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Original Article

Effectiveness of School-based Health Education on Hand Hygiene Practices among School Children

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Abstract

Background: One of the easiest and most efficient ways to keep schoolchildren healthy is to practice good hand hygiene. Despite its significance, many kids don't wash their hands properly. The purpose of this study was to evaluate how well a structured school-based health education program improved schoolchildren's hand cleanliness habits.

Materials & Methods: A pre-experimental one-group pretest-posttest design was used. A total of 100 school children aged 10–14 years were selected through simple random sampling. Setting of the study was doveton matriculation Higher secondary school, Kodungaiur, Chennai Data were collected using a structured questionnaire and observational checklist assessing knowledge and practices of hand hygiene. The intervention consisted of a structured health education program including demonstration, audiovisual aids, and interactive discussion. Posttest was conducted after two weeks. Data were analyzed using descriptive and inferential statistics.

Results: The mean pre-test knowledge score was 9.8 ± 3.1, which increased to 16.4 ± 2.7 in the post-test. Similarly, the mean practice score improved from 12.3 ± 3.8 to 19.1 ± 2.9 after intervention. A significant improvement was observed in all domains of hand hygiene ($p < 0.001$).

Conclusions: School-based health education works well to increase schoolchildren's understanding of and adherence to hand cleanliness measures. It is advised that hand hygiene education be regularly reinforced and incorporated into the curriculum.

Keywords: Hand hygiene, School children, Health education, Preventive health, Communicable diseases

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Introduction

Given that school-aged children are more vulnerable to communicable diseases because of close contact, a lack of information, and a lack of sanitary practices, hand cleanliness is generally acknowledged as the most economical way to avoid infections[1]. According to the World Health Organization (WHO), washing your hands properly with soap and water can cut down on respiratory infections by 20% and diarrheal illnesses by 40%. [2].

Poor hand hygiene persists in India in spite of multiple public health efforts, especially among students attending rural and semi-urban schools[3]. Because schools serve as a significant venue for health promotion

and offer chances to establish healthy behaviors at a young age, school-based interventions are seen as essential[4].

Children frequently wash their hands without soap or neglect to do so before meals and after defecating, according to studies[5]. Increased disease burden, poorer academic achievement, and higher absenteeism can result from this. It has been demonstrated that structured health education programs that include interactive techniques including peer participation, video aids, and demonstrations greatly enhance health practices[6].

Thus, the purpose of this study was to assess how well a structured school-based health education program affected schoolchildren's hand cleanliness habits.

Objectives

1. To assess the pretest knowledge and practice scores regarding hand hygiene among school children.
2. To evaluate the effectiveness of a structured health education program on knowledge and practices of hand hygiene.
3. To find the association between posttest scores and selected demographic variables.

Hypothesis

- **H_1:** There will be a significant difference between pretest and posttest knowledge and practice scores on hand hygiene among school children after health education intervention.
- **H_2:** There will be a significant association between posttest scores and selected demographic variables.

Materials and Methods

Research Design: A pre-experimental one-group pre-test-post-test design was adopted.

Setting and Population: The study was conducted in a middle school at Doveton matriculation Higher secondary school, kodungaiur, Chennai. The population comprised school children aged 10–14 years.

Sample Size and Sampling Technique: A total of 100 children were selected using simple random sampling.

Tool for Data Collection:

1. **Structured Knowledge Questionnaire:** Consisting of 20 items on importance, steps, and occasions of hand hygiene. Each correct response scored 1; total score 0–20.
2. **Observational Checklist:** Consisting of 10 items related to handwashing practices (before meals, after toilet use, use of soap, drying methods, etc.). Each correct practice scored 1; total score 0–10.

Intervention: A structured health education program was delivered, including:

- Interactive lecture using flipcharts and posters
- Demonstration of handwashing with soap and water
- Short video clips on correct technique
- Role play involving children

The session lasted 45 minutes, followed by reinforcement after one week.

Data Collection Procedure: Pre-test was conducted using the questionnaire and checklist. Post-test was conducted two weeks after intervention using the same tools.

Data Analysis: Data were analyzed using SPSS. Mean, SD, and percentage were used for descriptive statistics, and paired *t*-test was used for inferential analysis.

Results

Table 1. Comparison of pretest and posttest knowledge scores (n = 100)

Knowledge Scores	Mean ± SD	Mean Difference	*t* value	p-value
Pretest	9.8 ± 3.1			
Posttest	16.4 ± 2.7	6.6	15.27	<0.001

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Table 2. Comparison of pretest and posttest practice scores (n = 100)

Practice Scores	Mean ± SD	Mean Difference	*t* value	p-value
Pretest	12.3 ± 3.8			
Posttest	19.1 ± 2.9	6.8	14.62	<0.001

Table 3. Association of post-test knowledge and practice scores with demographic variables

Variable	χ^2 value	df	p-value	Remark
Age	2.14	2	0.34	NS
Gender	3.21	1	0.07	NS
Mother's education	5.46	3	0.02	S
Father's education	4.89	3	0.03	S

(S = Significant, NS = Not Significant)

