

IMPACT OF MOTHERS' KNOWLEDGE, ATTITUDE AND PRACTICES OF HANDWASHING ON THEIR CHILDREN IN A SUB-URBAN AREA OF VISAKHAPATNAM (INDIA)

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Abstract

Background: Good Hand washing practices (HWP) were well established for preventing morbidity and mortality in children from communicable diseases. The role of mothers at home and teachers of the primary level is of immense importance in inculcating this lifelong habit in children. With the surge of transmission of viral diseases like SARS, H1N1, COVID-19 pandemic, the importance of HW has been augmented. The present study aimed to estimate the knowledge, attitude and practice (KAP) levels of hand hygiene in mothers and their children. **Materials and Methods:** In a cross-sectional descriptive study in a suburban area of Visakhapatnam, 120 mothers and 120 of their children between 6 to 12 years were randomly selected. The data was collected by personal interviews of mothers and children in a predesigned, pretested questionnaire in Google forms and analyzed in SPSS.V25. **Result:** The knowledge of mothers on Hand Washing (HW) ranges from 73.3% to 100%. The practices of mothers and children range from 75% - 98.3% and 50.8% - 95% respectively. The mean practice score of HW among mothers was 4.28 and that of their children was 6.43. There was a high positive correlation of practices of HW between mothers and their children ($r = 0.740$) and a statistically significant association ($P < 0.001$) was observed. **Conclusion:** The Knowledge and practice levels were found to be high both in mothers and their children during the COVID-19 pandemic. A positive correlation was observed between mothers' KAP on HW and practices in their children. Repeated interventions by health education would help to sustain healthy HW practices.

INTRODUCTION

Globally, death of under-five children has declined from 12.6 million in 1990 to 5.4 million in 2017.^[1] Today, in the developing world, the main killer diseases among under-five children were diarrheal disease and respiratory tract infections,^[2] which were responsible for more than 1.6 million deaths and accounted for 21% of all deaths.^[3,4]

The high incidence of diarrhoeal diseases and other communicable diseases (CDs) among school children are due to poor knowledge and practice of personal and environmental hygiene. Improper handwashing (HW) has negative consequences on a child's long term and overall development. Global sensitization was recommended to control the outbreak of the pandemic of COVID 19. Hand hygiene or hand washing (HW) are interchangeable words and their importance has been appreciated all

over the world to prevent ingestion of pathogenic microorganisms. HW with clean water and soap is the easy and most cost-effective mode of prevention of CDs. For good hand washing practices, one has to wet hands thoroughly all over and then use neutral soap after which the hands are rubbed vigorously together for at least 20seconds paying particular attention to fingertips, thumbs, wrists, finger webs and back of hands.^[5] The soap should be well lathered all over the hands and rinse down the running water and finally dry hands with a clean towel.

Critical times for handwashing for mothers include after using the toilet, after cleaning a child and before handling food and for children after playing with others, toys and pets in addition to observing critical times. Although HW with soap is among the most effective and inexpensive ways to prevent diarrheal diseases and pneumonia, together they are responsible for the majority of childhood deaths

globally. It is seldom a practice and not always easy to promote despite its life-saving potential.^[6] Growing up in a clean and safe environment is every child's right. Access to clean water, basic toilets, and good hygiene practices not only keep children thriving well but also help them a healthier start in life.

Despite COVID-19 putting the spotlight on the importance of HW three billion people worldwide, including millions of school-going children do not have access to HW facilities with soap. People living in rural, urban slums, disaster-prone areas and low-income countries are the most affected. 818 million children do not have facilities for handwashing in their schools before COVID-19 according to UNICEF Report.^[7] Involving children as active participants in promoting HW with soap in schools creates a sense of ownership that makes new behaviour more likely to adhere.

The link between HW and contact transmission of infection was first established by Oliver Wendell Holmes in the US (1843) and by Semmelweiss in Europe (1861). Both of them observed a drop in the rate of puerperal sepsis and its associated mortality when medical staff washed their hands between examining women during childbirth. Hands are the principal route by which cross-infection occurs.^[8] Even now HW is poor in many communities particularly in developing countries like India. About 1.8 million children under the age of 5 die each year from diarrheal diseases and pneumonia, the top two killers of young children around the world. One out of three young children get sick with diarrhoea for not using soap while washing hands,^[9,10] and 1 out of 5 young children suffer from respiratory infections.^[11] Very few people around the world use soap for HW which removes germs effectively.^[12] Education on HW and access to soap in schools can help improve school attendance as well.^[13] Women must follow basic principles of hand hygiene, since they play a pivotal role in child-rearing, cooking food, serving food etc., Therefore their awareness, attitude and practices of HW is of utmost importance. Similarly, young school-going children are another vulnerable group for unhygienic hand washing. They often transmit microorganisms from hands to mouth after playing, touching dirty things. It is an essential duty of their caretakers like parents or guardians, and teachers to remove their ignorance, develop a positive attitude and inculcate good hygienic practices in early childhood. Good HW early in life will bring about attitudinal changes in children and help for their development. Frequent HW has been emphasized along with the use of sanitizer, social distancing and face mask because of the COVID 19 pandemic. Mothers' awareness and practices of personal health would impart children with healthy practices. On the above background, the study has been conducted with the following objectives.

