"Evaluating the Impact of Video-Assisted Teaching on Personal Hygiene Knowledge Among School Children in Moradabad, Uttar Pradesh"

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ABSTRACT

Background:
Personal hygiene is crucial in every stage of life, especially during childhood, as it helps prevent common infections like diarrhea, respiratory illnesses, and bacterial skin infections. Poor personal hygiene is a significant cause of morbidity among school children, particularly in rural areas with limited access to sanitation and hygiene education.

Methodology:
The study used a **pre-experimental research design** with a **one-group pre-test and post-test** approach. A sample of **60 students** aged 12-15 years was selected using purposive sampling from Siddhartha Siksha Niketan English Medium School, Moradabad. Data were collected using a structured questionnaire, which was administered before and after a video-assisted teaching session on personal hygiene.

Results:
Pre-test findings: 75% of students had poor knowledge, 25% had average knowledge, and none had good knowledge.

Post-test findings: Following the video intervention, 96.64% of students achieved good knowledge levels, 3.34% had average knowledge, and none had poor knowledge.

Effectiveness: The video-assisted teaching program resulted in a significant improvement, with a mean score increase from **9.75 (pre-test)** to **26.52 (post-test)** out of a total score of 30. This corresponds to an improvement of **55.9%** in knowledge.

Conclusion:
The study concluded that video-assisted teaching is an effective method to enhance knowledge regarding personal hygiene among school children. The use of multimedia educational tools significantly improved students' understanding, highlighting the need for incorporating such programs into school health education initiatives.

Keywords:
Personal hygiene, video-assisted teaching, knowledge assessment, school children, pre-experimental study, Moradabad.

I. Introduction

Personal hygiene plays a vital role in maintaining the overall health and well-being of individuals, particularly children. According to the World Health Organization (WHO), health is defined as a complete state of physical, mental, and social well-being, and not merely the absence of disease or infirmity. In developing countries like India, poor personal hygiene is a major contributing factor to the prevalence of various communicable diseases, such as diarrhea, respiratory infections, and skin diseases. It is estimated that over 1,000 children in India die every day from preventable diseases like diarrhea, which are closely linked to inadequate hygiene practices. This highlights the urgent need to educate children on the importance of personal hygiene from an early age.

Children are especially vulnerable to infections due to their developing immune systems, and they are often unaware of the significance of maintaining personal cleanliness. Good hygiene practices include regular handwashing with soap, brushing teeth, bathing, wearing clean clothes, and keeping nails trimmed. These practices not only prevent infections but also promote physical and emotional well-being, boost confidence, and improve social interactions. For children, particularly those in rural areas, schools serve as important environments for learning both academic subjects and life skills, including hygiene practices.

In India, a significant proportion of school-going children come from rural areas where access to clean water and sanitation facilities is limited. Many schools lack basic infrastructure like clean toilets and handwashing stations, which are essential for promoting good hygiene. Research has shown that lack of awareness and inadequate sanitation facilities contribute to the spread of infections among school children. A study conducted in a slum in Kolkata revealed that poor hygiene practices were prevalent among primary school children, leading to a high incidence of skin infections, diarrhea, and respiratory illnesses. This situation is further exacerbated by limited educational programs focusing on hygiene in schools.

Educational interventions, such as video-assisted teaching programs, have proven to be effective in increasing children's knowledge about personal hygiene. Visual learning tools can capture children's attention and make learning more engaging compared to traditional lecture-based methods. These interventions can provide children with practical demonstrations of hygiene practices, thereby increasing their understanding and retention of information. Previous studies have shown that video-assisted teaching can significantly improve knowledge and practices related to hygiene among school children, leading to better health outcomes.

The current study focuses on assessing the effectiveness of a video-assisted teaching program designed to improve knowledge regarding personal hygiene among children in Moradabad, Uttar Pradesh. The rationale behind selecting this area is the high incidence of hygiene-related diseases among school children, coupled with a lack of structured hygiene education programs in schools. This study aims to bridge the knowledge gap by providing an interactive educational session using video content that covers various aspects of personal hygiene.

Problem Statement:

Inadequate knowledge of personal hygiene among school children in rural areas contributes to poor health outcomes. This study aims to assess the impact of a video-assisted teaching program on the hygiene knowledge of children attending a selected school in Moradabad.

