow. International Journal of Contemporary Medical Research 2016;3(5):1372-75.
20. Madhur Borah, Rana Kakati. Hand washing practices among mothers of children under 5 years of age in rural areas of Kamrup district, Assam. Indian Journal of Basic and Applied Medical Research.2016;5(3).P.687-694.