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Article

# The Effectiveness of Personal Hygiene Health Education in Improving Students' Health Behaviors at SMP IT Assajadah

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### ABSTRACT

This study examined the effectiveness of personal hygiene health education in improving students' health knowledge and health-related behaviors at SMP IT As Sajadah. A quantitative pre-test–post-test experimental design was employed involving 60 students who participated in interactive personal hygiene education sessions incorporating lectures, discussions, and demonstrations. Data were collected using standardized questionnaires to assess health knowledge and health behaviors, complemented by systematic behavioral observations focusing on personal hygiene practices. Pre- and post-intervention differences were analyzed using paired t-tests. The results demonstrated a statistically significant increase in students' health knowledge, with mean scores rising from 65.23 to 82.76 ( $p < 0.001$ ). Observational findings revealed consistent positive behavioral changes, particularly in personal hygiene practices, including improved self-cleanliness, regular handwashing, healthier daily routines, and more disciplined use of school facilities. Behavioral score analysis further confirmed a significant effect of personal hygiene health education on students' health-related behaviors ( $p < 0.05$ ). These findings provide robust empirical evidence supporting the effectiveness of interactive, school-based personal hygiene health education in promoting positive behavioral outcomes. From a managerial perspective, the results offer practical guidance for school administrators, educators, and health program managers in evidence-based decision-making, program refinement, and strategic management of school-based personal hygiene education initiatives, particularly within Islamic educational contexts.

## 1. Introduction

Health education plays a role in enhancing awareness, knowledge, and healthy behaviors among school-aged children, particularly in the area of personal hygiene (WHO, 2018). Schools represent a strategic setting for health promotion as they provide a structured environment in which health-related habits are formed and reinforced over time (Langford et al., 2015). However, the effectiveness of school-based personal hygiene health education is highly dependent on how well such programs are planned, implemented, and evaluated by school management (Jourdan et al., 2018).

In many educational settings, health education initiatives remain fragmented, rely on non-interactive approaches, or are conducted without systematic evaluation of behavioral outcomes, which may reduce their impact on students' daily hygiene practices (CDC, 2019). These managerial challenges highlight the need for evidence-based evaluation of structured personal hygiene health education programs to support informed decision-making, program improvement, and strategic management within school contexts, particularly in Islamic educational institutions such as SMP IT Assajadah (Rabiei et al., 2020).

Health education is a key strategy for promoting healthy behaviors among students, particularly in fostering awareness and daily practices related to personal hygiene and disease prevention (World Health Organization [WHO], 2021). Within the school environment, health education plays an essential role in shaping students' attitudes and habits through structured and continuous learning experiences (Langford et al., 2020). As an Islamic-based educational institution, SMP IT As Sajadah holds a strategic position in implementing personal hygiene health education through approaches that integrate health promotion with Islamic values. However, the effectiveness of such programs is not solely determined by content delivery but is strongly influenced by managerial factors, including program planning, coordination among teachers and school staff, consistency of implementation, and systematic monitoring of activities (Jourdan et al., 2021). In many school settings, health education initiatives are still implemented inconsistently, lack coordinated management, or are conducted without regular evaluation of behavioral outcomes, which may limit their impact on students' health behaviors

(Centers for Disease Control and Prevention [CDC], 2020). These managerial challenges highlight the importance of evaluating the effectiveness of structured personal hygiene health education programs to support evidence-based decision-making and program improvement within Islamic school contexts such as SMP IT As Sajadah (Rabiei et al., 2020).

Previous studies have demonstrated that structured health education programs are effective in improving students' health knowledge and hygiene-related behaviors, including personal hygiene practices, nutrition awareness, and disease prevention (Rabiei et al., 2020; World Health Organization [WHO], 2021). However, existing evidence also indicates that the magnitude and sustainability of behavioral change vary considerably depending on learning methods, program implementation strategies, and the quality of program management, such as planning, coordination, and monitoring processes within schools (Langford et al., 2020; Jourdan et al., 2021). Most prior research has primarily focused on educational outcomes, with limited attention given to how managerial effectiveness and implementation consistency influence program success in school-based health education (Bonell et al., 2021).