Objectives of the Study:

1. To evaluate the existing knowledge regarding personal hygiene among school children through a pre-test.
2. To determine the effectiveness of video-assisted teaching on improving hygiene knowledge.
3. To analyze the association between demographic variables (such as age,

gender, and prior knowledge) and the improvement in knowledge levels.

Significance of the Study:
Personal hygiene education is essential for preventing infections and promoting long-term health. By integrating video-assisted teaching methods, schools can enhance the learning experience and effectiveness of hygiene education. This study's findings may encourage policymakers and educators to adopt multimedia-based educational programs in schools, especially in rural areas, to improve children's hygiene practices and reduce the prevalence of hygiene-related diseases.
In summary, the introduction of structured, engaging, and educational interventions like video teaching programs in schools can play a crucial role in promoting health and well-being among children. The results of this study are expected to provide valuable insights into the benefits of using multimedia tools for hygiene education, ultimately contributing to the improvement of public health in the region.

II. Materials and Methods

1. Research Design
This study employed a **pre-experimental research design** using a **one-group pre-test and post-test approach**. This design was chosen to assess the effectiveness of a video-assisted teaching program on knowledge regarding personal hygiene among school children. The absence of a control group was addressed by comparing pre-intervention and post-intervention scores within the same group.

2. Research Setting
The research was conducted at **Siddhartha Siksha Niketan English Medium School**, located in Lodhipur, Moradabad, Uttar Pradesh. This school was selected due to its accessibility and willingness to participate in the study, as well as the diverse background of its student population.

3. Population and Sample
- **Target Population**: The target population consisted of children studying in grades 4 to 6 at the selected school.
- **Sample Size**: A total of **60 students** were included in the study.
- **Sampling Technique**: The study used **non-probability purposive sampling** to select participants. The criteria for selecting the sample were:
  - Children aged 12 to 15 years.
  - Students who were available and willing to participate in the study.
  - Children who could understand, speak, and read English.

4. Inclusion and Exclusion Criteria
- **Inclusion Criteria**:
  - Students from grades 4 to 6.
  - Those who consented to participate in the study.
  - Children capable of understanding and responding in English.
- **Exclusion Criteria**:
  - Children below 12 years of age.
  - Students who were absent during the data collection period.
  - Children who were unwilling to participate.

5. Development of Tools
The data collection tool was a **structured questionnaire** designed to assess students' knowledge of personal hygiene. The tool consisted of **30 items** covering various aspects of hygiene practices such as handwashing, dental care, bathing, and general cleanliness.

Description of the Tool:
- **Part 1**: Demographic data (age, class, gender, place of residence, previous knowledge of personal hygiene, and sources of information).
- **Part 2**: Self-developed knowledge assessment questionnaire containing 30 multiple-choice questions related to personal hygiene.

Scoring System:
- Each correct answer was awarded **1 point**.
- The total score ranged from 0 to 30.
- Scores were interpreted as follows:
  - **0-10**: Poor knowledge

- **11-20**: Average knowledge
- **21-30**: Good knowledge

6. Validity and Reliability

- **Validity**: The content validity of the questionnaire was established by consulting experts in the fields of nursing, public health, and education. Revisions were made based on their feedback to ensure the questions were clear, relevant, and comprehensive.
- **Reliability**: A pilot study was conducted with a sample of 10 students to test the reliability of the tool. The reliability coefficient (Cronbach's alpha) was found to be **0.85**, indicating high internal consistency.

7. Data Collection Procedure

The data collection was carried out in two phases over a period of one week:

Phase 1 - Pre-Test:

- A structured questionnaire was administered to the participants to assess their baseline knowledge regarding personal hygiene.
- The questionnaire was filled out by the students under the supervision of the researcher to ensure accurate responses.

Phase 2 - Intervention (Video-Assisted Teaching Program):

- A **30-minute video session** on personal hygiene was shown to the participants. The video included practical demonstrations on handwashing techniques, dental care, bathing, and the importance of maintaining cleanliness.
- The video was designed to be interactive and engaging, incorporating visuals and animations to effectively convey the message.

Phase 3 - Post-Test:

- After the intervention, the same questionnaire was administered to the students to evaluate any improvement in their knowledge levels.
- The post-test was conducted immediately after the video session to measure the immediate impact of the educational intervention.

8. Plan for Data Analysis

The collected data were analyzed using both **descriptive and inferential statistics**.

