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# Knowledge, Attitude and Practice of Hand Hygiene Among Parents: A Post COVID-19 Pandemic Survey

**Shalinawati Ramli[1], Anis Hafizah Azmi[2], Nurul Azmawati Mohamed[3*]**
**Mohd Dzulkhairi Mohd Rani[4]**

[1]Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, Nilai Negeri Sembilan, Malaysia.
Email: shalinawati@usim.edu.my
[2]Fakulti Perhutanan Tropika, Universiti Malaysia Sabah, Malaysia
Email: anishafizah06@gmail.com
[3]Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, Nilai Negeri Sembilan, Malaysia.
Email: drnurul@usim.edu.my
[4]Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, Nilai Negeri Sembilan, Malaysia.
Email: drdzulkhairi@usim.edu.my

**CORRESPONDING AUTHOR (*):**
Nurul Azmawati Mohamed (drnurul@usim.edu.my)

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## ABSTRACT

Hand hygiene is one of the effective measures to prevent infectious diseases such as hand, foot and mouth disease and COVID-19. Parents involvement as the child's first educator in establishing the child's sanitary behavior are crucial in nurturing good hand hygiene habit. This study aimed to assess parents' knowledge, attitudes, and practice on hand hygiene in relation to childcare during the endemic phase of COVID-19. This cross-sectional study involved parents of pre-school children from the Sepang district of Selangor, Malaysia. The parents were given a set of pre-tested, self-administered questionnaires about their knowledge, attitude, and practice of personal hand hygiene, hand hygiene practice while caring for children, and diseases caused by inadequate hand hygiene. A total of 179 parents, mostly (62%) were mothers with mean age of 37.55 (SD 21.2) involved in this study. The parents had good knowledge (99.4%), good attitude (92.7%) and good (100%) hand hygiene practice. Good attitude was significantly associated with good practice. Good knowledge, attitude, and practice on hand hygiene among parents might be due to repetitive information about the importance of hand hygiene during the COVID-19 pandemic. Efforts should be made to ensure teachers, children and parents are continuously being educated and reminded about hand hygiene not only during COVID-19.

**Contribution/Originality:** This paper contributes to the body of knowledge related to infection control and childcare.

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## 1. Introduction

Children in day care and kindergarten are more likely to contract respiratory and gastrointestinal infections (Lu, Huang, Fan, Cheng, & Chang, 2018). This is exacerbated by a lack of sufficient hygiene, immature immune system, and sanitation facilities. Preventive interventions should aim to break the chain of transmission, with hand cleanliness being the single most effective and cost-effective strategy (Bagepally, Haridoss, Natarajan, Jeyashree, & Ponnaiah, 2021). The education on fundamental infection awareness and hand hygiene is crucial and should be started at the early age as it will help in to reduce the risk of infection and transmission. It has been deduced in several studies that hand hygiene education in preschools and nurseries has been found to lower the prevalence of diarrhea, upper respiratory tract infections, and hand, foot, and mouth disease in children (Mohamed et al., 2020).

Parent as the first educator for their child, should set a good example at their early learning environment at home. Hygiene principles should be incorporated into our daily life and the best method for parents to teach their children about basic hygiene is to set a good example followed by official education in preschools, primary and secondary schools. A survey that has been done on parents' hand hygiene knowledge found that while the majority had a solid understanding of hand hygiene, around two-thirds were ignorant of proper hand washing technique (Mohamed et al., 2016).

Although several studies on parental knowledge, attitudes, and practice of hand hygiene have been undertaken, there is a paucity of study among parents during the era of COVID-19, which inhibits offering evidence-based interventions to this target group. Hence, this study was performed to assess parents' knowledge, attitudes, and practice on hand hygiene in relation to childcare during current COVID-19 era. This study findings will aid in identifying gaps in parents existing knowledge, attitude and practice of hand hygiene as well as areas for development in order to build and implement more effective approach of hand hygiene program.

## 2. Methodology

### 2.1. Study population and data collection

This cross-sectional study involved randomly selected parents of preschoolers from 10 kindergartens in the Sepang district Selangor, Malaysia. Prior to the start of this investigation, written authorization from pertinent agencies (KEMAS) was acquired. The parents were given a set of pre-tested, self-administered questionnaires about their knowledge, attitude, and practice of personal hand hygiene, hand hygiene practice while caring for children, and diseases caused by inadequate hand hygiene.

