

Efficacy of a Video-Assisted Teaching Programme on Internet Addiction Among Adolescents in a Selected Community: A Quasi-Experimental Study
Jenifer Dheboral R¹, Neelakandan P², Chitra G³, SharathKumar K⁴, *Nandakumar S⁵

Affiliation:

1. Lecturer, Unity Academy of Education College of Nursing, Mangalore
2. Ph. D Research Scholar, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences University, Thandalam, Chennai, India
3. Vice Principal, Unity Academy of Education College of Nursing, Mangalore
4. Lecturer, Unity Academy of Education College of Nursing, Mangalore
5. Ph. D Research Scholar, Saveetha College of Nursing, Saveetha Institute of Medical and Technical Sciences University, Thandalam, Chennai, India & Vice Principal cum Professor, KMCH College of Nursing Coimbatore.

*** Corresponding Author:**

Name: Nandakumar S

Email ID: vijaynandu84@gmail.com

ORCID ID: 0009-0004-2745-9097

KEY HIGHLIGHTS

- **Design:** Quasi-experimental pre-test–post-test control group study; 60 adolescents aged 13–18 years (30 experimental, 30 control) from community areas in Tamil Nadu.
- **Intervention:** A 15-minute Tamil-language video-assisted teaching programme (VATP) on the ill effects of internet use, delivered individually at home.
- **Baseline:** No adolescent scored in the normal range on the Internet Addiction Test (IAT); about 80% in both groups had moderate-to-severe addiction.
- **Main finding:** Experimental group mean IAT score fell from 66.5 ± 16.2 to 34.4 ± 9.90 ($t = 11.04$, $p < .001$); the control group did not change ($67.3 \rightarrow 67.6$, $p > .05$).
- **Between groups:** Post-test scores were 33.2 points lower in the experimental group (34.4 vs 67.6; $t = 8.64$, $p < .001$); 40% reached the normal range and none remained severe.
- **Associations:** Daily internet-use hours was the only demographic variable linked to IA (control group, $\chi^2 = 12.03$, $p = .017$).
- **Implication:** A brief, low-cost, scalable community nursing intervention; limited by convenience sampling, small sample and short follow-up.

CONCEPTUAL MODEL

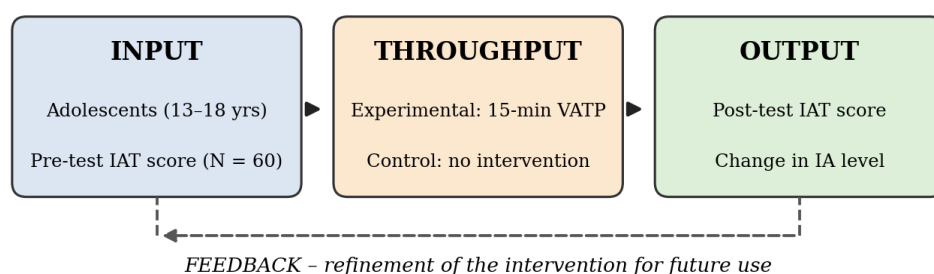


Figure 1. Conceptual framework of the study based on General System Theory.

ABSTRACT

Background: Internet addiction (IA), an impulse-control disorder overlapping diagnostically with pathological gambling, is an emerging concern among adolescents, who are especially vulnerable given unsupervised, prolonged internet access. Low-cost community nursing interventions such as video-assisted teaching may help adolescents reduce problematic internet use. **Objectives:** To assess pre-test and post-test IA levels among community adolescents, to evaluate the efficacy of a video-assisted teaching programme (VATP), and determine the association between pre-test IA and selected demographic variables. **Methods:** A quasi-experimental, pre-test–post-test control group design was used. Sixty adolescents aged 13–18 years (30 experimental, 30 control) were recruited by convenience sampling from two community areas. The Internet Addiction Test (Young, 1998) was administered before and after a 15-minute VATP delivered individually to the experimental group; the control group received no intervention. Data were analysed using descriptive statistics, paired/unpaired t-tests, and chi-square tests. **Results:** Moderate-to-severe IA was common in both groups at pre-test. Post-VATP, the experimental group's mean IA score (34.4 ± 9.90) was significantly lower than the control group's (67.6 ± 18.5 ; $t = 8.64$, $p < .001$). Within the experimental group, the mean score fell from 66.5 ± 16.2 to 34.4 ± 9.90 ($t = 11.04$, $p < .001$); the control group showed no significant change ($t = 1.77$, $p > .05$). IA was significantly associated with daily internet-use hours only in the control group ($\chi^2 = 12.03$, $p = .017$). **Conclusion:** A brief, individually delivered VATP significantly reduced adolescent IA and represents a feasible, scalable community health nursing intervention.

