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A Study to Assess the Effectiveness of Video Assisted Teaching Programme on Knowledge Regarding Health Hazards of Electronic Devices Among Adolescents in Higher Secondary Schools in Indore, Madhya Pradesh

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Abstract

Background: In today's digital world, adolescents are increasingly exposed to electronic devices such as smartphones, tablets, and laptops. While these technologies offer numerous advantages, excessive and improper use can lead to significant health hazards including visual strain, musculoskeletal discomfort, sleep disturbances, and psychological stress.

Objectives: The study aimed to assess the effectiveness of a video-assisted teaching programme (VATP) on knowledge regarding health hazards of electronic devices among adolescents.

Methods: A quantitative pre-experimental one-group pretest–posttest design was adopted. The study was conducted among 100 adolescents studying in higher secondary schools in Indore, Madhya Pradesh. A structured questionnaire was used to assess knowledge before and after administering the VATP. Data were analyzed using descriptive and inferential statistics.

Results: The mean pre-test knowledge score was **10.85 ± 2.64**, while the post-test mean score increased to **18.52 ± 3.12**. The calculated *t* value (12.47, $p < 0.001$) indicated a statistically significant improvement in knowledge after the intervention.

Conclusion: The video-assisted teaching programme was effective in enhancing the knowledge of adolescents regarding the health hazards of electronic devices. The findings emphasize the importance of incorporating digital health education into school curricula to promote responsible technology use.

Keywords: Adolescents, Electronic devices, Health hazards, Knowledge, Video-assisted teaching programme

Introduction

Electronic devices have become an integral part of modern life, especially among adolescents who rely heavily on technology for communication, education, and entertainment. However, prolonged use of these devices poses various health challenges such as digital eye strain, headaches, poor posture, sleep disturbances, and even emotional or behavioral issues.

According to the **World Health Organization (2022)**, adolescents worldwide spend an average of 6–8 hours daily using electronic devices, exceeding the recommended screen time limit. In India, studies by **NIMHANS (2023)** reveal that 68% of adolescents experience health-related issues due to excessive device use. Despite these alarming statistics, awareness regarding the preventive measures and safe use of electronic devices remains inadequate among school students.

Educational interventions such as **video-assisted teaching programmes (VATP)** have proven effective in promoting knowledge and awareness among youth. Such visual and interactive teaching methods appeal to adolescents' learning preferences and can significantly improve knowledge retention.

Hence, this study was undertaken to assess the effectiveness of a VATP on knowledge regarding health hazards of electronic devices among adolescents in higher secondary schools of Indore, Madhya Pradesh.

Need of the Study

In the 21st century, technology has become an inseparable part of daily life, especially among adolescents. Electronic devices such as smartphones, tablets, computers, and gaming consoles are widely used for communication, learning, and recreation. However, their excessive and unmonitored use has led to growing concerns about physical, psychological, and social health problems among young people.

According to the **World Health Organization (2022)**, adolescents between 10–19 years are spending an average of 6 to 8 hours per day on digital screens—far beyond the recommended limit of 2 hours per day. Excessive screen time has been associated with **digital eye strain, headaches, neck and back pain, obesity, poor sleep quality, anxiety, depression, and reduced academic performance**. The **National Institute of Mental Health and Neurosciences (NIMHANS, 2023)** reported that nearly **68% of Indian adolescents** experience at least one health issue related to overuse of electronic devices.

Adolescence is a crucial stage for physical, cognitive, and emotional development. Prolonged screen exposure during this stage can have long-term consequences such as visual impairment, posture-related musculoskeletal disorders, and even addiction-like behaviors. Unfortunately, many adolescents lack adequate knowledge about the harmful effects of prolonged electronic device use and the preventive measures necessary to mitigate these risks.

Schools play a significant role in shaping adolescents' attitudes and behaviors. Therefore, integrating health education programs within the school environment can effectively promote awareness and responsible device usage. Traditional classroom teaching alone may not be sufficient to capture adolescents' attention or sustain their interest in health education topics.