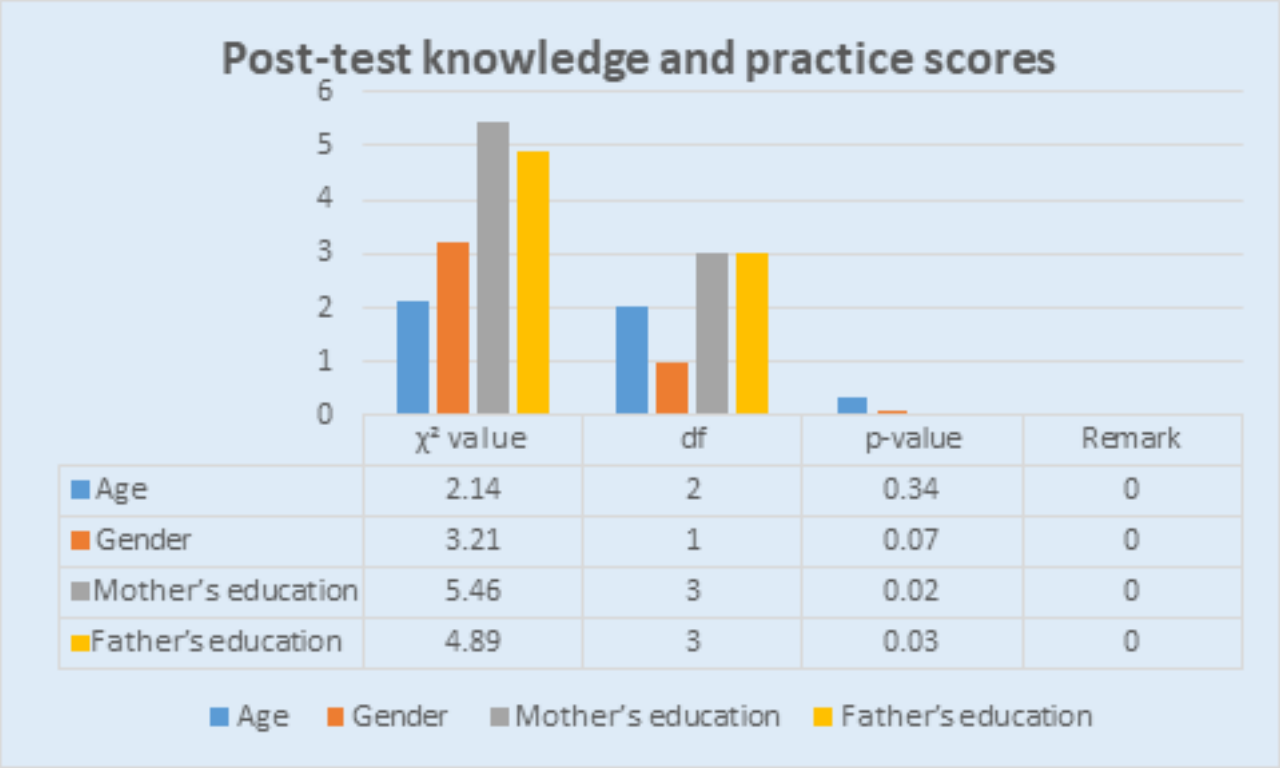

Figure 01: Association of post-test knowledge and practice scores with demographic variables

Discussion

According to the study's findings, schoolchildren's understanding and application of hand hygiene were much enhanced by organized, school-based health education. Following the intervention, the mean knowledge and practice scores significantly improved ($p < 0.001$).

These findings are consistent with similar studies conducted in India and abroad. A study by Kumar et al.[7] reported that hand hygiene knowledge improved from 42% to 78% after school-based education. Likewise, Aunger et al.[8] found that structured interventions reduced absenteeism due to diarrheal diseases by 30%.
The strong correlation between children's posttest scores and parents' educational attainment emphasizes how family background affects health behaviors. This highlights the necessity of not only school-based initiatives but also community involvement and parental awareness programs.

Conclusions

The study concluded that school-based health education is effective in improving knowledge and practices of hand hygiene among school children. Sustained efforts such as regular reinforcement, integration of hand

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hygiene education in school curriculum, and involvement of teachers and parents are essential for long-term impact.

Recommendations

Based on the findings of the present study, the following recommendations are made:

1. **Integration in School Curriculum:** As a component of health and life skills education, hand hygiene instruction ought to be included in the standard school curriculum.
2. **Teacher Training:**Teachers should receive training so they can serve as role models for kids and encourage good handwashing habits on a daily basis.
3. **Parental Involvement:** Awareness programs for parents should be organized to strengthen hygiene practices at home, ensuring continuity of learning.
4. **Infrastructure Improvement:** To facilitate consistent practice, schools should have enough handwashing stations, soap, and clean water.
5. **Regular Reinforcement:** To sustain interest and encourage behavior, regular health education workshops, demonstrations, and competitions (such as poster-making and handwashing day celebrations) should be held.
6. **Peer Education Approach:** Selected kids can receive training to become "peer leaders" who will oversee and encourage their peers to wash their hands properly.
7. **Policy Implications:** Hand hygiene should be emphasized as a fundamental element of government-sponsored school health programs (such as the School Health and Wellness Program and Swachh Bharat Abhiyan).
8. **Further Research:**
    - Similar studies may be replicated on larger sample sizes and in different geographical areas to generalize findings.
    - Comparative studies may be conducted between rural and urban schools.

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Conflicts of interests: There is no conflict of interest

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