

## HAND WASHING AND HAND HYGIENE PRACTICES: REVIEWS OF LITERATURE

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### Abstract

A set of the practices performed for the preservation of health is Hygiene. According to the (WHO) World Health Organization, "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases."<sup>2</sup> Hand hygiene is a central to the preventing spread of the infectious diseases in the home and the everyday life settings.<sup>3</sup>

Hand washing or hand hygiene is a act of the cleaning one's hand with or without the use of water or another liquid, or with the use of the soap for the purpose to removing soil, dirt, and/or microorganisms. The spelling "hand washing" in one word is also common.<sup>4</sup>

**Key words:** Hand Hygiene, Hand Hygiene Practices

### Background:

In many of lower income countries, the leading cause of death among children is diarrheal disease. However, a recent review of data from a number of studies showed that a 42%-47% reduction in diarrhea can occur when hand washing with the soap and water is introduced into a community. To prevent one million deaths from diarrheal diseases hand washing promotion and interventions are estimated to have the potential.

Most diarrheal diseases are spread by person-to-person contact or by fecal-oral routes, many times by way of contaminated hands. Hand washing can stop the spread of many diarrheal disease-causing germs, such as typhoid and cholera, by removing bacteria, parasites, and viruses from the hands. Hand washing is the integral to the disease preventions in all the parts of the world; however, to access the soap and water is the limited in a number of lower income countries. This lack of access is one of many challenges to proper hygiene in lower income countries. Effective hand washing interventions involve education and promoting long-term behavior changes, both in appropriate social and cultural contexts.<sup>5</sup>

## Introduction:

In the present study, the research investigator was carried out various types of literature review at different stages of her research process under following headings.

### 1. Review related to studies on knowledge and practice of school children regarding hand washing

A cross-sectional study was conducted to assess the hand washing practices of 295 school children in the Tema Metropolis, in Ghana. The results showed that majority (90.2%) of those who used the school toilet practiced hand washing with soap after defecation. Private schools were found to be 63% ( $p = 0.02$ ) less likely to wash their hands after using toilet, 51% ( $p = 0.03$ ) less likely to wash their hands before eating and 77% ( $p < 0.001$ ) less likely to wash their hands with soap after eating compared to their public school counterparts.<sup>6</sup>

A cross-sectional descriptive study was carried out of among the randomly selected 2283 primary school children's of municipal corporation schools in the Mumbai, India. The study aims were to assess the hand washing knowledge and hand hygiene practices among the primary school children. The result was, 2283 students, (0.7%) of respondents reportedly practiced the five steps of the hand washing; and 1% practiced about four steps of the hand washing. Forgetfulness was cited as the primary reason for missing washing hands before eating food (88%) and after the toilet use (84%).<sup>7</sup>

The observational cross-section study was conducted among 190 secondary school students from class V to VII in a village of Singur Block, West Bengal. The objective was to identify the student's knowledge and practice regarding hand washing. Result revealed that, total attainable and attained knowledge score was 18, and mean  $\pm$  SD was 15.78( $\pm 2.13$ ). The minimum attainable score was 0 while minimum attained score was 9. Here those who scored 18 were considered as having good knowledge. A study concluded that Majority of the students were washing their hands, they knew the requirement of personal hygiene, their knowledge about the importance of hand washing were focused on the fact that hand washing keeps them free from disease, keeps them healthy.<sup>8</sup>

The cross-sectional study was carried out among randomly selected 250 school children from two schools in North Chennai for a period of 3 months. The target population included students of both sexes in 10-16 years age group. Result revealed that the participants were between 10 to 16 years. 76.4% students had healthy hygiene practices. Most of the hygiene practices like bathing, hand washing, brushing teeth, and throwing wastes in dustbin were good and certain practices like trimming nails once a week, not biting nails, wearing washed clothes daily and drinking boiled water moderate in the study participants.<sup>9</sup>

Cross-sectional observational study conducted among 168 school going children (6th, 7th & 8th standard) in Government Schools of Nalgonda, Andhra Pradesh. The result was, the association between knowledge of students and parental education was found significant ( $p < 0.05$ ).