### 2.2. Study Instrument

The questionnaire for this study was adopted from a study by Mohamed et al. (2016). It consisted of two parts where Part A featured demographic information while Part B included 24 questions about hand hygiene (eight for knowledge, eight for attitude, and eight for practice). Respondents were instructed to select one of three answers for the knowledge section: yes, no, or not sure. In the attitude and practice portions, they must select one of five options: strongly disagree, disagree, not sure, agree, and highly agree.

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### 2.3. Scoring system

For knowledge section, each correct answer received a score of 3, each 'not sure' answer received a score of 2, and each incorrect answer received a score of 1. The total knowledge score was 24. Those who obtained score 19-24 were categorized as having good knowledge. Whereas those who obtained score 13-18 were considered as moderate knowledge while 7-12 as poor knowledge. For the attitude and practice parts, a score of 1 was assigned to 'strongly disagree,' a score of 2 to 'disagree,' a score of 3 to 'not sure,' a score of 4 to 'agree,' and a score of 5 to 'strongly agree.' In the attitude portion, there were three negatively framed phrases. Overall, the score for all negative elements was reversed. The total attitude and practice scores were 40 respectively. Those who obtained marks above the mean of the overall score were categorized as having a good attitude/practice while those who obtained marks equal or below mean value were categorized as poor attitude/practice.

### 2.4. Data analysis

SPSS software (version 21) was used to examine the data. Categorical variables were analyzed using frequency distribution and percentages. Means and standard deviations were used to assess continuous variables. Pearson's correlation coefficient was used to calculate correlation.

## 3. Results

A total of 179 (59.7%) questionnaires were collected out of 300 that were distributed. Most of the respondents were between the ages of 30 and 40 with mean age of 37.55 (SD 21.2). More than 90% had at least had secondary education. 90% of the respondent also had four or fewer children. Only 30% of the respondents were unemployed. Finding showed that 178 (99.4%) of parents have a good knowledge. Majority of the respondents answered the knowledge question correctly. However, about one third of respondents answered “Washing hands with hand sanitizer is more effective than using soap and water” wrongly or not sure. Table 1 shows the list of questions regarding the knowledge of hand hygiene and the response rates.

Table 1: Knowledge of Hand Hygiene Among Parents

| Question | Yes N(%) | No N(%) | Not Sure N(%) |
|---|---|---|---|
| Germs can spread through the hands to the nose as well as the mouth | 178 (99.4) | 1 (0.6) | 0 |
| Unclean hands can spread COVID-19 | 173 (96.6) | 5 (2.8) | 1 (0.6) |
| Clean hands can reduce contamination on food | 175 (97.8) | 4 (2.2) | 0 |
| Proper hand washing can prevent infectious diseases | 174 (97.2) | 4 (2.2) | 1 (0.6) |
| It is our responsibility to ensure that the children in our care wash their hands properly | 178 (99.4) | 1 (0.6) | 0 |
| Bacteria can spread easily if we keep nails long | 177 (98.9) | 2 (1.1) | 0 |

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| | | | |
|---|---|---|---|
| Hand towels cannot be shared | 175 (97.8) | 4 (2.2) | 0 |
| Washing hands with hand sanitizer is more effective than using soap and water | 57 (31.8) | 91 (50.8) | 31 (17.3) |

Analysis showed that majority of parents 166 (92.7%) had a good attitude towards hand hygiene with the mean score 35.61 (SD 3.55). Meanwhile that all (100 %) parents had a good practice concerning hand hygiene with the mean score of 37.68 (SD 3.33).

Table 2 shows the list of questions on attitude and practice of hand hygiene. Majority of respondents shows good attitude towards hand hygiene with 80% of the respondents answered the question correctly. High proportion of respondents reminded their children about hand washing before and after eating. Other practice such as hand cleaning after contact with their children/a sick person, as well as always wash hands before and after handling raw materials such as chicken and beef, were also discovered to be superior practice.