- **Descriptive Statistics**: Frequency, percentage, mean, and standard deviation were used to summarize demographic data and knowledge scores.
- **Inferential Statistics**: The **paired t-test** was used to compare pre-test and post-test scores to determine the effectiveness of the video-assisted teaching program. Additionally, the **chi-square test** was used to analyze the association between demographic variables (age, gender, class, etc.) and post-test knowledge scores.

9. Ethical Considerations

- Permission was obtained from the school authorities and informed consent was taken from the participants and their parents.
- Participants were assured of confidentiality and anonymity. The data collected were used solely for research purposes.
- The students had the freedom to withdraw from the study at any point without any consequences.

10. Limitations of the Study

- The study was limited to one school in Moradabad, which may affect the generalizability of the results.
- The sample size was limited to 60 students, which may not represent the broader population.
- The study used a non-random sampling technique, which may introduce selection bias.

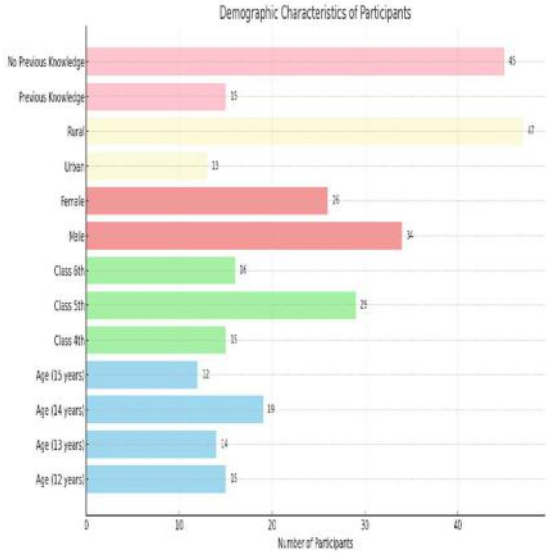
This section provides a comprehensive overview of the materials and methods used in the study, outlining the research design, sampling, data collection, and analysis

techniques to assess the effectiveness of the video-assisted teaching program on personal hygiene among school children.

III. Results

1. Demographic Characteristics of Participants

A total of **60 students** participated in the study. The demographic data were analyzed and are summarized below:



- **Age Distribution**:
  - 12 years: 15 students (25%)
  - 13 years: 14 students (23.4%)
  - 14 years: 19 students (31.6%)
  - 15 years: 12 students (20%)
- **Class Distribution**:
  - 4th grade: 15 students (25%)
  - 5th grade: 29 students (48.4%)
  - 6th grade: 16 students (26.6%)
- **Gender Distribution**:
  - Male: 34 students (56.66%)
  - Female: 26 students (43.34%)
- **Place of Residence**:
  - Urban: 13 students (21.66%)
  - Rural: 47 students (78.34%)
- **Previous Knowledge of Personal Hygiene**:
  - Yes: 15 students (25%)
  - No: 45 students (75%)
- **Sources of Prior Knowledge**:
  - Classroom: 20 students (33.33%)
  - Parents: 17 students (28.33%)
  - Others (e.g., friends, TV, internet): 15 students (25%)
  - Books: 8 students (13.33%)

2. Pre-Test and Post-Test Knowledge Scores

The effectiveness of the video-assisted teaching program was measured by comparing the knowledge scores of students before and after the intervention. The results are as follows:

Pre-Test Results

- **Knowledge Levels**:
  - Poor knowledge (0-10 points): 45 students (75%)
  - Average knowledge (11-20 points): 15 students (25%)
  - Good knowledge (21-30 points): 0 students (0%)
- **Mean Pre-Test Score**: 9.75
- **Standard Deviation (SD)**: 1.865
- **Percentage of Mean Score**: 32.5%