Regularly washing their hands before eating and after defecation ( $p < 0.05$ ). Study conclude that there **was** a wide gap between knowledge and hand washing practices that need to be addressed.<sup>10</sup>

A cross-sectional study was conducted in a private school in Cardinal Gracious High School, Bandra [E], Mumbai, 512 students selected by Universal sampling technique with aimed was to assess the practice of school student regarding personal hygiene. The result was, Majority students were practicing hygienic methods. Neglected aspects were regarding teeth, nail & hair hygiene. Periodic personal hygiene education **was** needed to emphasize hygienic practices.<sup>11</sup>

## **2. Reviews related to effects of educational interventions regarding hand washing.**

The study was conducted in village of the district Panipat of the Haryana state among 60 rural area School going children's aged 8-10 years. The study revealed majority of the respondent had low scores on the level of knowledge and practices regarding the personal hygiene. Results showed as the scores of the children after post-testing improved in the experimental group and they were found to be significant on various aspects of personal hygiene.<sup>12</sup>

The quasi-experimental design was used in the study among 450 students to evaluate the effectiveness of a training program, on improving the hand washing aged 6 to 12 years in two schools in Port Said governmental primary schools are; KasmAmeen and Ashtoon. **The study results revealed that there is highly significance between pre and post the program implementation of the studied school children regarding reported practices of hand washing.** The study concluded that there were highly significant statistical differences in total knowledge and practice score of the studied sample after implementation of the educational program.<sup>13</sup>

The pre-experimental one group pre- test post –test research study was conducted in three selected schools of Waghodia Taluka, Vadodara among 60 Primary School going children between the age group of 10-13 years selected by purposive sampling technique. The result was, posttest knowledge mean score of  $33.033 \pm 2.57$  is higher than the pretest knowledge mean score  $18.00 \pm 2.247$  with the t-value of ( $t = 34.4143$ ) which is significant at 0.05 level as it **was** greater than 2.0010 t-tests significant at 0.05 level of children. The study was concluded that the structured teaching program on personal hygiene has shown its impact on primary school children in regards to knowledge and practices.<sup>14</sup>

Quantitative quasi-experimental randomized one group pretest and posttest design study were conducted with aimed to find the effectiveness of hand hygiene teaching on knowledge, compliance and to correlate the level of hand hygiene knowledge in six primary schools in the Mugallivakkam village at Kancheepuram District, among the 20 primary school students. Result was, the mean value of knowledge between the pretest and posttest showed a vast statistically significant difference at  $p < 0.001$  level and there was extremely important difference in the mean score of the various pathogens in the hand flora which was estimated to assess the compliance indicators to hand hygiene between the pretest and posttest at  $p < 0.001$  level.<sup>15</sup>

## **3. Reviews related to importance and hygiene behavior regarding hand washing for children**

Cross-sectional observational study was to conducted among the 104 primary school Going children's in the slum area of the Chetla, Kolkata, India with the aimed to find out the knowledge and the practice of personal hygiene. The result showed that, the average score obtained by the female students was significantly higher than that of the male students ( $p < 0.05$ ). There was wide gap between the practice and the knowledge of the personal hygienesamong primary school children's living in the slums area.<sup>16</sup>

A descriptive study was to undertaken among the 300 samples, in the adopted villages of the MCONManipal, Udupi District with aimed was assess the knowledge and the practice on water, hygiene and sanitation, the sample was selected using purposive sampling. Result was showed that, there **was** significant association between practice and age ( $\chi = 0.89$ ;  $p < 0.05$ ), education ( $\chi = 5.144$ ;  $p < 0.05$ ). These findings of the study was to showed that majority of samples had the average knowledge and unsafe practices on water, sanitation, and hygiene.<sup>17</sup>

