## **Original Research Article**

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# Hand hygiene practices among school children of a periurban area Firozabad district

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### **ABSTRACT**

**Background:** Hand hygiene is a milestone of infectious disease control, and promotion of improved hand hygiene has been recognized as an important public health measure. The present study was undertaken to assess the hand hygiene practices among the school students of a peri urban area in district Firozabad.

**Methods:** This six months cross sectional study was carried out among the students of an Intermediate college situated in a peri urban area of Firozabad district, U. P. All the students who were present in the respective classes (V<sup>th</sup>–VII<sup>th</sup> standard) were surveyed. A structured, self-administered pretested questionnaire was used to collect detailed information about the subjects" self-reported hand washing practices. Data entry and statistical analysis were performed using the Microsoft Excel and SPSS windows version 14.0 software.

**Results:** Out of total 76 students, 97.4% practiced hand washing after defecation with Soap and water, while 63.2% did hand washing after cleaning with soap and water and 31.6% washed hands before eating food with Soap and water. A higher proportion of males showed proper hand hygiene practices than females. Proper Hand hygiene practices increased with the increase in education.

**Conclusions:** Teaching the correct hand hygiene practice at an early age with help students to be healthy in later life. Thus primordial prevention is the key to reduce infection in school children.

Keywords: Hand hygiene practices, Students

## INTRODUCTION

Hand washing with soap prevents many common and life-threatening infections. Many illnesses start when hands become contaminated with disease-causing bacteria and viruses. Hand hygiene is an important step towards control of infectious diseases, and the promotion of improved hand hygiene has been recognized as an important public health measure. Let it is recognized to be a convenient means of achieving cost-effective prevention of communicable diseases. Although causal links between hand hygiene and rates of infectious disease have also been established earlier, studies focusing on hand hygiene among school-going students

are not adequate in number. With this background, the present study was undertaken to assess the hand hygiene practices among the school students of a peri urban area in district Firozabad and to suggest the suitable corrective and preventive measures to be taken in future.

## **METHODS**

This six months (December 2017 –May 2018) cross sectional study was carried out among the students of an Intermediate college situated in a peri urban area of Firozabad district, U. P. The study was conducted in the department of Community Medicine of FH Medical

College, Firozabad, Uttar Pradesh, India after taking permission from institutional ethical committee.

### Inclusion criteria

All the middle school students who were present in the respective classes (Vth–VIIth standard) on the day of survey were included and they comprised the study unit.

### Exclusion criteria

Those middle school students who were absent on the day of survey were excluded.

A total of 76 students participated in the study. A structured, self-administered pretested questionnaire was used to collect detailed information about the subjects" self-reported hand washing practices. Information was collected on the basis of the Hand Hygiene Knowledge Questionnaires for health-care workers designed by WHO and revised August 2009, which was further

modified and this included questions carrying both multiple choice and "yes" or "no" questions. The students were assured confidentiality of their responses. The suitable corrective and preventive measures to be taken for the study population were suggested. Data entry and statistical analysis were performed using the Microsoft Excel and SPSS windows version 14.0 software.

### **RESULTS**

Table 1 illustrates that out of 76 subjects, a higher proportion of subjects belonged to 13 years of age (32.89) and nuclear families (72.3%).

Table 2 shows that out of 76 individuals with distribution of hand hygiene, approximately total subjects were concerned about Washing hand before taking food, after cleaning, and after defecation.

Table 1: Percent distribution of demographic variable with respect to gender.

