

Assessment of hand hygiene practices among rural population in Basti district of Uttar Pradesh

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Abstract

Background: Hand washing is a preventive method for prevention of most of the communicable disease. Hand washing with soap is the most effective and cost-effective method to reduce the global burden of infectious disease. Present study was conducted to study hand washing practices in rural population. **Objectives:** The objectives are as follows: (i) To assess the hand washing practices in rural areas (ii) To identify the factors associated with hand washing practices (iii) To determine the association between hand washing and infectious diseases. **Materials and Methods:** A cross-sectional study was carried out in rural area of Basti city of Uttar Pradesh to assess the knowledge, awareness and perception of hand washing practices by house to house survey during the period of July 2021 to September 2021. Data were collected by prevalidated and pre-tested questionnaire. Data were entered into Microsoft Excel and analyzed using SPSS version 17.0. **Results:** A total of 1245 participants were included in this study. A total of 26 participants were excluded in accordance with the exclusion criteria like incomplete information. All the participants (100%) practiced hand washing after defecation. The major source of information for motivation of hand washing was practices was family (41.9%) followed by school (38.3%) and mass media like Radio, Television etc. (19.8%). Literacy status plays significantly associated with medium of hand washing. **Conclusion:** Among all the study participants who practiced hand washing, majority of them used water with soap and is influenced by factors such as age, frequency of health facility visits, and previous infections. The efforts are needed to encourage hand washing practices in those who were only using water for hand washing.

Keywords: Rural Population, Hand washing, Infections.

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Introduction

Hand washing with soap, particularly after contact with excreta, can reduce diarrheal diseases by over 40 per cent and respiratory infections by 30 per cent. Diarrhea and respiratory infections are the number one cause for child deaths in India. Hand washing with soap is among the most effective and inexpensive ways to prevent diarrheal diseases and pneumonia. With 594 million people defecating in the open and 44 per cent mothers disposing their children's faces in the open, there is a very high risk of microbial contamination (bacteria, viruses, amoeba) of water which causes diarrhea in children. Children weakened by frequent diarrhea episodes are more vulnerable to malnutrition and opportunistic infections such as pneumonia. About 48 per cent of children in India

are suffering from some degree of malnutrition. Diarrhea and worm infection are two major health conditions that affect school age children impacting their learning abilities.[1]According to WHO estimates, 3.8 million children aged less than five die each year from diarrhea and acute respiratory tract infections.[2] Contaminated hands play a major role in fecal-oral transmission of diseases. The first evidence of hand-washing was provided by Labarraque that hand decontamination can markedly reduce the incidence of puerperal fever and maternal mortality.[3] Hand washing has been common practice since the Roman times, yet throughout history its' benefits for the control of infection have been, and still remain, frequently overlooked.[4] Hygiene plays a major role in case of acute diarrhea and acute respiratory infections in children especially in under the age of 5 years. In a previous study, it was found that 'child bed' (or puerperal) fever could be transmitted through poor hand hygiene, and that good hand washing practice amongst medical staff helped limit infection.[5] Hand hygiene, particularly, hand-washing with soap, recognized as cost-effective public health intervention, having the significant potential to reduce disease burden globally.[6] Good hand-washing practices are another neglected area of maintenance of personal hygiene, especially in low-income countries like India. Although people around the world wash their hands with

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water, very few wash their hands with soap. Multimodal programmes for increasing hand hygiene compliance are now recommended as the most reliable, evidence-based method for ensuring sustainable improvement in hand washing practice. [7]

Material & Methods

A cross-sectional study was carried out in rural area of Basti district to assess the knowledge, awareness and perception of hand washing practices by house to house survey during the period of July 2021 to September 2021. This study was a questionnaire-based survey. A self-developed, pre-validated questionnaire consisting of both open-ended and closed-ended items were used. The study population comprised of inhabitants of rural area of Basti. All participants who were willing to participate in the study were enrolled. A briefing was given about the nature of study and the procedure of completing the questionnaire was explained. Samples of 1245 participants were selected randomly and verbal consent was taken. Those households with children <5 years preferably interview of the mother or caregiver was taken. A total of 26 participants were excluded in accordance with the exclusion criteria like incomplete information. The questionnaire consists of socio-demographic characteristics, hand-washing practices, medium and technique of hand-washing, timing of hand-washing, history episodes of acute respiratory infections or episodes of diarrhea in last three months period. The period of three months was taken to reduce any recall bias. For children less than five year old in the house-hold interview of the mother or care-giver was taken. Results are based upon the data obtained from 1219 participants. Percentages and Proportion were calculated for descriptive statistics. Chi-square was used as a test of

significance. P value less than 0.05 was taken as statistically significant. SPSS 17.0 was used for analysis purpose.