#### **4. Reviews related to the impact of hand washing on disease control and prevention.**

The study was conducted in two special education schools in Hong Kong. The result was, the pre- to the post-test difference in the intervention school (+1.03,  $P < .001$ ) was 212 percent greater than the difference in the control school where the 7-step guideline was followed (+0.34,  $P = .001$ ). Sickness-related absenteeism was also reduced by 40 percent more in the intervention school (0.0167) compared with the control school (0.028).<sup>18</sup>

A clustered randomized controlled study was conducted in Karachi, Pakistan, to assess effect of the hand washing promotion with the soap on the incidence of impetigo, acute respiratory infection, and diarrhea. The result showed that hand washing with soap prevents the two clinical syndromes that cause the largest number of childhood deaths globally-namely, diarrhea and acute lower respiratory infections. Hand washing with the daily bathing and also prevents impetigo.<sup>19</sup>

An experimental study was conducted in elementary schools in Denmark with the aim was to evaluate an intervention to reduce student absenteeism through increased hand hygiene among 324 pupils aged 5-14 years. Results were, strongly suggested that even with low participation rates (20% in 2007 and 21% in 2008) and the passage of time, merely increasing hand hygiene education can have a long-term, significant impact on the spread of infection.<sup>20</sup>

#### **5. Review related to studies on knowledge and practice of nursing students, staff and medical students regarding hand washing**

Cross-sectional study was conducted to assess the knowledge, attitudes & practice of five moments of hand hygiene among the 100 nursing staff & 100 nursing students by convenient sampling technique in tertiary medical college, Karad. The result was P value was less than 0.05 were considered as significant. The knowledge on hand hygiene was moderate (144 out of 200, 74%) among the total study population. The majority of students had poor attitudes with regard to hand hygiene. Nursing students had the significantly ( $P < 0.05$ ) better attitudes (52%) as compared to the nursing staff (12%). Student nurses had better five moments of hand hygiene practices than the staff nurses.<sup>21</sup>

To assess the hand hygiene practice a cross-sectional survey were conducted among 130 healthcare workers at the Cape Coast Teaching Hospitals in Ghana with aimed assess the knowledge of proper hand hygiene among the health care workers according to WHO guidelines. The result was, there was the statistically significant correlation between healthcare workers professional status and knowledge on the hand hygiene ( $p=0.005$ ).<sup>22</sup>

Cross-sectional study was conducted among 74 nursing staff and 66 medical students at Tertiary Care Hospital Puducherry, India with aimed to assess hand hygiene knowledge, attitudes, and practices by using the Cluster sampling technique. The result was, the professional status of the healthcare worker was significantly associated with hand hygiene knowledge score ( $P= 0.005$ ), but not correlated to their departments ( $P=0.390$ ), the study concluded that the nurses had better knowledge on hand hygiene than medical students ( $P$  value 0.001, significant).<sup>23</sup>

An observational study was conducted to assess the hand hygiene practices among health care workers in CSICU of SCTIMST TVM. Trivandrum. Study 50 CWs were taken for observational study, 50 for assess the reported hand hygiene practices. The study revealed that there was a disparity between the opinion and the practices of hand hygiene among health care workers. The Study concluded that the overall hand hygiene compliance was 67.08% and the reported study gives more than 90% of compliance among HCWs.<sup>24</sup>

A study was done to determine the extent to which hand hygiene practices and toilet door knobs contribute to the bacterial load of hands of toilet users in a medical school among 60 medical students. Result revealed that Bacterial load in the hands of both males and females showed an increase after toilet use. The increase was significant among male students. The dominant hand had a significantly higher bacterial load than the other. The mean bacterial load of male toilet door knobs (12 CFU/cm<sup>2</sup>) were significantly higher than of female toilet door knobs (2.5 CFU/cm<sup>2</sup>) ( $P < 0.05$ ).<sup>25</sup>

### Conclusion:

It was concluded that, the reviews related to studies on knowledge and practice of school children regarding hand washing, Reviews related to effects of educational interventions regarding hand washing, Reviews related to importance and hygiene behavior regarding hand washing for children, studies on knowledge and practice of nursing students, staff and medical students regarding hand washing these reviews was very effective the conduct such studies in future.

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