| Variables         |                                     | Male (%)  | Female (%) | Chi-square | P value |
|-------------------|-------------------------------------|-----------|------------|------------|---------|
| Age (years)       | 10                                  | 9 (81.8)  | 2 (18.2%)  |            | p>0.05  |
|                   | 11                                  | 13 (81.2) | 3 (18.8)   |            |         |
|                   | 12                                  | 15 (68.2) | 7 (31.8)   | 1.98       |         |
|                   | 13                                  | 18 (72.0) | 7 (28.0)   |            |         |
|                   | 14                                  | 2 (100.0) | 0 (0.0)    |            |         |
|                   | Fifth                               | 20 (80.0) | 5 (20.0)   | _          | p>0.05  |
| Education         | Sixth                               | 19 (76.0) | 6 (24.0)   | 0.808      |         |
|                   | Seventh                             | 18 (69.2) | 8 (30.8)   |            |         |
| Mothers education | Illiterate                          | 4 (80.0)  | 1 (20.0)   |            | p>0.05  |
|                   | Read and write                      | 3 (60.0)  | 2 (40.0)   |            |         |
|                   | Primary school (1 to 5 class)       | 28 (70.0) | 12 (30.0)  | 2.613      |         |
|                   | Secondary (6 to 7 class)            | 1 (100.0) | 0 (0.0)    |            |         |
|                   | Above secondary (class 8 and above) | 21 (84.0) | 4 (16.0)   |            |         |
|                   | Illiterate                          | 4 (100.0) | 0 (0.0)    |            | p>0.05  |
| Fathers           | Read and write                      | 2 (66.7)  | 1 (33.3)   |            |         |
| education         | Primary school (1 to 5 class)       | 8 (88.9)  | 1 (11.1)   | 3.244      |         |
| education         | Secondary (6 to 7 class)            | 1 (50.0)  | 1 (50.0)   |            |         |
|                   | Above secondary (8 class and above) | 42 (72.4) | 16 (27.6)  |            |         |
| Type of family    | Joint                               | 17 (81.0) | 4 (19.0)   | 0.548      | p>0.05  |
|                   | Nuclear                             | 40 (72.7) | 15 (27.3)  | 0.340      |         |
|                   | 0-10000                             | 6 (75.0)  | 2 (25.0)   |            | p>0.05  |
| Income category   | 10000-20000                         | 38 (74.5) | 13 (25.5)  | 0.695      |         |
|                   | 20000-30000                         | 11 (73.3) | 4 (26.7)   | 0.093      |         |
|                   | 30000-40000                         | 2 (100.0) | 0 (0.0)    |            |         |

Table 2: Percent distribution of hand hygiene.

|                              | Yes (%)    | No (%)    |
|------------------------------|------------|-----------|
| Wash hand before cooking     | 2 (2.6)    | 74 (97.4) |
| Wash hand before taking food | 76 (100.0) | 0 (0.0)   |
| Wash hand after cleaning     | 76 (100.0) | 0 (0.0)   |
| Wash hand after defecation   | 76 (100.0) | 0 (0.0)   |

Table 3: Percent distribution of children practicing proper hand hygiene.

|                                     | Soap and water<br>(%) | Ash and water (%) | Only water<br>(%) | No      |
|-------------------------------------|-----------------------|-------------------|-------------------|---------|
| How to wash hand before eating food | 24 (31.6)             | 1 (1.3)           | 51 (0.0)          | 0 (0.0) |
| How to wash hand after cleaning     | 48 (63.2)             | 1 (1.3)           | 27 (35.5)         | 0 (0.0) |
| How to wash hand after defecation   | 74 (97.4)             | 2 (2.6)           | 0 (0.0)           | 0 (0.0) |

Table 4: Proper hand hygiene practices among school children in relation to socio-demographic characteristics.

