

Research Article

Effectiveness of a Video-Assisted Teaching Programme on Knowledge and Behaviour Regarding the Impact of Mobile Phone Usage on Mental Health and Academic Performance among School Students: A Pre-Experimental Study

Mrs. Geetanjali Kumari¹, Rakesh Kumar Soni², Rishav Raj³, Rimjhim Kumari⁴, Dewanti Kumari⁵, Neha Kumari⁶, Nisha Raj⁷, Sarita Kisku⁸, Seema Khattoon⁹

¹Associate Professor and Head of Department, Mental Health Nursing, Shree Sai Nursing Training College, Ranchi, Jharkhand.

²4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

³4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

⁴4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

⁵4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

⁶4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

⁷4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

⁸4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

⁹4th Year B.Sc. Nursing Student, Shree Sai Nursing Training College, Ranchi.

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ABSTRACT

Background: The widespread use of mobile phones among adolescents has created new opportunities for learning and communication; however, excessive use may negatively influence mental health, psychological well-being, sleep patterns, and academic functioning. School-based health education programmes may help students develop awareness and adopt healthier digital habits.

Objectives: The study aimed to assess baseline knowledge and behaviour regarding the impact of mobile phone usage among school students, evaluate the effectiveness of a video-assisted teaching programme on improving knowledge and behavioural practices, and determine the association between study outcomes and selected socio-demographic variables.

Materials and Methods: A quantitative pre-experimental one-group pre-test-post-test design was adopted among 60 students studying in Classes IX and X at Government Higher Secondary School, Goria, Kanke, Ranchi, Jharkhand. Participants were selected using a non-probability purposive sampling technique. Data were collected using a structured knowledge questionnaire and behaviour rating scale before and after administration of the video-assisted teaching programme. Data were analysed using descriptive and inferential statistics, including paired t-test, Chi-square test, and Pearson's correlation coefficient.

Results: Before the intervention, 56.7% of students had inadequate knowledge and 48.3% demonstrated negative behavioural practices related to mobile phone usage. Following the video-assisted teaching programme, a significant improvement was observed in knowledge and behaviour scores. The mean knowledge score increased from 7.12 ± 2.48 in the pre-test to 15.82 ± 2.31 in the post-test ($t = 18.96$, $p < 0.001$). Similarly, the mean behaviour score improved from 38.64 ± 9.72 to 64.18 ± 10.26 ($t = 16.42$, $p < 0.001$). No significant association was found between knowledge or behaviour scores and selected socio-demographic variables.

Conclusion: The video-assisted teaching programme was effective in improving knowledge and promoting healthier behavioural practices regarding mobile phone usage among school students. Integrating digital health education into school health programmes may support adolescent mental health promotion and responsible technology use.

Keywords: Adolescents, Mobile Phone Usage, Digital Health Literacy, Mental Health, Academic Performance, Video-Assisted Teaching Programme.

INTRODUCTION

Mobile phones have become an essential part of adolescent life, influencing communication, education, entertainment, and social

interaction. The availability of affordable smartphones and internet services has resulted in increased digital engagement among young people. Although mobile phones provide

valuable educational resources and opportunities for connectivity, excessive and uncontrolled usage has become a growing concern due to its possible effects on psychological health, daily routines, and academic outcomes.

Adolescence is a sensitive developmental period involving emotional, cognitive, and social changes. During this stage, excessive dependence on digital devices may contribute to unhealthy lifestyle patterns, reduced interpersonal interaction, emotional difficulties, and poor self-regulation. Studies have reported associations between problematic smartphone use and increased anxiety, stress, sleep disturbances, reduced concentration, and decreased academic involvement among adolescents.

In India, smartphone use among school-going students has increased significantly, particularly after the expansion of digital learning practices during the COVID-19 pandemic. Mobile phones have become important tools for accessing educational content; however, prolonged use for social media, gaming, video streaming, and entertainment may result in excessive screen exposure. This changing pattern of technology use has created concerns among parents, educators, and healthcare professionals regarding adolescent well-being.

Mental health is an important component of healthy adolescent development and includes emotional stability, coping ability, and effective social functioning. Excessive mobile phone usage may negatively influence these areas by increasing psychological stress, emotional dependency, loneliness, and reduced face-to-face interaction. Similarly, psychological well-being, which includes positive self-perception, autonomy, emotional balance, and meaningful relationships, may be affected by unhealthy digital behaviours.

Academic performance is another important area influenced by mobile phone habits. Frequent digital distractions, social media engagement, and late-night smartphone use may interfere with study schedules, reduce attention span, affect sleep quality, and decrease learning efficiency. Therefore, promoting responsible mobile phone practices among adolescents is necessary to maintain academic achievement and overall health.