Post-Test Results

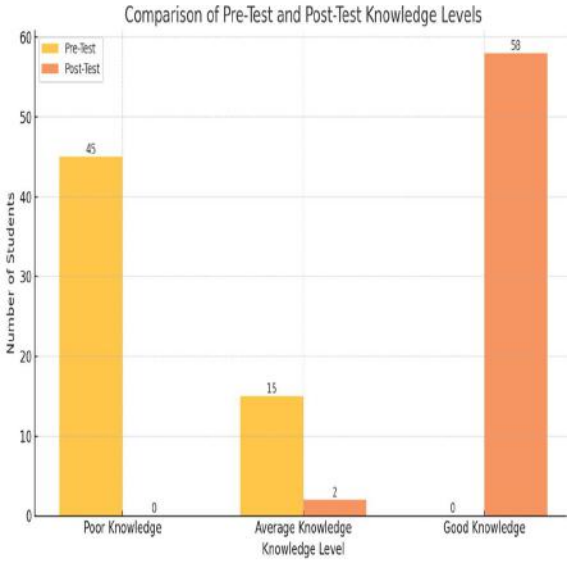
- **Knowledge Levels**:
  - Poor knowledge (0-10 points): 0 students (0%)
  - Average knowledge (11-20 points): 2 students (3.34%)
  - Good knowledge (21-30 points): 58 students (96.64%)
- **Mean Post-Test Score**: 26.52
- **Standard Deviation (SD)**: 1.987
- **Percentage of Mean Score**: 88.4%

Improvement Analysis

- The difference in mean scores between pre-test (9.75) and post-test (26.52) indicates a significant improvement in knowledge after the video-assisted teaching program.
- **Effectiveness of Intervention**: The program led to a **55.9% increase** in knowledge scores.

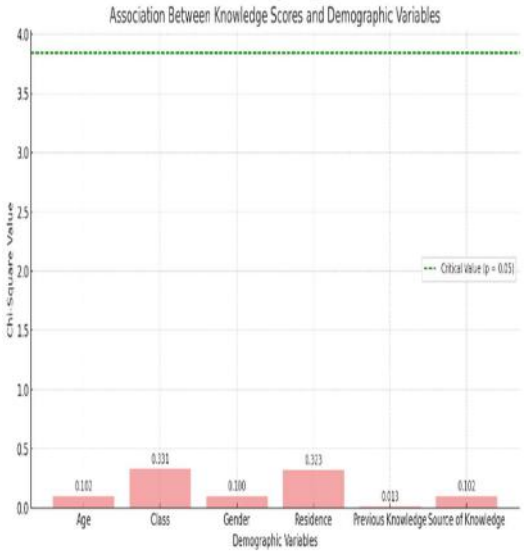
3. Comparison of Pre-Test and Post-Test Scores

The results were analyzed using the **paired t-test** to assess the statistical significance of the knowledge improvement:



- **Paired t-test value**: Significant at $p<0.05p < 0.05p<0.05$, indicating that the improvement in scores from pre-test to post-test was statistically significant.
- This confirms the effectiveness of the video teaching program in enhancing the children's knowledge of personal hygiene.

4. Association between Knowledge Scores and Demographic Variables



The **chi-square test** was used to assess the association between demographic variables and the post-test knowledge scores:

- **Age**: No significant association was found between age and post-test knowledge scores ($p>0.05p > 0.05p>0.05$).
- **Class**: No significant association was found between class level and post-test knowledge scores ($p>0.05p > 0.05p>0.05$).
- **Gender**: No significant association between gender and post-test knowledge scores ($p>0.05p > 0.05p>0.05$).
- **Place of Residence**: No significant association between place of residence (urban/rural) and post-test scores ($p>0.05p > 0.05p>0.05$).
- **Previous Knowledge**: There was no significant association between having prior knowledge of personal hygiene and the improvement in post-test scores ($p>0.05p > 0.05p>0.05$).
- **Source of Knowledge**: The source of prior knowledge (e.g., classroom, parents, books) did not significantly influence the post-test scores ($p>0.05p > 0.05p>0.05$).

5. Key Findings

- The video-assisted teaching program was highly effective, as evidenced by the significant increase in knowledge scores among participants.
- The intervention was successful across all demographic categories, indicating its broad applicability and effectiveness in diverse settings.
- No demographic factor (age, gender, class, or place of residence) significantly affected the knowledge gains, suggesting that the teaching program was equally effective for all groups.

6. Graphical Representation of Results

Graph 1: Pre-test and Post-test Knowledge Scores

- A bar graph illustrating the dramatic improvement in knowledge levels after the intervention.

Graph 2: Distribution of Participants by Age, Class, Gender, and Place of Residence

- Pie charts and bar graphs showcasing the demographic distribution of the participants.

Graph 3: Comparison of Knowledge Levels Before and After the Intervention

- Line graph showing the mean scores before and after the intervention, highlighting the effectiveness of the video-assisted teaching.