- 1) To estimate the knowledge, attitude and practices (KAP) of hand washing of sub-urban mothers and their children.
- 2) To correlate mothers' Knowledge, Attitude and Practices on Hand washing with practices of their children.

MATERIALS AND METHODS

Study Design: It is a cross-sectional descriptive study.

Place of the Study: YSR colony in a suburban area of Visakhapatnam of Andhra Pradesh.

Duration of the Study: 2 months (In January 2022 and February 2022).

Study Population: The study population was mothers and their school-going children between 6-12 years, residing in a colony constructed for weaker sections in a sub-urban area of Visakhapatnam (AP), India.

Inclusion Criteria

Mothers and their children of the YSR colony, who have given informed consent to participate voluntarily, were included in the study.

Exclusion Criteria

Unwilling or Sick mothers and children were excluded from the study

Sample Size

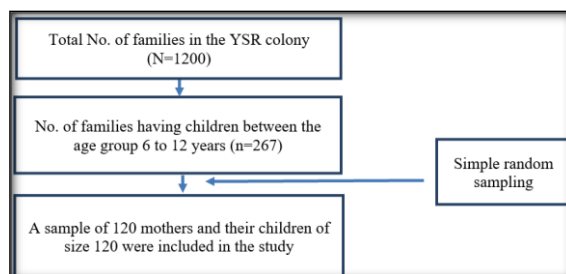
$$n \geq \left[\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{\frac{1}{2} \log_e \frac{1+r}{1-r}} \right] + 3$$

Type-I error rate (Alpha or α) = 0.05, Type-II error rate (Beta or β) = 0.2,

$Z_{1-\alpha/2} = 1.96$, $Z_{1-\beta} = 0.84$, Estimated correlation coefficient from the pilot study (r) = 0.54

On Substitution all these values in the above formula, the required minimum sample size $n = 25$. In the present study, a sample of 120 mothers and 120 of their children were studied.

Sampling Technique: Simple Random sampling method.



Data Collection Method

A pre-designed and pre-tested questionnaire regarding Knowledge, Attitude and Practices on HW for mothers and questionnaire regarding practices on hand washing for children were prepared. The questionnaire was suitable to their

level of understanding in the simple and lucid local language. The study subjects namely mothers were well informed about the study. In the family where more than one child between 6-12 years was found, the older one was interviewed.

The questionnaire scoring system was followed for the knowledge, attitude and practice sections. One (1) point was assigned for each correct response and zero (0) for incorrect or negative response. The questionnaire comprised multiple-choice answers in four sections of the Schedule for mothers: socio-demographic data (9items), knowledge of HW (4items), attitudes of HW (3items), and HW practices (5 items). Children's schedule comprised of 8 items on practices.

IEC & Consent

Permission from the Institutional Ethics Committee was obtained. Informed consent was taken from mothers. For children consent was taken from parents.^[14]

Statistical Analysis

Data were entered in MS-Excel and analyzed in SPSS V.25. Descriptive statistics were represented with percentages, mean with SD. Shapiro-Wilk test was applied to find normality. Karl Pearson correlation was calculated. $P < 0.05$ was considered statistically significant.

RESULTS

In the present study 111 out of 120 (92.5%) mothers belong to the 25 to 35 age group. Most of the

mothers (112,93.3%) in the study population were housewives. 35(29.2%) and 58 (48.3%) mothers were educated up to primary and secondary levels respectively. The study population was also comprised of 15(12.5%) graduates. All (100%) of the study population occupied pukka houses with a municipal water supply and were using Sanitary latrines. 93 (77.5%) families had one and 27 (22.5%) had two school-going children as shown in [Table 1].

The mean knowledge score was 3.47 with SD 0.81, mean attitude score and mean practices score of mothers on HW were 2.48 with SD 0.71 and 4.28 with SD 1.20 respectively (fig-1). The mean practice score of their children was observed to be 6.43 with SD 1.99. The KAP scores were shown in [Table 2]. 33 (27.5%) of women of the study population expressed reasons for non-compliance of proper hand washing, out of them 11(40%) mentioned negligence, 10 (36.4%) told that HW is a time taking process and another 10 (36.4%) mentioned that children are not listening to follow HW regularly. The cost factor of soap was expressed by only 2 (7.2%) of 33 respondents [Table 3]. 112 children (93.3%) told that their mothers enforce HW at home.