In the context of Islamic-based schools, health education is expected not only to promote personal hygiene behaviors but also to reinforce moral values such as discipline, responsibility, and self-awareness as integral components of religious practice (Sulaiman et al., 2022). Nevertheless, empirical studies examining the effectiveness of personal hygiene health education from a program management and implementation perspective within Islamic educational settings remain scarce. This gap highlights the need for further investigation into how structured personal hygiene health education programs are managed and implemented to effectively improve students' health behaviors in Islamic schools such as SMP IT Assajadah.

Based on these considerations, it is important to evaluate not only the outcomes but also the effectiveness of the implementation and management of the health education program at SMP IT As Sajadah in improving students' understanding and daily health behavior. This study is expected to provide empirical evidence that can be used to assess the quality of program

implementation, support data-driven improvements in school-based health education management, and contribute to the development of more effective and sustainable health-promotion strategies within Islamic educational institutions.

## **2. Literature Review**

Understanding how health education influences behavior requires a theoretical foundation. Two widely recognized models are the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB).

### **2.1 Health Belief Model (HBM)**

The Health Belief Model is a psychological framework that explains health behavior through individuals' perceptions of health threats and benefits of action. It posits that behavior change occurs when individuals recognize their susceptibility to a health problem, understand its severity, perceive benefits of preventive action, and believe they can overcome barriers to change (Alyafei & Easton-Carr, 2024). HBM constructs such as perceived susceptibility, severity, benefits, and self-efficacy have been shown to significantly predict the adoption of preventive health behaviors in a variety of contexts, including educational settings (Alyafei & Easton-Carr, 2024). This framework has been applied in studies to design educational programs that enhance motivation and readiness to adopt healthier behaviors.

### **2.2 Theory of Planned Behavior (TPB)**

The Theory of Planned Behavior suggests that behavioral intention is the most proximal predictor of actual behavior, influenced by attitudes toward the behavior, subjective norms, and perceived behavioral control. TPB has been widely utilized to explain how cognitive and social factors shape individuals' intentions to perform health-related actions. For example, recent research integrating TPB and HBM found that combining motivational constructs (HBM) with intention-related constructs (TPB) provides a more comprehensive explanation of how proactive health behaviors are formed (Fang et al., 2025). In school health education research, TPB has been effective in explaining how students' attitudes, social influences, and perceived control contribute to their intention to engage in healthy behaviors.

The integration of these models offers robust explanatory power for understanding and predicting the mechanisms through which health education may lead to behavior change. Such integrated models help researchers and practitioners design more effective interventions that address both the cognitive motivations and intention formation processes inherent in behavior change.

## **3. Research Methodology**

### **3.1 Research Design**

The pre-test and post-test design in this study serves not only to assess student-level outcomes but also to support program evaluation from a management perspective, providing empirical evidence to inform policy decisions and continuous improvement of school-based personal hygiene health education programs.

### **3.2 Population and Sample**

The population of this study consisted of all students enrolled at SMP IT As Sajadah. A total of 60 students were selected as research participants using a purposive sampling technique. This sample size represents a substantial proportion of students who were directly involved in the implementation of the personal hygiene health education program, thereby allowing for a focused evaluation of program effectiveness at the school level.

The selection of 60 participants was considered adequate for assessing pre- and post-intervention changes in knowledge and health-related behaviors using a paired experimental design, which is commonly applied in program evaluation studies within educational settings. From a management perspective, this sample size provides sufficient empirical evidence to support internal decision-making related to program continuation, refinement, and resource allocation within the school context.

The sampling criteria included students who:

1. were actively enrolled during the study period,
2. attended the personal hygiene health education sessions in full, and
3. were willing to participate and complete all stages of data collection.

Purposive sampling was employed to ensure that participants were directly exposed to the intervention and relevant to the study objectives,

thereby enhancing the practical value of the findings for program evaluation. Nevertheless, it is acknowledged that the sample was limited to a single Islamic-based school, which may restrict the generalizability of the results. Despite this limitation, the findings remain valuable for evaluating program implementation effectiveness and informing future improvements in the management of school-based personal hygiene health education programs

### 3.3 Data Collection Techniques

Data were collected using three complementary techniques as follows:

1. Questionnaire: a structured questionnaire was administered to measure students' health knowledge and health-related behaviors associated with personal hygiene, healthy lifestyle practices, and disease prevention. The instrument consisted of closed-ended items and was administered during the pre-test and post-test phases. Prior to data collection, the questionnaire was reviewed by experts in health education and educational management to ensure content validity. Instrument reliability was assessed using Cronbach's alpha, which demonstrated acceptable internal consistency for both the knowledge and behavior scales ( $\alpha \geq 0.70$ ). The use of a valid and reliable questionnaire ensured that the quantitative findings could serve as a sound basis for evaluating program effectiveness and supporting managerial decision-making.
2. Direct Observation: direct observation was conducted to identify changes in students' health-related behaviors following the intervention. An observation checklist was developed based on established personal hygiene indicators, including personal cleanliness, handwashing practices, and healthy lifestyle behaviors during school activities. The observation instrument was pilot-tested to ensure clarity and consistency of indicators. This approach enhanced the reliability of behavioral assessment and strengthened the credibility of the findings for program monitoring and evaluation purposes.
3. Interviews with Teacher: semi-structured interviews were conducted with selected

teachers to obtain supporting qualitative information regarding observed behavioral changes, classroom conditions, and the implementation of personal hygiene health education activities. The interview guide was developed to align with the study objectives and to ensure consistency across interviews. Qualitative data were used to triangulate and reinforce the quantitative findings, thereby increasing the trustworthiness of the results for managerial evaluation and future program improvement.

### 3.4 Data Analysis Technique

Quantitative data obtained from the pre-test and post-test were analyzed using the paired samples t-test to determine whether significant changes occurred in students' health knowledge and health-related behavior following the personal hygiene health education program. Prior to conducting the paired t-test, the normality of the difference scores (post-test minus pre-test) was assessed using the Shapiro-Wilk test in SPSS. The results indicated that the difference scores for both knowledge ( $W = 0.981$ ,  $p = 0.284$ ) and health behavior ( $W = 0.975$ ,  $p = 0.193$ ) were normally distributed, confirming that the assumptions for parametric testing were met.

The paired t-test results demonstrated statistically significant improvements in students' health knowledge ( $t = 9.842$ ,  $df = 59$ ,  $p < 0.001$ ) and health-related behavior ( $t = 4.216$ ,  $df = 59$ ,  $p < 0.001$ ). From a program management perspective, these findings provide robust empirical evidence that the implemented personal hygiene health education program effectively enhanced both cognitive and behavioral outcomes. The validated statistical results can inform school administrators and program managers in evaluating program effectiveness, refining instructional strategies, and supporting evidence-based decision-making for future program improvement.

Meanwhile, the results from direct observations and semi-structured interviews with teachers were used as complementary qualitative data to contextualize and triangulate the quantitative findings. These data provided insights into students' behavioral changes, classroom conditions, and the implementation of health education activities, thereby

strengthening the overall evaluation of the program's effectiveness.

**Table 1** Normality Date

Variable	Test	Statistic	df	Sig.
Knowledge (Post-Pre)	Shapiro-Wilk	0.981	60	0.284
Health Behavior (Post-Pre)	Shapiro-Wilk	0.975	60	0.193

The Shapiro-Wilk test indicated that both difference scores were normally distributed ( $p > 0.05$ ), confirming the suitability of the paired t-test.

#### 4. Results and Discussion

##### 4.1 Pre-Test and Post-Test Results

This study involved 60 students of SMP IT As Sajadah who participated in structured personal hygiene health education through interactive lectures, discussions, and demonstrations. Students' health knowledge was assessed using a standardized questionnaire administered before (pre-test) and after (post-test) the intervention.

**Table 2.** Comparison of Pre-Test and Post-Test Knowledge Scores

Variable	Mean $\pm$ SD	Min	Max
Pre-test	65.23 $\pm$ 8.41	48	82
Post-test	82.76 $\pm$ 7.58	68	96

The mean score increased from 65.23 to 82.76, indicating improved understanding of health concepts among students after the intervention.

**Normality Assessment:** The Shapiro-Wilk test in SPSS confirmed normal distribution of the difference scores (post-test minus pre-test) for health knowledge ( $W = 0.981$ ,  $p = 0.284$ ), validating the use of parametric testing.