Health education interventions play an important role in improving awareness and encouraging behavioural modification. Video-assisted teaching is considered an effective

educational approach because it combines visual and auditory methods, increases learner engagement, and improves understanding and retention of health-related information. Such approaches may be particularly useful among adolescents who are accustomed to digital learning environments.

Previous studies have highlighted the benefits of structured interventions in reducing problematic mobile phone behaviours. Joshi et al. (2026) reported improvement following an intervention aimed at reducing nomophobia among nursing students, suggesting that targeted educational and behavioural strategies may influence unhealthy digital habits. However, available evidence is mainly focused on college students and healthcare trainees, while limited research has explored school-based interventions among adolescents.

Early intervention among school students is important because digital habits developed during adolescence may continue into adulthood. Despite increasing concerns regarding smartphone dependency and its effects on student health, limited studies have evaluated video-assisted teaching programmes aimed at improving knowledge and behaviour related to mobile phone usage among Indian school students.

Therefore, the present study was conducted to assess the effectiveness of a video-assisted teaching programme on knowledge and behaviour regarding the impact of mobile phone usage on mental health and academic performance among school students in Government Higher Secondary School, Gorla, Kanke, Ranchi, Jharkhand. The findings may contribute to the development of school health education strategies and nursing interventions promoting responsible technology use among adolescents.

MATERIALS AND METHODS

Study Design and Approach

A quantitative research approach using a pre-experimental one-group pre-test-post-test design was adopted to evaluate the effectiveness of a video-assisted teaching programme on knowledge and behaviour regarding the impact of mobile phone usage among school students.

Study Setting and Participants

The study was conducted among students of Classes IX and X at Government Higher Secondary School, Gorla, Kanke, Ranchi,

Jharkhand. A total of 60 students participated in the study. The study was conducted after obtaining ethical approval and administrative permission from the concerned authorities.

Sampling Technique

Participants were selected using a non-probability purposive sampling technique based on predefined eligibility criteria.

Eligibility Criteria

Inclusion Criteria

Students who:

- were studying in Classes IX and X;
- were available during the period of data collection;
- understood English or Hindi;
- had experience using or accessing mobile phones; and
- provided parental consent and student assent.

Exclusion Criteria

Students who:

- were absent during either assessment;
- were unwilling to participate; or
- had previously attended structured educational sessions regarding responsible mobile phone use.

Study Variables

The dependent variables were knowledge and behaviour related to mobile phone usage. The independent variable was the video-assisted teaching programme. Selected socio-demographic variables included age, gender, class, family income, parental education, place of residence, daily mobile phone usage, and mobile phone ownership.

Description of Tools

Data were collected using the following instruments:

Section I: Socio-demographic Proforma

A structured proforma was used to collect information regarding demographic characteristics and mobile phone usage patterns of participants.

Section II: Structured Knowledge Questionnaire
Knowledge regarding the effects of mobile phone usage on mental health, psychological well-being, and academic performance was assessed using a structured questionnaire. Each correct response received one mark, and higher scores indicated better knowledge.

Section III: Behaviour Rating Scale

Behavioural practices related to mobile phone use were assessed using a structured rating

scale covering areas such as screen time management, sleep practices, academic habits, and responsible digital behaviour. Higher scores indicated healthier practices.

Validity and Reliability

Content validity of the instruments was established through expert review from specialists in Mental Health Nursing, Community Health Nursing, Child Health Nursing, Psychiatry, Nursing Education, and Biostatistics. Modifications were incorporated according to expert suggestions.

Reliability testing was performed using Cronbach's alpha coefficient. The knowledge questionnaire and behaviour rating scale demonstrated acceptable internal consistency ($\alpha = 0.70$).

Pilot Study

A pilot study was conducted among six students who were excluded from the final sample. The pilot study confirmed the feasibility of the study procedure and clarity of the instruments.

Intervention

The participants received a video-assisted teaching programme after completion of the pre-test. The intervention included information related to:

- harmful effects of excessive mobile phone use;
- impact on mental health and emotional well-being;
- relationship between smartphone use and academic performance;
- healthy screen-time practices;
- sleep hygiene; and
- strategies for responsible digital use.

The programme was delivered through standardized audiovisual content to maintain uniformity.

Data Collection Procedure

Baseline assessment was conducted using the socio-demographic proforma, knowledge questionnaire, and behaviour rating scale. Following the pre-test, the video-assisted teaching programme was administered. Post-test assessment was conducted after five days using the same tools to evaluate changes following the intervention.

Ethical Considerations

Ethical approval was obtained before initiation of the study. Permission was obtained from the school authority. Written informed consent

from parents/guardians and assent from students were obtained. Confidentiality and anonymity of participants were maintained throughout the study.