It was observed that there was a high positive correlation between practices of mothers and their children (with an 'r'-value of 0.740, $p = 0.001$) about HW and a low positive correlation of knowledge and attitude on HW as shown in [Table 4 & Figure 2-4].

Table 1: Demographic Characteristics of respondents (Mothers) n=120

Age	Frequency	Per cent
23-25	2	1.7
25-30	70	58.3
30-35	41	34.2
35-40	5	4.2
>40	2	1.6
Total	120	100.0
Occupation	Frequency	Per cent
Employers	8	6.7
Housewife	112	93.3
Total	120	100.0
Education	Frequency	Per cent
Illiterate	8	6.7
Primary Ed	35	29.2
Secondary level	58	48.3
Graduate	15	12.5
PG level	4	3.3
Total	120	100.0
Religion	Frequency	Per cent
Christian	6	5.0
Hindu	114	95.0
Total	120	100.0
No. of children in the age group. of 6-12yrs	Frequency	Per cent
1	93	77.5
2	27	22.5
Total	120	100.0
Source of Drinking water	Frequency	Per cent
Municipal water	120	100.0
Presence of sanitary latrine in the house	Frequency	Per cent
Yes	120	100.0

Table 2: Levels of knowledge, Attitude and Practices of HW of mothers and children

	No.	Mean	SD
Knowledge	120	3.47	0.81
Attitude	120	2.48	0.71
Practices	120	4.28	1.20
Practices of Children	120	6.43	1.99

* HW= Hand Washing

Table 3: Barriers of Hand Washing among respondents (Mothers) n=33

Barriers of Handwashing	No.	Percentage
Negligence	11	40%
Time taking process	10	36.4%
Children won't listen	10	36.4%
Liquid soap is costly	02	7.2%

Table 4: Correlation between Mothers' KAP Score with Practice scores of their children.

Mothers'	Children Practices of Hand Washing	
	r-value	P- value
Knowledge of HW*	.570**	< 0.001
Attitude on HW	.383**	< 0.001
Practices of HW	.740**	< 0.001