Table 2: Attitude of Hand Hygiene Among Parents

| **Questions** | **1 N(%)** | **2 N(%)** | **3 N(%)** | **4 N(%)** | **5 N(%)** |
|---|---|---|---|---|---|
| Attitude | | | | | |
| I always keep my children's hands clean | 0 | 0 | 0 | 47 (26.2) | 132 (73.7) |
| We need to wash hands with soap after going to the toilet | 0 | 0 | 0 | 43 (24) | 136 (76) |
| We need to wash hands before eating | 0 | 0 | 0 | 36 (20) | 143 (80) |
| I have sufficient knowledge about hand hygiene | 0 | 0 | 12 (6.7) | 80 (44.7) | 87 (48.6) |
| Before handling food such as raw materials, we do not have to wash hands | 72 (40.2) | 51 (28.5) | 5 (2.8) | 11 (6.1) | 40 (22.3) |
| I have to keep nails shorts and clean | 0 | 0 | 0 | 36 (20) | 143 (80) |
| I do not have to teach children how to wash hands properly | 111 (62) | 48 (26.8) | 1 (0.6) | 5 (2.8) | 14 (7.8) |
| Emergencies and other priorities make hand hygiene more difficult at times | 83 (46.4) | 72 (40.2) | 9 (5) | 6 (3.3) | 9 (5) |
| Practice | | | | | |
| I wash my hands with soap after going to the toilet | 0 | 0 | 0 | 50 (27.9) | 129 (72.1) |
| I always remind my children to wash hands before and after eating | 0 | 0 | 0 | 44 (24.6) | 135 (75) |
| I wash hands after interacting with sick people | 0 | 0 | 1 (0.6) | 50 (27.9) | 128 (71.5) |

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| | | | | | |
|---|---|---|---|---|---|
| I always wash my hands before and after handling raw materials such as chicken and beef | 0 | 0 | 0 | 44 (24.6) | 135 (75) |
| I wipe my wet hands until dry | 0 | 0 | 3 (1.7) | 58 (32.4) | 118 (66) |
| I wash my hands after changing diapers | 0 | 0 | 2 (1.1) | 45 (25.1) | 132 (73.7) |
| I provide hand washing facilities at home | 0 | 0 | 3 (1.7) | 50 (27.9) | 126 (70.4) |
| Washing hands with the soap is my practice | 0 | 0 | 3 (1.7) | 48 (26.8) | 128 (71.5) |

Analysis showed that there is no correlation between knowledge and attitude, and between knowledge and practice, However, there is a significant correlation between attitude and practice.

## 4. Discussions

This study showed that most parents have good knowledge on hand hygiene. The findings are consistent with studies conducted in India and Malaysia, years before pandemic COVID-19 (Gupta et al., 2018; Mohamed et al., 2016). The knowledge must have been better nowadays due to a deluge of public health messages about the importance of practising good hand hygiene from a variety of sources during COVID-19 pandemic. The same message is communicated using billboards, mainstream television, radio, print advertisements, and short films targeted at individuals on their mobile devices as well as through social media. Never have hand hygiene approaches garnered as widespread attention as they do now.

Noteworthy, about half of the respondents agreed or unsure that washing hands with hand sanitizer is better than using water and soap. Even though the WHO encourages the use of hand sanitizers, washing hands with water and soap is proven to be more effective in eliminating microorganisms. Washing hands with soap and water is better due several reasons: it is more effective than hand sanitizers at removing certain organisms eg Cryptosporidium, norovirus, and Clostridium difficile (Escudero‐Abarca et al., 2022; Grayson et al., 2009) hand sanitizer does not work well when hands are heavily soiled or greasy (Singh, Potlia, Malhotra, Dubey, & Chauhan, 2020), hand sanitizers are unlikely to remove or inactivate many types of dangerous chemicals, and users may not use enough sanitizer or wipe it off before it has dried (CDC, 2020).

Most respondents had a favourable attitude toward hand washing with soap and water after using the restroom and before/after eating meals. This result shows that most of the parents believed that it is important to teach their children on how to wash hand properly from their early age. Remarkably, about 30% did agree with this statement "Before handling raw materials, we do not have to wash hands". According to Chellaiyan et al (2018), upon investigating the food safety behaviour, it was found that 52% subjects wash their hands before and only 8% wash after handling raw food and only 37% was before and after handling raw food (Chellaiyan, Fasna, & Mallika, 2018). Hand washing, done properly before and after handling food is the most effective way to prevent food borne illnesses.

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Many studies have shown that good hand hygiene can reduce the risk of respiratory tract infection in children and adults (Finco et al., 2018; McGuinness et al., 2018). The practice of hand hygiene of 179 parents were examined in this study. Among the respondents, above 70% practised good hand hygiene with soap after going to the toilet which consistent with result reported by Gupta et al. (2018). This current study also shows that parent having a good practice and carry their responsibilities as their child first educator on hand hygiene by reminding their child to wash hand before and after eating. Hand hygiene should be practised routinely at home, with parents and other adults washing their hands before and after touching children and babies, as well as after interacting with ill people, handling raw materials, and changing diapers.

This study discovered a substantial correlation between knowledge and attitude, as well as attitude and practice. This finding demonstrated that knowledge may have an impact to good attitude, and that a positive attitude can lead to effective practices.
Due to timing constraints, this study has some drawbacks. This research only included parents, not their children. As a result, there was no association between parents' and their children's knowledge, attitude, and practice of hand hygiene.

