

Embodied Learning in School Hygiene Education

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ABSTRACT

Background: Personal hygiene plays a critical role in preventing communicable diseases and promoting physical, psychological, and academic well-being among school-aged children. In developing countries, inadequate hygiene practices remain a significant public health concern, particularly among primary school students. Conventional teaching methods often fail to bring sustained behavioural change, highlighting the need for interactive and child-centred educational strategies such as role play.

Objective: To evaluate the effectiveness of role play on knowledge and practice regarding personal hygiene among primary school students in a selected government school of Gurugram, Haryana, and to examine the association between hygiene outcomes and selected socio-demographic variables.

Methods: A quantitative, quasi-experimental one-group pre-test–post-test design was employed. The study included 60 primary school students studying in classes III–V, selected using a cluster random sampling technique. Data were collected using a validated structured questionnaire to assess knowledge and a Likert-scale-based observational checklist to assess hygiene practices. A structured role-play intervention focusing on key aspects of personal hygiene was administered. Pre-test and post-test scores were analysed using descriptive statistics and inferential tests, including paired *t*-test and chi-square test, with statistical significance set at $p < 0.05$.

Results: The post-test findings demonstrated a statistically significant improvement in both knowledge and practice scores following the role-play intervention ($p < 0.001$). The mean knowledge score increased from 4.37 ± 0.80 to 7.02 ± 0.70 , while the mean practice score improved from 3.93 ± 0.73 to 6.95 ± 0.84 . A significant association was observed between hygiene outcomes and selected demographic variables, particularly socioeconomic status.

Conclusion: Role play is an effective, engaging, and low-cost educational strategy for improving personal hygiene knowledge and practices among primary school children. Integrating role-play-based health education into school health programs may contribute to sustained behavioural change and improved child health outcomes.

Introduction

Personal hygiene is a fundamental component of health promotion and disease prevention, particularly during childhood when lifelong habits are formed. Inadequate personal hygiene among school-aged children contributes significantly to the burden of communicable diseases, malnutrition, absenteeism, and impaired academic performance, especially in developing

countries. Children are not inherently aware of hygienic practices and depend largely on schools and families for guidance, making the school setting an ideal platform for health education interventions.

Traditional didactic methods often emphasize knowledge acquisition but fail to ensure translation into daily practice. Therefore, innovative, child-centred teaching strategies that actively engage learners are essential to promote sustained

behavioural change. Role play is an experiential learning approach that enables children to observe, enact, and internalize desired behaviours in a realistic and enjoyable manner. By fostering participation, reflection, and peer learning, role play has the potential to bridge the gap between knowledge and practice.

Despite its theoretical advantages, empirical evidence on the effectiveness of role play in improving personal hygiene behaviours among primary school children remains limited. This study was undertaken to evaluate the effectiveness of a structured role-play intervention on knowledge and practice regarding personal hygiene among primary school students in a selected government school of Gurugram, Haryana. The findings aim to contribute evidence for integrating interactive pedagogies into school health programs to promote sustainable hygiene behaviours.

Methodology and Results

Methodology

A quantitative research approach was adopted to assess the effectiveness of role play on knowledge and practice regarding personal hygiene among primary school students. The study employed a quasi-experimental one-group pre-test–post-test design, which is appropriate for evaluating educational interventions where randomization and control groups are not feasible in school settings. The study was conducted in a selected government primary school in Gurugram, Haryana. The study population comprised students studying in classes III, IV, and V. A total of

60 primary school students were selected using a cluster random sampling technique, ensuring adequate representation from different classes. Students who were present during data collection and willing to participate were included, while those absent or unwilling were excluded. Data were collected using two standardized and validated tools. Knowledge regarding personal hygiene was assessed using a structured questionnaire consisting of 10 close-ended items, while practice regarding personal hygiene was measured using a 10-item Likert scale assessing routine hygiene behaviours. The tools were reviewed by subject experts to ensure content validity, and reliability was established through pilot testing. The intervention consisted of a structured role-play session designed to demonstrate essential aspects of personal hygiene, including handwashing, oral hygiene, bathing, nail care, and clean clothing practices. The role play was interactive, age-appropriate, and conducted in a familiar classroom environment to enhance participation and comprehension. Pre-test data were collected prior to the intervention, and post-test assessments were conducted after the role-play sessions. Ethical approval was obtained from the institutional ethics committee, and informed consent was secured from school authorities and participants. Data were analysed using descriptive and inferential statistics with the help of SPSS software. Mean, standard deviation, and percentages were used for descriptive analysis, while paired *t*-test and chi-square test were applied to determine effectiveness and associations.