Results

Out of 1245 participants enrolled, 26 participants were excluded in accordance with the exclusion criteria like incomplete information. In present study, 652 (53.5%) participants were males while 567 (46.5%) were females. Majority of participant were from age group of 21 to 40 years (37.6%) followed by 6 to 20 years age-group (25.48%). In present study, we observed that most of the participants were educated up to secondary school (48.7%) while 12.1% participants were illiterate. The major source of information for motivation of hand washing was practices was family (41.9%) followed by school (38.3%) and mass media like Radio, Television etc. (19.8%). In present study, we observed that out of 1219, 79.5% participants were using soap and water for hand washing while 12.3% participants used water and antiseptic solution for hand washing. 8.2% participants were practicing hand wash only with water. Most of the participants were practiced hand washing before and after taking meal. Frequency of hand washing was ranged from 4 times to 15 times per day. Average frequency of hand washing was 5 times per day. Majority (83.4%) of household surveyed had designated proper place for hand washing. There was statistically significant association between age-group of study participant and medium of hand washing. Majority of participants who were practicing main medium of hand washing was water with soap were of age-group of 21- 60 years. No association between gender of study participant and medium of hand washing. Literacy status plays significantly associated with medium of hand washing. (Table 1)

Table 1: Association between socio-demographic characters and medium of hand washing (N=1219)

S. N.	Socio-demographic Character	Medium of hand wash			X ² -value	P-value
		Water with Soap	Water with antiseptic	Water only		
A. Gender						
1.	Male	526	84	42	5.931241	0.052
2.	Female	443	66	58		
B. Age						
1.	Up to 20 years	352	35	21	17.45467	0.000
2.	More than 20 years	617	115	79		
C. Education						
1.	Illiterate	58	18	72	370.3259	0.000
2.	Literate	911	132	28		

Discussion

Proper hand-washing practices are another neglected area of maintenance of personal hygiene, especially in developing countries. Very few studies were conducted on hand washing practices especially in rural areas of India. Most of the previous studies were carried out on hand washing practices in healthcare workers, hospital or paramedical staffs and specific groups. In the present study, we observed that about 79.5% participants were practicing hand wash with soap and water for hand washing. This was in accordance to previous study done by Pandve et al. [8,9] The participants were aware of the role of hand washing in prevention of communicable diseases. All the participants were using soap and water for hand wash after defecation. This was in accordance to previous study done by Ray SK et. al. [9] In present study, we observed that 95% participants were practicing hand washing before and after handling any food item. This was in accordance to study conducted by Pandve et al. [8] In another study conducted in West Bengal, in rural area 71% used soap and water after defecation while 26% used mud or ash. [10] A previous study revealed that 73% of the study population

believed that importance of hand washing is removal of dirt while 45% believed it to be prevention of diseases. [11] On the contrary, a study in Karnataka revealed that almost all the respondents (96.7%) stated that hand washing was important for the prevention of diseases & 45.6% stated its importance to maintain cleanliness. [12] Multimodal programmes for increasing hand hygiene compliance are now recommended as the most reliable, evidence-based method for ensuring sustainable improvement in hand washing practice. [7] In studies around the world, the main reason given why rates of hand washing with soap are so low is that it is simply not a habit. The challenge remains to make hand washing with soap a habit and a social norm on a worldwide basis. [13] Hand washing also prevents the transmission on many diseases and also reduces the respiratory infections, diarrhea, skin infections and eye infections. Previous studies demonstrated that communities that received intensive hand washing promotion have less childhood diarrhea and respiratory disease. [13- 15] In present study, we observed that there was significant association between hand wash practice and history of upper respiratory tract infection and diarrhea. (Table 2 & 3)

Table 2: Association of hand washing medium and history of diarrhea episode in last 3 months

S. N.	Hand washing Medium	History of Diarrhea		Total	X ² -value	P-value
		Present	Absent			
1	Water with Soap	19	827	846	290.0573	0.000
2	Water with antiseptic	4	199	203		
3	Water only	66	104	170		
Total		89	1130	1219		

Table 3: Association of hand washing medium and history of Upper Respiratory Tract Infection episode in last 3 months

S. N.	Hand washing Medium	History of URTI		Total	X ² -value	P-value
		Present	Absent			
1	Water with Soap	19	843	862	317.6486	0.0000
2	Water with antiseptic	5	156	161		
3	Water only	81	115	196		
	Total	105	1114	1219		

In present study, we observed that those participants who were using only water to wash their hands; get more infected with diarrhea and URTI in last 3 months recall period. Statistical significance association was found between age group, literacy level and technique of hand washing. We observed in this study that there was significance association with participant's age and hand washing practices. Younger and middle aged participants are more commonly engaged in better hand washing practices. Literacy also plays an important role in hand washing practices. In our study, we found that literate participants were more involved in hand washing practices. (Table.1)

Conclusion

Majority of participants used water with soap as medium, but the technique of hand washing was incorrect. Overall hand washing practices decreased with increasing age. This difference in proportion was statistically significant. The efforts are needed to encourage hand washing practices in those who were only using water for hand washing. Repeated periodical interventions to sustain the practices/encourage right practices and more awareness should be created regarding importance of hand washing, agents to be used, and proper technique of hand washing to elderly age group as they are most neglected one and need to be concentrated more as seen in this study. Children in school must be educated regarding hand hygiene and they should be asked to educate and promote hand washing in their families.

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