Statistical Analysis

Data were analysed using IBM SPSS Statistics. Frequency, percentage, mean, and standard deviation were used for descriptive analysis. The effectiveness of the intervention was assessed using the paired t-test. Association between outcome variables and socio-demographic characteristics was analysed using Chi-square test. Pearson's correlation coefficient was used to determine the relationship between knowledge and behaviour

scores. Statistical significance was considered at $p < 0.05$.

RESULTS

Socio-demographic Characteristics of Participants

A total of 60 students completed both pre-test and post-test assessments, resulting in a 100% response rate. The majority of participants were aged 15–16 years (51.7%) and female (63.3%). Half of the students belonged to Class IX and half to Class X. Most participants reported daily mobile phone exposure, with 88.3% using mobile phones for 2–4 hours per day.

Table 1. Socio-demographic Characteristics of Participants (N = 60)

Variables	Frequency (n)	Percentage (%)
Age		
13–14 years	26	43.3
15–16 years	31	51.7
17–18 years	3	5.0
Gender		
Male	22	36.7
Female	38	63.3
Class		
IX	30	50.0
X	30	50.0
Daily mobile phone usage		
2–4 hours	53	88.3
4–6 hours	6	10.0
>6 hours	1	1.7
Mobile phone ownership		
Yes	18	30.0
No	42	70.0

Pre-test Knowledge Regarding Mobile Phone Usage

Before the intervention, more than half of the participants demonstrated inadequate

knowledge regarding the effects of mobile phone usage. Only a small proportion of students had adequate knowledge.

Table 2. Pre-test Level of Knowledge (N = 60)

Knowledge Level	Frequency (n)	Percentage (%)
Inadequate knowledge	34	56.7
Moderately adequate knowledge	21	35.0
Adequate knowledge	5	8.3

The findings indicate limited awareness among students regarding the possible consequences of excessive mobile phone usage.

Pre-test Behaviour Regarding Mobile Phone Usage

Most students demonstrated unfavourable behavioural practices related to mobile phone use before the intervention.

Table 3. Pre-test Behaviour Level (N = 60)

Behaviour Level	Score Range	Frequency (n)	Percentage (%)
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Negative impact behaviour	0–30	29	48.3
Moderate impact behaviour	31–60	24	40.0
Positive impact behaviour	61–90	7	11.7

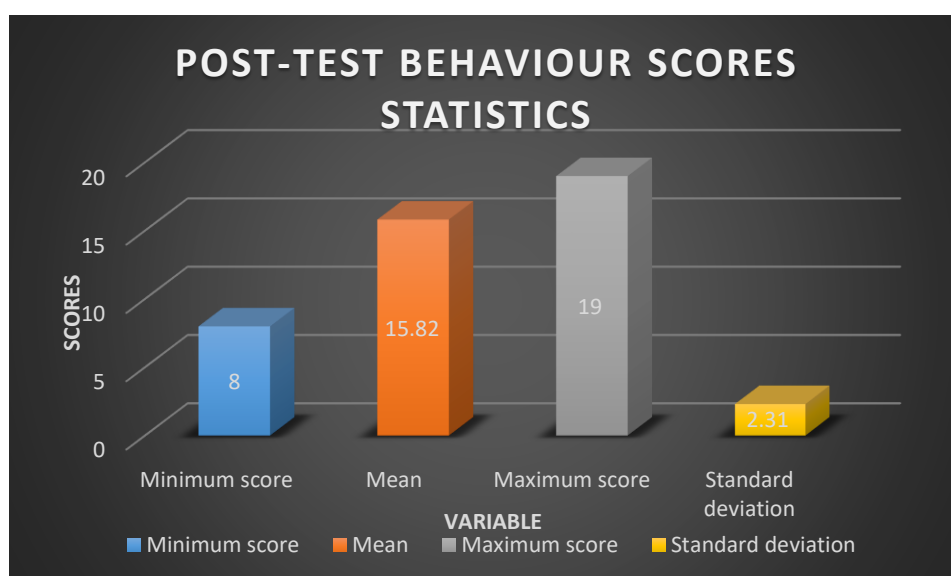
Post-test Knowledge Level

Following the video-assisted teaching programme, students demonstrated

considerable improvement in knowledge scores.

