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Knowledge and practices regarding hand-washing among mothers of children less than five years of age in rural areas of District Sialkot

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Abstract

Objective: To assess knowledge and practices regarding hand-washing among mothers of children aged ≤5 years.

Methods: The cross-sectional study was conducted from March to July 2015 in rural areas of Union Council Charwa, Tehsil Pasrur in District Sialkot, Pakistan, and comprised mothers of children aged ≤5 years. Data was collected using a pre-tested and validated structured questionnaire developed in line with World health Organisation guidelines on hand-washing technique. Data was analysed using SPSS 17.

Results: Of the 422 subjects, 319 (75.4%) had sufficient knowledge and 104 (24.6%) showed good practices regarding hand-washing. However, only 59 (14%) mothers were found adherent to the appropriate technique of hand-washing.

Conclusion: Health education and behaviour-changing communication approaches must be implemented to educate the masses about proper hand-washing technique.

Key Words: Knowledge, Practices, Hand-washing, Mothers, Health education, Pakistan.

Introduction

According to the World Health Organisation (WHO), approximately 3.8 million children aged <five die each year from diarrhoea and acute respiratory tract infections (ARTIs), and infectious diseases are responsible for around 62% and 31% of deaths in Africa and South Asia respectively.[1] In order to curb the prevailing burden of infectious diseases, simple hand-washing has been found a cost-effective way of prevention. Globally, among childhood diseases of under-five children, diarrhoea has been reported as the second major cause. Approximately, 1.5 million deaths among children occur each year due to diarrhoea only. Each year, an estimated 40% of deaths among children are caused from pneumonia and diarrhoea. Factors, such as unsafe water, poor hygiene and insufficiency of proper sanitation, contribute to almost 88% of deaths from diarrhoea worldwide.[2]

Infectious diseases still remain the leading cause of morbidity and mortality in children in Pakistan. By and large, infectious diseases account for more than two-third of childhood-related mortality in developing countries. In Pakistan, <five year, <1 year and <1 month mortality rate is 97, 78 and 57 per 1,000 live-births respectively. Every year, nearly two million of children aged <5 years die because of diarrhoea and pneumonia.[3]According to the WHO, proper hand-washing does not include a quick rinse of the hands; rather it takes one minute using water, soap and some devoted scrubbing. However, liquid is considered the best solvent. Hand-washing means rubbing hands palm-to-palm, right palm over left dorsum with interlocked fingers and vice versa, palm-to-palm with

fingers interlocked, washing around tips of fingers and fingernails as well as the front and back of both hands. It is further advised to dry thoroughly after hand-washing with a single-use towel.[4]Ineffective hand-washing is attributed to low level of awareness and a decreased practice of personal hygiene behaviour regarding hand-washing. To improvise hand-washing practices, health education and behaviour-changing communication (BCC) approaches must be adopted and implemented.[5] The current study was planned to assess knowledge, attitude and practice (KAP) of hand-washing among mothers of children aged <5 years.

Subjects and Methods

The cross-sectional KAP study was conducted from March to July 2015in the rural areas of Union Council Charwa of Tehsil Pasrur in District Sialkot, Pakistan. After obtaining approval from the ethics review board of Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan, and permission from the relevant area administration, the sample size was calculated usingOpenEpisoftware[6] with 95% confidence interval (CI), 50% prevalence of hand-washing practices and p = 0.05.The estimated population of Sialkot district[7] was taken as 1698,009 as of 2014 while using the formula:

$$n = \frac{Np(1-p)}{\frac{d^2}{z^2}(N-1) + p \times (1-p)}$$

$$n = \frac{1698{,}009 \times 50\,(1-50)}{\frac{5^2}{1.96^2}(1698{,}009-1) + 50 \times (1-50)}$$

n = Sample size; p = Estimated proportion;
d = absolute level of precision; and
N = Population size.

The sample was raised using multi-stage random sampling technique. Those included were mothers of children aged ≤5 years. Those with any severe physical or mental illness, or those who were incapable of participating in the

study with speech and hearing impairment were excluded. In the first stage, four villages of Charwa Union Council were randomly selected. In the second stage, a list of households was collected from lady health workers (LHWs) in the area. In the next stage, households with mothers having children aged ≤5 were selected. The list of households had 694 units along with details of the family numbers living in each house. A family number was allotted to all the assigned households, and the mother in each household was invited to participate in the study. Those who furnished voluntary consent were included.