In contrast, **video-assisted teaching programmes (VATPs)** utilize multimedia presentations combining visual, auditory, and interactive elements, making learning more engaging and impactful. Studies have shown that audiovisual aids enhance comprehension, retention, and motivation compared to conventional teaching methods. Hence, a structured video-assisted teaching programme can serve as a powerful educational intervention to increase awareness about the health hazards of electronic devices among adolescents.

By implementing such an intervention, adolescents can develop responsible digital habits, improve self-regulation, and reduce the risks associated with excessive device use. The findings of this study will help educators, health professionals, and policymakers design effective school-based digital health awareness programs that promote safer and healthier technology use.

Therefore, the present study is undertaken to assess the effectiveness of a video-assisted teaching programme on knowledge regarding the health hazards of electronic devices among adolescents in higher secondary schools in Indore, Madhya Pradesh.

Objectives

1. To assess the pre-test level of knowledge regarding health hazards of electronic devices among adolescents.
2. To implement a video-assisted teaching programme on health hazards of electronic devices.
3. To assess the post-test knowledge score after the intervention.
4. To evaluate the effectiveness of the video-assisted teaching programme by comparing pre-test and post-test scores.
5. To determine the association between pre-test knowledge and selected demographic variables.

Hypotheses

- **H_1:** There is a significant difference between pre-test and post-test knowledge scores regarding health hazards of electronic devices among adolescents.
- **H_2:** There is a significant association between pre-test knowledge scores and selected demographic variables such as age, gender, and duration of device use.

Materials and Methods

Research Approach and Design

A **quantitative evaluative approach** with a **pre-experimental one-group pretest–posttest design** was used to assess the effectiveness of the video-assisted teaching programme.

Setting

The study was conducted at selected higher secondary schools in **Indore, Madhya Pradesh**.

Population and Sample

The target population comprised adolescents aged 15–18 years studying in higher secondary schools (classes XI and XII). A sample of **100 students** was selected through **simple random sampling**.

Inclusion Criteria

- Adolescents willing to participate in the study
- Students present during the period of data collection

Exclusion Criteria

- Students who had already attended sessions on digital health awareness
- Students who were absent on data collection days

Data Collection Instrument

A **structured knowledge questionnaire** was developed, consisting of:

- **Section A:** Demographic variables (age, gender, class, type of device used, duration, and purpose of use).
- **Section B:** 25 multiple-choice questions assessing knowledge about health hazards and preventive measures related to electronic device usage.

Intervention: Video-Assisted Teaching Programme (VATP)

The VATP was designed as a 25-minute educational video covering:

- Common health hazards due to prolonged electronic device usage
- Ergonomic posture and eye care practices
- Psychological effects and preventive strategies
- Healthy screen time habits and digital detox methods

Procedure

1. **Pre-test:** The structured questionnaire was administered to assess baseline knowledge.
2. **Intervention:** The video-assisted teaching programme was shown to the participants.
3. **Post-test:** After 7 days, the same questionnaire was administered to measure knowledge gain.