IV. Discussion

The present study was conducted to evaluate whether a structured, multimedia-based educational intervention could enhance school children's knowledge of personal hygiene. This section discusses the key findings, implications, and their alignment with previous research.

Key Findings

The study revealed a substantial improvement in the knowledge levels of children after the video-assisted teaching intervention. The pre-test results indicated that **75% of participants had poor knowledge** about personal hygiene, while none demonstrated good knowledge. In contrast, post-test scores showed a dramatic improvement, with **96.64% of students achieving good knowledge** after the educational intervention. The mean knowledge score increased from **9.75 (32.5%)** in the pre-test to **26.52 (88.4%)** in the post-test, reflecting an improvement rate of **55.9%**.

Effectiveness of Video-Assisted Teaching

The significant increase in knowledge scores highlights the effectiveness of using multimedia tools for educational purposes. Video-assisted teaching is particularly effective because it engages multiple senses, making it easier for children to understand and retain information. This finding is consistent with previous studies, such as those conducted by Naveena JH (2016) and Jasline M (2021), which also demonstrated that interactive video teaching significantly improves knowledge levels in school children regarding health practices.

The study further supports the idea that integrating visual aids into the education system can enhance the learning experience and lead to better outcomes compared to traditional lecture-based teaching methods. This approach is especially beneficial for children, who tend to be more receptive to audiovisual stimuli.

Comparison with Previous Research

The results of this study align with previous research on the topic of hygiene education among school children. For instance:

1. **Jasline et al. (2021)** conducted a similar study on handwashing techniques among school children using video teaching and found a significant increase in post-test scores.
2. **Ghosh et al. (2020)** assessed the knowledge, attitude, and practice of hygiene among primary school children and concluded that structured educational programs are essential to improve children's understanding of hygiene practices.
3. **Vivas et al. (2008)** reported that interactive teaching methods are effective in changing hygiene behaviors among school children in rural settings.

These studies collectively support the findings of the present study, reinforcing the importance of using innovative teaching strategies to improve health knowledge among children.

Implications for Public Health and Education

The findings have several implications:

- **Schools**: Incorporating video-based teaching on hygiene in school curricula can play a critical role in preventing hygiene-related diseases, particularly in areas with limited access to healthcare resources. Schools in rural areas, where awareness of personal hygiene is generally lower, can benefit significantly from such interventions.
- **Healthcare Professionals**: Nurses and community health workers can use multimedia tools to educate not just children but also their families,

thereby promoting better hygiene practices at the community level.

- **Policy Makers**: The study's success in improving knowledge levels underscores the need for public health policies that integrate health education into school programs. Governments should consider funding multimedia teaching resources to promote hygiene education.

Factors Affecting Knowledge Improvement

The study also explored whether demographic variables (age, gender, class, place of residence, and previous knowledge) influenced the effectiveness of the teaching program. The results showed no significant association between these variables and the improvement in knowledge scores. This suggests that the video-assisted teaching program was equally effective across different demographic groups. The consistency of the results indicates that this method can be widely applied to diverse populations.

Limitations of the Study

Despite the positive outcomes, the study had several limitations:

1. **Sample Size**: The study was limited to 60 students from a single school, which may not be representative of the broader population.
2. **Non-Random Sampling**: The use of purposive sampling could introduce bias, as participants were not randomly selected.
3. **Short-Term Assessment**: The study measured knowledge improvement immediately after the intervention. Long-term retention of knowledge was not assessed, and it is uncertain whether the effects of the video-assisted teaching would persist over time.

Recommendations for Future Research

- **Longitudinal Studies**: Future studies should assess the long-term impact of video-assisted teaching on knowledge retention and behavioral changes in personal hygiene practices.
- **Larger Sample Size**: Conducting similar studies with a larger, more diverse sample across multiple schools can help validate the findings.
- **Comparative Studies**: Comparing the effectiveness of video-assisted teaching with other teaching methods, such as role-playing or interactive workshops, can provide insights into the most effective strategies for hygiene education.

V. Conclusion

In conclusion, the findings of this study clearly indicate that video-assisted teaching is a highly effective method for improving knowledge regarding personal hygiene among school children. The significant improvement in post-test scores demonstrates that such educational interventions can be an effective tool in promoting health education, particularly in rural settings where traditional teaching methods may not be as effective. By incorporating multimedia resources into the curriculum, educators and healthcare professionals can enhance children's understanding of hygiene practices, ultimately contributing to better health outcomes.

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