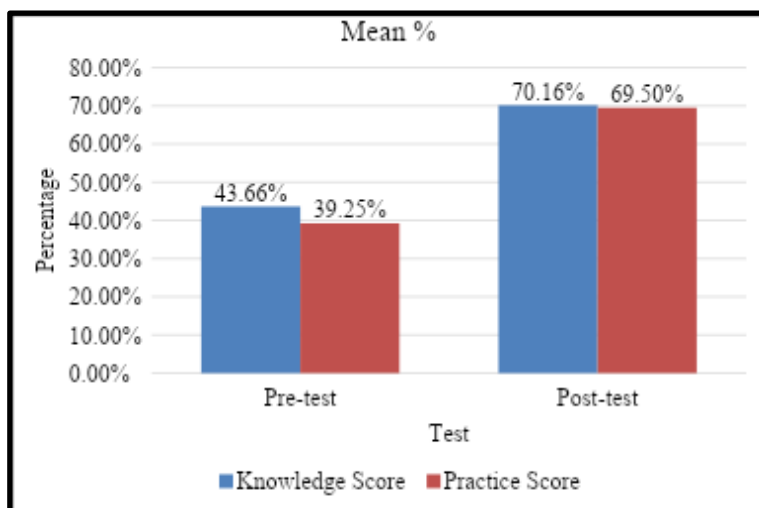


Figure : Distribution of respondents by elementary school students' 'personal hygiene' knowledge and practice.

Results

The findings revealed a significant improvement in both knowledge and practice scores following the role-play intervention. The mean knowledge score increased from 4.37 ± 0.80 in the pre-test to 7.02 ± 0.70 in the post-test, indicating a substantial enhancement in students' understanding of personal hygiene concepts. This improvement was statistically significant ($p < 0.001$). Similarly, the mean practice score showed a marked increase from 3.93 ± 0.73 in the pre-test to 6.95 ± 0.84 in the post-test, demonstrating improved adherence to hygiene practices after the intervention ($p < 0.001$). Prior to the role play, the majority of students exhibited moderate to inadequate levels of hygiene knowledge and practice. Post-intervention results showed a noticeable shift toward adequate knowledge and improved practices. Analysis of demographic variables revealed a significant association between socioeconomic status and post-test knowledge and practice scores, suggesting that background factors influence hygiene-related learning outcomes. Other

demographic variables such as age, gender, and class showed no statistically significant association. Overall, the results confirm that role play is an effective and engaging educational strategy for improving both knowledge and practice regarding personal hygiene among primary school children. The intervention successfully bridged the gap between awareness and behaviour, highlighting its applicability in school health education programs.

Supporting Studies

Several empirical studies strongly support the findings of the present study, demonstrating that interactive and child-centred educational strategies significantly improve personal hygiene knowledge and practices among school children. School-based hygiene education interventions have consistently shown positive outcomes when participatory methods are employed instead of traditional didactic teaching. Studies conducted by **Freeman et al.** and **O'Reilly et al.** reported significant improvements in hygiene behaviours among primary school children following structured school-based hygiene and sanitation programs,

emphasizing the role of active engagement in learning. Similarly, **Soumya et al.** found that health education interventions using demonstrations and interactive techniques resulted in marked enhancement in personal hygiene practices among school children. Research by **Shin et al.** demonstrated that behaviour-focused educational models significantly improved hygiene compliance, highlighting that experiential learning strengthens the translation of knowledge into practice. Further, **George et al.** reported that child-centred teaching strategies, including role play and group activities, were effective in improving hygiene knowledge and behavioural outcomes among primary school students. Recent studies published in **BMC Public Health (2024–2025)** also support the effectiveness of skill-based and participatory health education approaches in school settings, showing sustained improvements in hygiene practices and reduced illness-related absenteeism. These findings align with the present study, reinforcing that **role play is a practical, engaging, and effective intervention** for promoting sustainable hygiene behaviour among primary school children.

Conclusion and Summary

The present study concludes that role play is an effective and engaging educational strategy for improving knowledge and practice related to personal hygiene among primary school children. The structured role-play intervention led to a statistically significant enhancement in students' understanding and adoption of hygienic behaviours, demonstrating its ability to bridge the gap between awareness and practice. By promoting active participation and experiential learning, role play facilitates sustained behavioural change. Integrating role-play-based health

education into school health programs can strengthen hygiene promotion initiatives and contribute to improved child health outcomes.

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