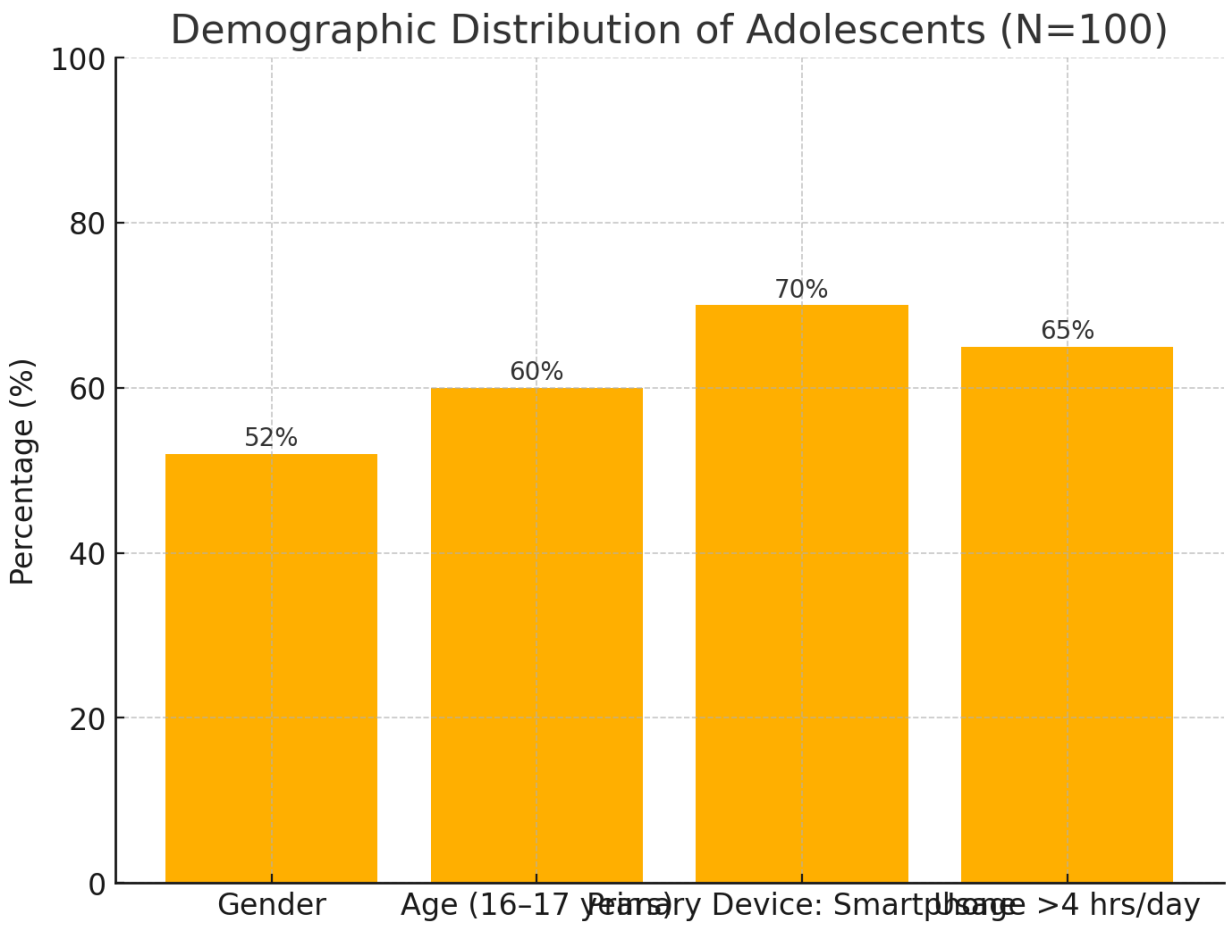
Data Analysis

- **Descriptive statistics:** Mean, standard deviation, frequency, and percentage were used to describe demographic data and knowledge levels.
- **Inferential statistics:** Paired *t*-test was applied to evaluate the effectiveness of the intervention. Chi-square test was used to assess associations between demographic variables and pre-test knowledge scores.