Table 4. Post-test Knowledge Level (N = 60)

Knowledge Level	Frequency (n)	Percentage (%)
Inadequate knowledge	4	6.7
Moderately adequate knowledge	18	30.0
Adequate knowledge	38	63.3



Effectiveness of Video-Assisted Teaching Programme on Knowledge

Table 5. Comparison of Pre-test and Post-test Knowledge Scores

Assessment	Mean $\pm$ SD	Mean Difference	t value	p value
Pre-test	7.12 $\pm$ 2.48	8.70	18.96	<0.001*
Post-test	15.82 $\pm$ 2.31			

Statistically significant at $p < 0.05$

The mean knowledge score increased significantly after the intervention,

demonstrating the effectiveness of the video-assisted teaching programme.

Effectiveness of Video-Assisted Teaching Programme on Behaviour

Table 6. Comparison of Pre-test and Post-test Behaviour Scores

Assessment	Mean $\pm$ SD	Mean Difference	t value	p value
Pre-test	38.64 $\pm$ 9.72	25.54	16.42	<0.001*
Post-test	64.18 $\pm$ 10.26			

The post-test behaviour scores showed significant improvement compared with baseline assessment.

Association Between Knowledge, Behaviour and Socio-demographic Variables

No statistically significant association was found between knowledge and behaviour scores with selected socio-demographic variables, including age, gender, class, family income, parental education, place of residence, daily mobile phone usage, and mobile phone ownership ($p > 0.05$).

Summary of Results

The video-assisted teaching programme produced significant improvement in students' knowledge and behavioural practices related to mobile phone usage. The intervention was effective irrespective of socio-demographic characteristics, suggesting its applicability as a school-based health education strategy.

DISCUSSION

The present study assessed the effectiveness of a video-assisted teaching programme on knowledge and behaviour related to mobile phone usage among school students. The findings demonstrated significant improvement in both knowledge and behavioural practices after the intervention, indicating that audiovisual education can be an effective approach for promoting responsible digital habits among adolescents.

In this study, most participants were aged 15–16 years (51.7%), and 63.3% were female. A majority of students reported daily mobile phone use, with 88.3% using mobile phones for 2–4 hours per day. These findings highlight the increasing presence of smartphones in adolescent life and the importance of promoting awareness regarding healthy usage patterns.

Baseline assessment showed that 56.7% of students had inadequate knowledge, while only 8.3% had adequate knowledge regarding the effects of excessive mobile phone use. This suggests that regular exposure to smartphones does not necessarily ensure awareness about their possible impact on mental health, well-being, and academic functioning.

Following the video-assisted teaching programme, knowledge scores improved significantly, with the mean score increasing from 7.12 ± 2.48 to 15.82 ± 2.31 ($t = 18.96$, $p < 0.001$). Similarly, behavioural scores improved from 38.64 ± 9.72 to 64.18 ± 10.26 ($t = 16.42$, $p < 0.001$). The improvement may be attributed to the audiovisual format, which enhances understanding, attention, and retention of health-related information among adolescent learners.

The findings support previous intervention studies suggesting that structured educational strategies can improve digital health behaviours. Joshi et al. (2026) reported positive outcomes following an intervention targeting nomophobia among nursing students, supporting the role of planned interventions in modifying problematic mobile phone use.

No significant association was observed between knowledge or behaviour scores and selected socio-demographic variables, indicating that the intervention was effective irrespective of participant characteristics. The findings suggest that video-assisted digital health education may be incorporated into school health programmes to promote responsible technology use.

The study has certain limitations, including the pre-experimental design without a control group, small sample size, single-school setting, self-reported behavioural assessment, and absence of long-term follow-up. Future studies using larger samples, multiple settings, controlled designs, and extended follow-up are recommended to assess the sustained effects of digital health education interventions.

Strengths of the study

- Addressed an emerging adolescent health concern related to excessive mobile phone usage.
- Evaluated both knowledge and behavioural outcomes rather than knowledge alone.
- Used a structured video-assisted educational intervention suitable for adolescent learners.
- Applied appropriate statistical methods to evaluate intervention effectiveness.
- Provides practical implications for nursing education, school health services, and adolescent health promotion.

Limitations of the study

- The pre-experimental one-group design without a control group limits causal interpretation.
- The study included a limited sample size from a single educational institution.
- Purposive sampling may reduce representativeness of the sample.
- Behavioural outcomes were assessed using self-reported measures.
- Short-term post-test assessment did not evaluate long-term retention or sustained behavioural modification.

CONCLUSION

The present study demonstrated that a video-assisted teaching programme was effective in improving knowledge and behavioural practices related to mobile phone usage among school students. The significant increase in post-test

knowledge and behaviour scores highlights the usefulness of audiovisual educational strategies in adolescent health promotion.

Considering the increasing dependence of adolescents on digital devices, school-based digital health education programmes should be integrated into routine health promotion activities. Nurses and educators can play an important role in creating awareness regarding responsible smartphone use, maintaining psychological well-being, and supporting healthy academic habits among students.

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