Data was collected using a structured questionnaire developed after extensive review of literature.[5,8,9]Another questionnaire was adapted from teh WHO guidelines on hand-washing technique, which was subsequently validated[2] thorough a review of the tool by public health experts working for health education, hand hygiene and infection control. It was pilot-tested and minor modifications were made in the final questionnaire. Primarily, the questionnaire was in English language which was translated into Urdu for the purpose of interview only. Data was collected by the principal investigator along with the assigned LHW.

Apart from socio-demographic details, data was collected regarding mother's knowledge and practice regarding hand-washing using soap and water, and whether or not they were following the appropriate hand-washing technique. Questionnaire was self administered to the respondents and was coded. The filled questionnaires were checked on a daily basis before entering the data. For the purpose of coding, definitions for relevant terms were set. Sufficient knowledge was considered when mother's hand-washing knowledge scores were above the median score, while scores below the median were considered insufficient knowledge. Mother's hand-washing practice score above the median was labelled as 'good practices' and below-median scores as 'bad practices'.

In the knowledge domain, 14 questions were asked. The correct response (Yes) was coded as 1, and incorrect response (No) as 0. For the practice domain, 12 questions were asked and were scored 3 = always, 2 = often, and 1 = sometimes, and 0 = never. The scale was then converted into binary outcome by coding good practices as '1' and bad practices as '0'. Data was analysed using SPSS 17. Descriptive statistics were expressed as frequencies and percentages. Inferential statistics was performed where chi-square was used to determine the association between categorical variables. Logistic regression analysis was carried out to assess statistical significance of the difference between appropriate and inappropriate hand-washing practices.

Results

Of the 422 subjects, 252 (59%) were aged 20-30 years; 210(49%) had 3-6 children; 132(31.3%) had no formal education; 351(83.2%) were housewives; 222 (52.6%) were part of a household that had a monthly income of 5000-15000 Pakistani rupees (PKR); and 272 (64.5%) lived in a joint family structure (Table 1). Overall, 319 (75.4%) of the mothers' responses were correct about the importance of hand-washing (Figure 1); 380 (99%) were aware of the benefits of hand-washing; 76(18.5%) considered washing hands with water only was sufficient; 409 (97%) believed that unwashed hands can cause illness among children; and 401(95%) considered that disease can be acquired by contacting domestic animals and pets thorough hands. Also, 300 (71%) of the mothers thought hand-washing was essential for the prevention of communicable diseases; 173 (41%) knew that diarrhoea can be prevented among children by hand-washing; 194 (46%) knew that it could prevent ARTIs; 97 (23%) knew it could prevent intestinal worms in their children; 87 (21%) knew it could prevent allergy; and 38 (9%) knew that skin and eye infections could be prevented. Further, 148 (35%) mothers stated that hands should be washed to be clean; 154 (36.5%) responded that hands should be washed to prevent diseases; 78 (18.5%)

answered that hands should be washed for both purposes; and 40 (9.5%) did not know why to wash hands.

Figure 2 shows good Regarding hand-washing practices, 238 (56.4%) mothers had good practices (Figure 2); 342 (81%) reported always washing hands before preparing the food; 44 (10.4%) did it often; and 36 (8.5%) did it rarely. Also, 131 (31%) mothers stated they always washed their hands before having meals; 93 (22%) did it often; 190 (44.8%) did it rarely; and 8 (2%) never did so. Concerning hand-washing before feeding the child, 76 (18%) mothers said always; 55 (13%) often; 148 (35.1%) rarely; and 144 (34.1%) never.

Considering personal hygiene of the child, 76 (18%) mothers said they always washed the hands of their children before letting them have meals; 110 (25.6%) did it often; 177 (41.7%) rarely; and 37 (8.8%) never. After defecation, 409 (97%) mothers said they always washed their hands; 10 (2.4%) did so often. After changing baby's nappies or diapers, 403 (95.5%) mothers said they always washed their hands; and 3 (0.7%) did it rarely. While, doing house chores, 173 (41%) mothers said they always washed their hands; 363 (86%) did it always while handling garbage; 165 (39%) washed their hands always while handling domestic pets and animals. During cooking and handling raw meat, 418 (98.6%) mothers said they always washed their hands, while 8 (0.2%) said they never did so. Only 29 (0.7%) mothers always washed their hands after coughing and sneezing; and 371(88%) never did that. While taking care of the child and blowing their nose, 186 (44%) mothers rarely washed their hands; 148 (35%) said they never did that; and 21(5%) always washed their hands after blowing children's nose.