Results

1. Demographic Characteristics

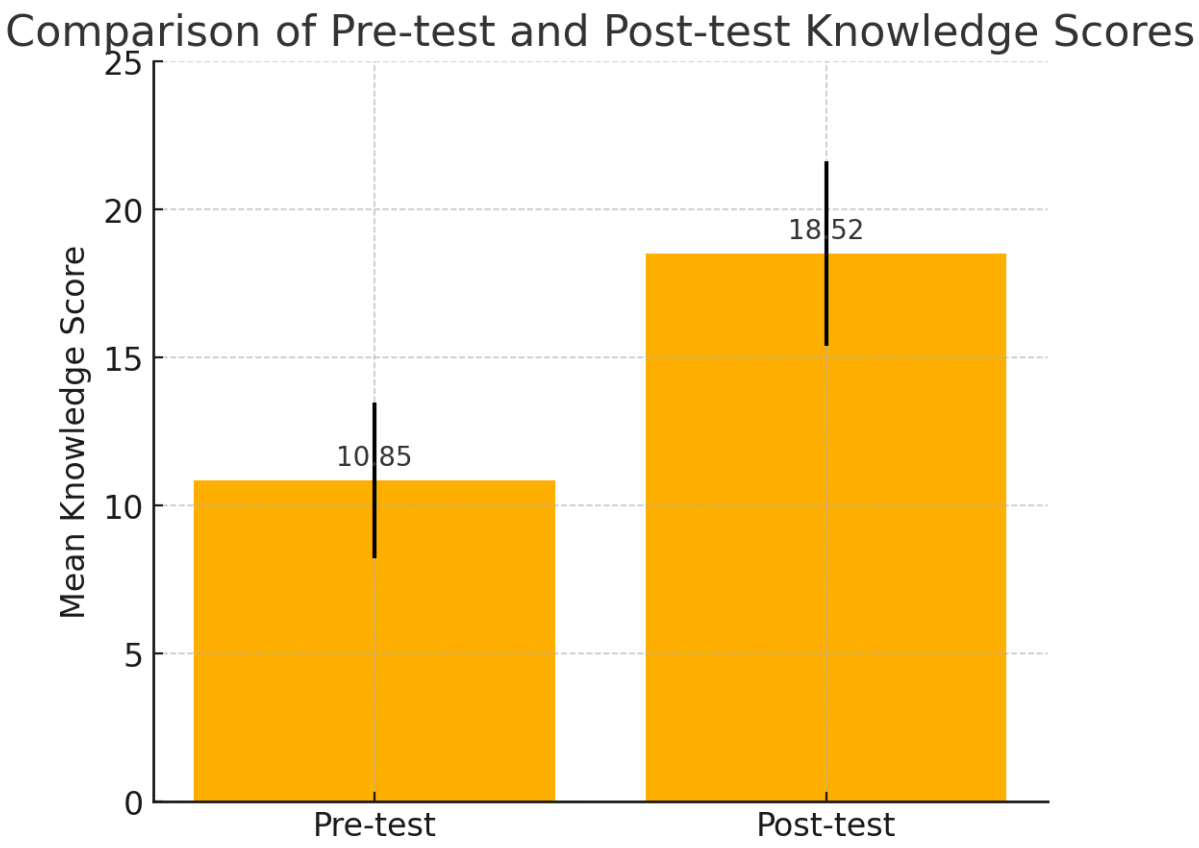
Out of 100 adolescents, 52% were males and 48% females. The majority (60%) were aged between 16–17 years. 70% reported using smartphones as their primary device, and 65% spent more than 4 hours daily using electronic gadgets.



2. Effectiveness of Video-Assisted Teaching Programme

Variable	Mean ± SD	Mean Difference	*t*-value	*p*-value
Pre-test Knowledge Score	10.85 ± 2.64	7.67	12.47	<0.001
Post-test Knowledge Score	18.52 ± 3.12			

The calculated *t* value (12.47) was greater than the table value at $p < 0.001$, indicating a highly significant difference between pre-test and post-test knowledge scores. This shows that the VATP was effective in improving adolescents' knowledge regarding the health hazards of electronic devices.



3. Association with Demographic Variables

No significant association was found between pre-test knowledge and gender or age, but a significant association was found with the **duration of electronic device use ($p < 0.05$)**.

Discussion

The findings clearly demonstrated that adolescents had inadequate knowledge regarding the health hazards of electronic devices prior to the intervention. The significant increase in post-test scores indicates that video-assisted teaching was highly effective in improving awareness.

Hence, integrating such innovative educational methods in school curricula can play a vital role in preventing health problems related to excessive device use.

Conclusion

The study concludes that a video-assisted teaching programme is an effective educational strategy to improve adolescents' knowledge regarding the health hazards of electronic devices. Schools and health educators should conduct periodic awareness programmes to promote safe and responsible use of digital technology among students.

Recommendations

1. Similar studies can be conducted on a larger sample across different regions.
2. Long-term studies can assess behavioral and practice changes after educational interventions.
3. Teachers and parents should be oriented about the effects of excessive device use and encouraged to monitor screen time.
4. Integration of digital health education in school health programmes is recommended.

Limitations

- The study was limited to a sample of 100 adolescents in selected schools of Indore.
- Only knowledge was assessed, not behavioral practices.
- Short-term follow-up limited assessment of retention over time.

Acknowledgment

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