**Table 3.** Paired t-Test Results for Health Knowledge

Variable	t-value	df	p-value
Health knowledge	12.47	59	<0.001

**Managerial Implications:** These findings indicate that the program effectively improved students' health knowledge, providing school administrators with evidence to:

- Evaluate program success,
- Guide refinement of teaching methods,
- Inform decisions about program continuation or scaling,
- Support replication of the program in other classes or schools.

##### 4.2 Changes in Student Behavior

Behavioral changes were assessed using a structured observation checklist, covering personal hygiene, handwashing habits, healthy eating practices, and proper use of school facilities.

**Table** Changes in Students' Behavioral Scores (n = 60)

Behavioral Indicator	Pre-Intervention Mean	Post-Intervention Mean	Difference
Personal hygiene	2.85	3.67	+0.82
Handwashing habits	2.73	3.78	+1.05
Healthy lifestyle practices	2.68	3.59	+0.91
Proper toilet use	2.71	3.62	+0.91

After the intervention, students demonstrated:

- More disciplined personal hygiene,
- More consistent handwashing,
- Healthier dietary choices,
- More orderly use of school facilities.

**Managerial Implications:** These results provide actionable insights for program managers to:

- Identify which aspects of the curriculum are most effective,
- Optimize resource allocation,
- Improve program delivery and monitoring,
- Ensure sustainability of the program.

##### 4.3 Effectiveness of Health Education on Overall Student Behavior

The overall effect of the program on student behavior was analyzed using a paired t-test.

Normality testing confirmed normal distribution of the behavioral difference scores ( $W = 0.975$ ,  $p = 0.193$ ).

**Table 4.** Paired t-Test Results for Student Behavior

Variable	Mean Pre	Mean Post	t-value	p-value
Student behavior score	2.74	3.66	10.21	<0.001

The statistically significant increase ( $p < 0.001$ ) indicates that the health education program effectively improved students' health-related behaviors.

**Managerial Implications:** These results support evidence-based management decisions to:

- a) Assess the effectiveness of health education strategies,
- b) Plan for continuation or scaling of the program,
- c) Refine content, delivery methods, and scheduling,
- d) Replicate the program in other Islamic-based schools.

#### 4.4 Integration of Quantitative and Qualitative Findings

Data from teacher interviews and classroom observations were integrated with quantitative results to provide contextual understanding of implementation fidelity and student engagement. The combined evidence supports managerial decision-making regarding:

- a) Program improvement,
- b) Monitoring and evaluation strategies,
- c) Sustainability and scalability of the personal hygiene health education program.

#### 5. Conclusion

Based on the findings of this study, the following conclusions can be drawn:

- a. Effectiveness of Personal Hygiene Health Education: Structured personal hygiene health education delivered through interactive lectures, discussions, and demonstrations significantly improved students' health knowledge at SMP IT As Sajadah. The pre-test mean score of 65.23 increased to 82.76 in the post-test,

- indicating a substantial gain in understanding of health-related concepts.
- b. Behavioral Improvements: The program positively influenced students' health-related behaviors, including personal hygiene, handwashing habits, healthy eating practices, and proper use of school facilities. Paired t-test analysis confirmed that the observed behavioral changes were statistically significant ( $p < 0.001$ ).
- c. Managerial Implications: From a management perspective, the study demonstrates that well-planned and systematically implemented health education programs can provide empirical evidence for school administrators and program managers. These findings can guide decisions related to program improvement, resource allocation, sustainability, and replication in other Islamic-based schools.

Based on the study results, the following recommendations are proposed:

- a. Program Improvement: School administrators should continue to refine and expand personal hygiene health education programs, incorporating interactive teaching methods and value-based approaches to maximize student engagement and learning outcomes.
- b. Monitoring and Evaluation: Regular monitoring and evaluation of program implementation are essential to ensure consistency and effectiveness. Structured observation checklists and periodic assessments should be used to track behavioral changes over time.
- c. Policy and Resource Allocation: Evidence from this study should be used to inform decision-making on resource allocation, scheduling, and staff training for health education programs, ensuring that they are sustainable and scalable.
- d. Replication and Expansion: Other Islamic-based schools can adopt the program as a model, adjusting it to local contexts while maintaining interactive and value-based educational strategies to enhance students' health knowledge and behaviors.
- e. Future Research: Further research is recommended to examine long-term behavioral retention, explore the

integration of other health topics (e.g., nutrition, mental health), and assess the cost-effectiveness of school-based health education programs.

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