Regarding hand-washing technique, all the 422 (100%) subjects reported to be following the first two steps of the appropriate technique; 62 (14.7%) accurately practised step 3; 99 (23.5%) Step 4; 40 (9.5%) Step 5; 58 (14%) step 6; and 347 (82.2%) step 7 (Table 2). Overall, appropriate technique of hand-washing was found in 59(14%) mothers, and in 363 (86%) it was inappropriate. Also, 333

(79%) mothers were educating their children about hand-washing practices; and 418 (99%) were supportive of the idea of arranging a course of hand hygiene for school-going children. Education level, occupation of the mother, and monthly income were parameters significantly associated with sufficient knowledge regarding hand-washing ($p \leq 0.05$). The odds of having sufficient knowledge regarding hand-washing were six times among educated mothers compared to those with no formal education (Table 3).

Discussion

Hand-washing is a cost-effective and life-saving intervention within reach of communities and household members.[10] In the current study, the respondents reported various sources of information, such as 52% acquired knowledge regarding hand-washing from family and friends, followed by 40% from their schooling, and 2% through media. Health personnel and LHWs were the chief source of knowledge regarding hand-washing for 3% of the subjects. A study conducted in India where 46% women stated that hands should be washed to maintain cleanliness followed by 37% of women who stated that hands should be washed to prevent diseases. Approximately 18% of the mothers responded that it was sufficient to wash hands with water alone in order to prevent diseases, which is a finding almost similar to earlier studies.[11,12]

Among the respondents, 97% considered that unwashed hands can cause illness among their children, while 95% considered that diseases can be acquired by hands through contact with domestic animals and pets. These finding are similar to those reported earlier.[8] In the current study, 75% mothers had sufficient knowledge about hand-washing and 25% had insufficient knowledge, which is lower than the 93% and 7% reported in an earlier study.[9] In the current study, 14% mothers said they take one minute to wash their hands with soap, and 39% mothers wiped or dried their hands using a shared towel. This is in contrast to the findings of a similar study where 80%respondents reported washing their

hands with soap for one minute and 70% stated that they used shared towel.[13,14] In addition, the current study also found that half of the mothers dried their hands with their 'dupatta' after washing hands. Interventions targeted on health education and improving hygiene regarding hand-washing can be a way forward in terms of prevention from infectious diseases among children. Moreover; schools and government-endorsed health education campaigns can effectively deliver the right message among mothers and their children.[10,14,15] The limitation of the current study is that it was conducted in only four small villages of one rural union council and hence, the findings cannot be generalised to entire district. Future studies are recommended to be conducted at the district level to assess the cost-effectiveness of health education focussing on hand-washing.

Conclusion

Education level, occupation of the mother, and household monthly income were found to be significantly associated with sufficient knowledge regarding hand-washing.

Limitation

The study was conducted in 2015. Due to unforeseen circumstances, it will be published in 2020.

Disclaimer: None.

Conflict of interest: The person who signed the ethical review statement is also a co-author.

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Table 1: Socio-Demographic Variables of Study Participants (N=422)

Characteristics		Frequency (n)	Percentage (%)
Age group of mothers (in years)	Less than 20	10	2.4
	20-30	252	59.7
	31-40	153	36.3
	More than 40	07	1.7
Total number of children	Less than 3 Children	186	44.1
	3-6 children	210	49.8
	More than 6 children	26	6.2
Education of mother	Illiterate	132	31.3
	Primary	60	14.2
	Middle	73	17.3
	Secondary	87	20.6
	Intermediate	31	7.3
	Graduation	27	6.4
	Masters	12	2.8
Occupation of mother	Housewife	351	83.2
	Govt Job	12	2.8
	Private Job	10	2.4
	Daily Labourer	49	11.6
Religion	Muslim	421	99.8
	Non Muslim	01	0.2
Monthly income (Pak Rupees (PKR)	Less than 5000	57	13.5
	5000-15000	222	52.6
	16000-25000	79	18.7
	More than 25000	64	15.2
Family type	Joint family	272	64.5
	Nuclear family	150	35.5

Table 2:Adherence to Hand-washing Techniques of Seven (07) Steps among Study Participants at District Sialkot (N=422)