| Proper hand-washing behavior      |             |            |           |            |                         |             |
|-----------------------------------|-------------|------------|-----------|------------|-------------------------|-------------|
| Variables                         | •           | Yes (%)    | No (%)    | Odds ratio | 95% confidence interval |             |
| v arrables                        |             | 1 es ( 70) |           |            | Lower limit             | Upper limit |
| Socio-demographic characteristics |             |            |           |            |                         |             |
|                                   | 10          | 2 (10.5)   | 9 (15.8)  | 0.63       | 0.12                    | 3.2         |
|                                   | 11          | 6 (31.6)   | 10 (17.5) | 2.17       | 0.66                    | 7.09        |
| Age (years)                       | 12          | 7 (36.8)   | 15 (26.3) | 1.63       | 0.54                    | 4.92        |
|                                   | 13          | 4 (21.1)   | 21 (36.8) | 0.46       | 0.13                    | 1056        |
|                                   | 14          | 0 (0.0)    | 2 (3.5)   |            |                         |             |
| Gender                            | Male        | 13 (68.4)  | 44 (77.2) | 0.64       | 0.203                   | 2.018       |
| Genuer                            | Female      | 6 (31.6)   | 13 (22.8) |            |                         |             |
|                                   | Fifth       | 8 (42.1)   | 17 (29.8) | 1.71       | 0.59                    | 5.0         |
| Education                         | Sixth       | 7 (36.8)   | 18 (31.6) | 1.26       | 0.43                    | 3.75        |
|                                   | Seventh     | 4 (21.1)   | 22 (38.6) | 0.42       | 0.12                    | 1.44        |
| Mothers education                 | Illiterate  | 1 (5.3)    | 4 (7.0)   | 0.74       | 0.08                    | 7.02        |
| Mothers education                 | Literate    | 18 (94.7)  | 53 (93.0) |            |                         |             |
| Fathers education                 | Illiterate  | 1 (5.3)    | 3 (5.3)   | 1.0        | 0.1                     | 10.23       |
| ramers education                  | Literate    | 18 (94.7)  | 54 (94.7) |            |                         |             |
| True of family                    | Joint       | 7 (36.8)   | 14 (24.6) | 1.79       | 0.59                    | 5.43        |
| Type of family                    | Nuclear     | 12 (63.2)  | 43 (75.4) |            |                         |             |
|                                   | 0-10000     | 1 (5.3)    | 7 (12.3)  | 0.40       | 0.05                    | 3.45        |
| Income entegens                   | 10000-20000 | 15 (78.9)  | 36 (63.2) | 2.19       | 0.64                    | 7.46        |
| Income category                   | 20000-30000 | 2 (10.5)   | 13 (22.8) | 0.40       | 0.08                    | 1.95        |
|                                   | 30000-40000 | 1 (5.3)    | 1 (1.8)   | 3.11       | 0.19                    | 52.3        |

Table 3 shows that among 76 individuals, 97.4% practiced hand washing after defecation with Soap and water, while 63.2% did hand washing after cleaning with soap and water and 31.6% washed hands before eating food with Soap and water.

A higher proportion of males showed proper hand hygiene practices than females. Proper hand hygiene practices increased with the increase in education. Proper hand hygiene practices were found more among those children whose parents were literates. Majority of those belonging to nuclear families showed proper hand hygiene practices as compared to those belonging to joint families (Table 4).

## **DISCUSSION**

In our study, 97.4% practiced hand washing with soap and water after defecation, while 63.2% did hand washing after cleaning with soap and water and 31.6% with soap and water washed hands before eating food. Provision of soap has been shown to be effective in

promoting hygiene habits and preventing and controlling the spread of communicable diseases.<sup>3,4</sup> Only 22.5% university students in Bangladesh washed their hands effectively by maintaining the correct steps and frequency of hand washing with water, and soap or hand sanitizer.<sup>5</sup> Similarly one-fifth (22.23%) of primary school children had proper hand washing practice in Ethopia.<sup>6</sup> Hand washing with a generous amount of clean water is effective at reducing the presence of some viruses, but the use of soap (or alternative rubbing agents) is vital to remove contamination from bacteria, parasites, and fungi.<sup>7-10</sup>

A higher proportion of males showed proper hand hygiene practices than females. Similar finding were reported in the Ethiopia study.<sup>6</sup> On the contrary higher percentage of females showed proper hand hygiene practices than males.<sup>11</sup>

Hand hygiene training sessions may need to be conducted more frequently for students with continuous monitoring and performance feedback to encourage them to follow correct hand hygiene practices.<sup>12</sup> Teaching the correct hand hygiene practice at an early age with help them to be healthy in later life. Thus primordial prevention is the key to reduce infection in school children.

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Institutional Ethics Committee

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