*HW=Hand Washing; KAP =Knowledge, Attitude and Practice

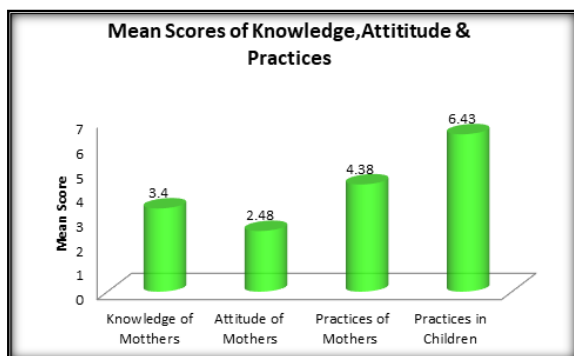


Figure 1: Mean Scores of Knowledge, Attitude and Practices of study subjects

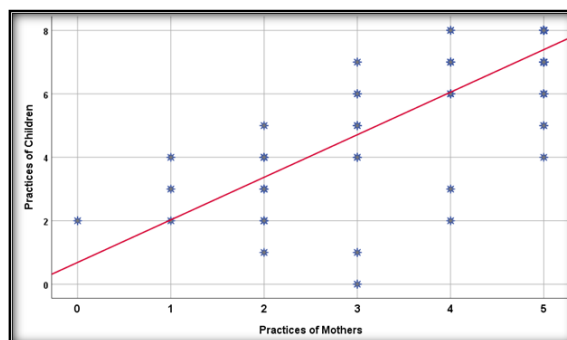


Figure 4: Correlation of mothers' and Children's practices on good HWP

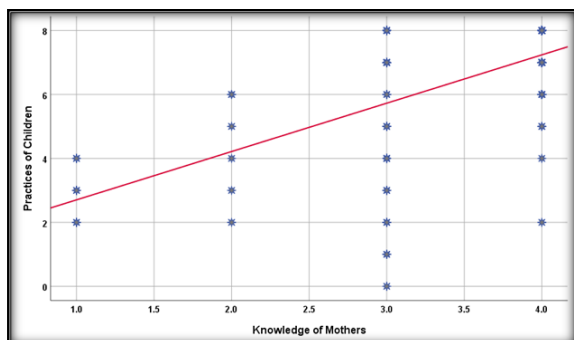


Figure 2: Correlation of mothers' Knowledge and Children's practices on good HWP

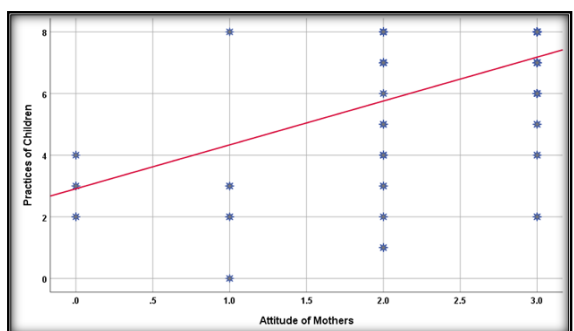


Figure 3: Correlation of mothers' Attitude and Children's practices on good HWP

DISCUSSION

In a literature review, it has been found that very few studies on hand washing practices especially in suburbs of India. Since the emergence of the COVID -19 surge, the practice of HW has been more popularized. The major role is played by the mothers under close bondage with their children. Ray et al expressed that repeated health education at different levels is needed to reinforce knowledge into the lifelong change in behaviour.^[15]

According to UNICEF hand washing before eating food and after using the toilet are the two most critical moments. 78.3% (94) of women in the study population knew the critical timings of hand washing (HW). 100% knew that soap should be used for HW. The reason for hand washing is known to 95% (114) as to get rid of germs from entering into the body to cause diseases. 73.3% (88) could able to show the correct method of HW when asked to demonstrate. But 40.8% (49) said that it was meant for children only. It may be due to ignorance and lack of a positive attitude towards HW. Regular health education can bring about attitudinal and behavioural changes. 95% (114) of mothers used to teach their children. Regular

watching of HW by their children was done by 75% (90) of mothers.

In the present study it was observed that 79.2% mothers practised HW at least two critical timings and 98.3% of mothers used soap and water for handwashing. In a similar study by Pati S et al, 72% of women practised HW with soap and water.^[16] Dr Madhur Borah and Dr Rana Kakati observed 76% of mothers in rural Assam (India) washed their hands with soap and water after defecation.^[13] Quazi. S et al in their study on urban slum areas found that most of the mothers used soap and water (85.3%) for hand washing and all the mothers (100%) used soap to wash their hands after visiting the toilet.^[14] Health care workers, social workers and media played a major role in spreading the messages and demonstrating HW to all sections of communities during COVID-19 pandemic. The government through its all concerning departments executed the responsible roles. Hence the KAP levels were high in this study. This may also be attributed to the close proximity of the study population to the urban area and the availability of better health services at their door step. Gawai Priyanka et al observed 74.3% of mothers had knowledge of HW before eating food and 19.3% had knowledge of HW after using the toilet.^[16]

33(27.5%) of women of the study population expressed the reasons for non-compliance of HW properly. Forgetfulness and laziness reflect the behavioural problems towards HW. The main reason for noncompliance observed by Gawai Priyanka, P. et al was forgetfulness to wash hands before eating in 88% of mothers and 84% of mothers after using the toilet.^[17] When asked the students who enforce hand washing at home, 93.3% (112) replied it was none other than mother. 55% (66) of the women in the study population perceived that there is an increased frequency of handwashing in recent years.

95% (114) of the students said that soap was available in schools and 94.2% of children told that teachers teach about HW. 50.8% (61) of them recollected that either a doctor or a health care worker visited them in the last three months. 87.5% (105) of students regularly wash their hands with soap and water. 70% told that the teachers check them washing hands before eating food at school. 79.2% of school children correctly pronounced two critical timings of handwashing and used soap for HW after visiting the toilet. In a similar study by Pati S et al observed 81% of children wash hands before eating and only 17.5% used soap. 44% told at least two critical timings of HW and 15% told that soap was available in schools. 29% told that teachers watch them and 61% told that soap was used after using the toilet.^[16] The higher rates of KAP on HW in the present study may be due to the advanced period in which the study was conducted. As the period advances more and more knowledge and practices develop. The pandemic period of

COVID - 19 imparted an appropriate behaviour on HW besides use of mask and social distancing.

There was a positive correlation between KAP (Knowledge, Attitude and Practices) of mothers and their children between 6-12 years of age. As the KAP levels in mothers increase the levels of good hand hygiene/washing practices also improved in children as shown in graphs 1, 2 & 3. In the present study, it was observed that children inculcated healthy knowledge, attitude and practices from their mothers.

Limitations

The study was purely based on the individual responses. However several such studies in similar settings can be done to come to a valid conclusion.

CONCLUSION

The study sought to assess the hand washing knowledge, attitudes, and practices among mothers and their children and to see the correlation between them. It was observed that levels of education and income of the families were not associated with the Knowledge, Attitude and Practices (KAP) towards handwashing. The KAP levels were high in the study during the COVID-19 pandemic. There was a positive Correlation between mothers' KAP on HW and practices among their children. The Government of India (GOI) launched a broad, multi-language health education campaign that targeted all populations. Repeated or periodical interventions would help to sustain HW practices. The promotion of handwashing with soap in homes of developing countries should become a public health intervention of choice involving all the shareholders.

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