## 5. Conclusions

Parents of preschoolers have good overall knowledge, attitude, and practice of hand hygiene. It can be deduced that the current educational/awareness program might have missed few important aspects of hand hygiene that include, hand washing versus hand sanitizer and hand hygiene routine/moments. Thus, efforts should be made to fill in the knowledge gap and ensure teachers, children and parents are constantly being educated and reminded about hand hygiene and infection prevention techniques, not just during COVID-19.

## Ethics Approval and Consent to Participate

The Human Medical Research and Ethics Committee of Universiti Sains Islam Malaysia (USIM) approved this study (REF: USIM/JKEP/2017-20). Informed consent was obtained from every respondent before they involved in this survey.

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This study received no funding.

## Conflict of Interests

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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## References

Bagepally, B. S., Haridoss, M., Natarajan, M., Jeyashree, K., & Ponnaiah, M. (2021). Cost-effectiveness of surgical mask, N-95 respirator, hand-hygiene and surgical mask with hand hygiene in the prevention of COVID-19: Cost effectiveness analysis from Indian context. *Clinical Epidemiology and Global Health*, *10*, 100702.

CDC. (2020). Show Me the Science – When & How to Use Hand Sanitizer in Community Settings. *CDC*. https://www.cdc.gov/handwashing/show-me-the-science-hand-sanitizer.html

Chellaiyan, V. G., Fasna, L., & Mallika, S. v. (2018). Food safety awareness and food handling practices among rural population of Tamil Nadu. *International Journal of Community Medicine and Public Health*, *5*(4), 1441–1447.

Escudero-Abarca, B. I., Goulter, R. M., Bradshaw, J., Faircloth, J., Leslie, R. A., Manuel, C. S., … Jaykus, L. (2022). Efficacy of an alcohol-based surface disinfectant formulation against human norovirus. *Journal of Applied Microbiology*, *132*(5), 3590–3600.

Finco, G., Musu, M., Landoni, G., Campagna, M., Lai, A., Cabrini, L., … Galletta, M. (2018). Healthcare-associated respiratory infections in intensive care unit can be reduced by a hand hygiene program: A multicenter study. *Australian Critical Care*, *31*(6), 340–346.

Grayson, M. L., Melvani, S., Druce, J., Barr, I. G., Ballard, S. A., Johnson, P. D. R., … Birch, C. (2009). Efficacy of soap and water and alcohol-based hand-rub preparations against live H1N1 influenza virus on the hands of human volunteers. *Clinical Infectious Diseases*, *48*(3), 285–291.

Gupta, R., Singh, P., Rani, R., Kumari, R., Gupta, C., & Gupta, R. (2018). Hand hygiene: knowledge, attitude and practices among mothers of under 5 children attending a tertiary care hospital in North India. *International Journal of Community Medicine And Public Health*, *5*(3), 1116–1121. https://doi.org/10.18203/2394-6040.ijcmph20180770

Lu, C.-Y., Huang, L.-M., Fan, T.-Y., Cheng, A.-L., & Chang, L.-Y. (2018). Incidence of respiratory viral infections and associated factors among children attending a public kindergarten in Taipei City. *Journal of the Formosan Medical Association*, *117*(2), 132–140.

McGuinness, S. L., Barker, S. F., O'Toole, J., Cheng, A. C., Forbes, A. B., Sinclair, M., & Leder, K. (2018). Effect of hygiene interventions on acute respiratory infections in childcare, school and domestic settings in low-and middle-income countries: a systematic review. *Tropical Medicine & International Health*, *23*(8), 816–833.

Mohamed, N. A., Amin, N. N. Z., Ramli, S., Isahak, I., & Salleh, N. M. (2016). Knowledge, attitudes and practices of hand hygiene among parents of preschool children. *Journal of Scientific and Innovative Research, 5*(1), 1–6.

Mohamed, N. A., Mohd Rani, M. D., Tengku Jamaluddin, T. Z. M., Ismail, Z., Ramli, S., Faroque, H., ... & Isahak, I. (2020). Effect of hand hygiene intervention on the absenteeism of pre-school children in Klang Valley, Malaysia: a quasi-experimental study. *World Journal of Pediatrics*, *16*(4), 416-421. https://doi.org/10.1007/s12519-019-00283-x

Singh, P., Potlia, I., Malhotra, S., Dubey, H., & Chauhan, H. (2020). Hand sanitizer an alternative to hand washing—a review of literature. *Journal of Advanced Oral Research*, *11*(2), 137–142.

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