S.No.	Questions	Yes n (%)	No n (%)
1.	Do you get your hands with water before applying soap?	422(100)	0 (0)
2.	Do you rub your hands palm to palm after applying soap?	422(100)	0 (0)
3.	Do you rub your right palm over left dorsum with interlocked fingers and vice versa?	62(14.7)	360(85.3)
4.	Do you rub your hands palm to palm with fingers interlocked?	99(23.5)	323(76.5)
5.	Do you scrub your tips of fingers and fingernails?	40(9.5)	382(90.5)
6.	Do you take one minute to wash your hands?	58(13.7)	364(86.3)
7.	Do you wash your hands for long time when hands are visible dirty?	347(82.2)	75(17.8)

Table 3: Logistic Regression Analysis of Socio-Demographic Variables and Knowledge regarding Hand-washing among Study Participants (Adjusted)

Knowledge of Mothers regarding Hand-washing (N=422)				
Variables	**n (%)**	**Adjusted OR**	**95% CI**	**P value**
Education level of mothers				
Illiterate Literate	132 (31.2) 290 (68.7)	1 5.95	3.68-9.62	0.000
Monthly income of mothers				
< 15000 rupees > 15000 rupees	279 (66.1) 143 (33.8)	1 1.87	1.18-2.96	0.008
Practices of Mothers regarding Hand-washing(N=422)				
Education level of mothers	**n (%)**	**Adjusted OR**	**95% CI**	**P value**
Illiterate Literate	132 (31.2) 290 (68.7)	1 2.02	1.31-3.12	0.001
Monthly income of mothers				
< 15000 rupees > 15000 rupees	279 (66.1) 143 (33.8)	1 1.67	1.08-2.58	0.02

CI: Confidence interval; OR: Odds ratio.

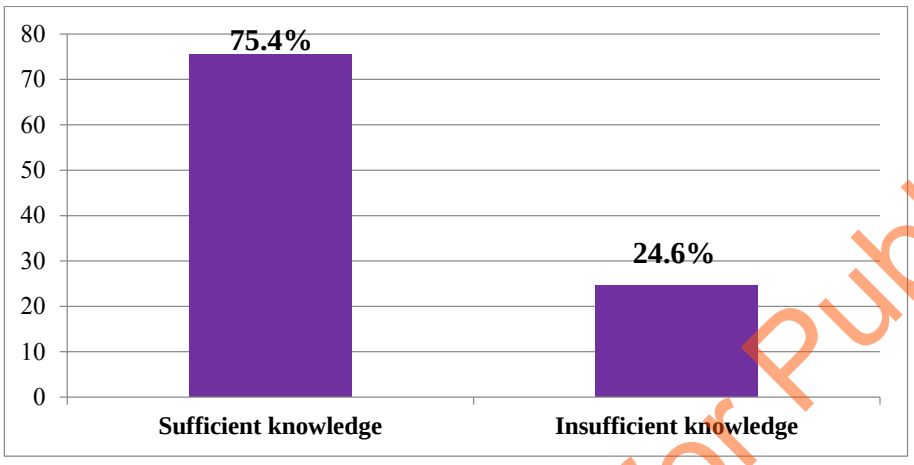

Figure 1: Knowledge of Mothers Regarding Hand-washing (N=422)

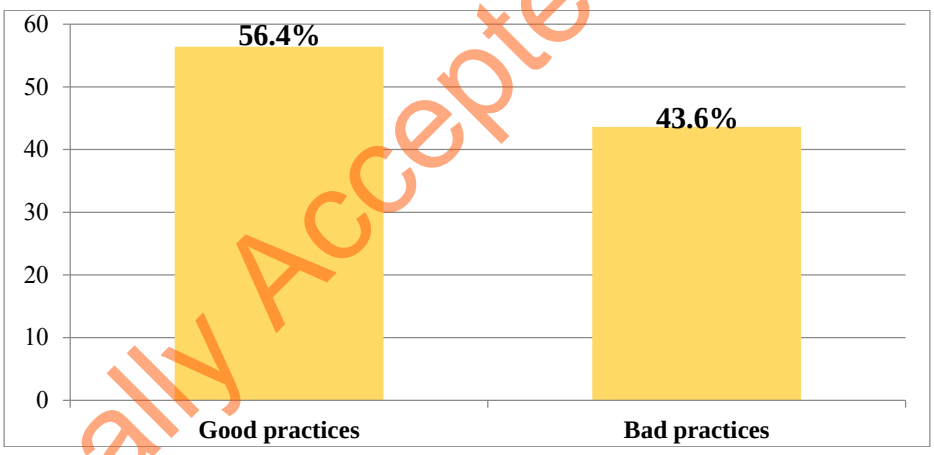

Figure 2: Hand-washing Practices of Mothers (N=422)