Keywords: internet addiction; video-assisted teaching programme; adolescents; community health nursing; Internet Addiction Test

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INTRODUCTION

The rapid expansion of internet access through smartphones and affordable data services has transformed how adolescents learn, socialise, and spend leisure time. While the internet offers considerable educational and social benefits, its excessive and uncontrolled use has given rise to internet addiction (IA), a behavioural pattern characterised by preoccupation with online activity, loss of control, and continued use despite negative consequences. Young (1998) conceptualised IA as an impulse-control disorder that shares overlapping diagnostic features with pathological gambling, and developed the 20-item Internet Addiction Test (IAT) that remains the most widely used screening instrument in this field. The World Health Organization has since formally recognised a related construct, gaming disorder, in the 11th revision of the International Classification of Diseases, reflecting growing international concern about problematic patterns of digital media use (World Health Organization, 2018).

A meta-analysis spanning 31 nations estimated the global prevalence of IA at approximately 6%, with marked regional variation and higher rates in settings characterised by lower life satisfaction and greater internet accessibility (Cheng & Li, 2014). A systematic review and meta-analysis of African high-school and university students similarly reported a pooled IA prevalence exceeding one-third of students, with male sex, urban residence, and more than four hours of daily use identified as significant risk factors (Zewde et al., 2022); comparable findings were reported among in-school adolescents in Ibadan, Nigeria, where nearly 45% screened positive for IA (Afolabi et al., 2022).

India-specific evidence points to a similarly substantial burden. Cross-sectional surveys among school-going adolescents have reported IA prevalence ranging from roughly 30% in Raipur (Shalini & Gupta, 2021) and Gwalior (Bhatia et al., 2016) to over 35% in Aligarh (Arthanari et al., 2017), while college-based studies in Bengaluru (Krishnamurthy & Chetlapalli, 2015), among engineering students (Vyjayanthi et al., 2014), and among medical students (Kannan et al., 2019) have consistently identified male sex, unsupervised internet access, and heavier daily use as correlates of higher IA scores. A recent systematic review and meta-analysis of Indian college students situates these individual findings within a broader national pattern of rising problematic

internet use (Joseph et al., 2021), a trend that has been described as a two-decade-long, still-evolving public health concern in India (Dalal & Basu, 2016).

Adolescents, whose identity formation and peer relationships are increasingly mediated online, constitute a population at particular risk of IA. Reported consequences of excessive internet use in this age group include physical complaints such as eyestrain, back strain, headache, and carpal tunnel syndrome, alongside psychological sequelae such as sleep disturbance and irritability; a study among college students in Puducherry linked IA to significantly poorer sleep quality (Razik et al., 2021). At a clinical level, a meta-analysis of psychiatric comorbidity found IA significantly associated with depression, anxiety, attention-deficit/hyperactivity symptoms, and alcohol misuse (Ho et al., 2014), a pattern echoed in Japanese college students where IA correlated with self-evaluated attention-deficit/hyperactivity traits (Tateno et al., 2016) and, more broadly, with pathological social withdrawal (hikikomori) as internet-mediated coping increasingly substitutes for offline social engagement (Kato et al., 2020). Family-level protective factors have also been identified: higher parental care and monitoring predicted lower excessive internet use among European adolescents, whereas parental overprotection and lower socioeconomic status predicted higher use (Faltýnková et al., 2020), suggesting that individual-level educational interventions sit alongside, rather than replace, family-level protective processes.

In many low- and middle-income settings, community-based adolescents have limited access to structured awareness programmes on healthy internet use, and nurses working in community settings are well placed to deliver brief, low-cost educational interventions that can be scaled across similar populations. Prior Indian nursing research supports this approach: structured teaching programmes have significantly improved adolescents' knowledge of the adverse effects of internet use in Kochi (Paul et al., 2016) and Mangaluru (Jayaprakash & Pradeep, 2023), and a planned teaching programme improved both knowledge and attitude regarding IA among higher-secondary students in Surat (Patel & Babu, 2025). However, community-based evidence specifically evaluating IA symptom reduction — rather than knowledge gain alone — through a brief video-assisted teaching programme (VATP) remains limited in the Indian context. This study was therefore undertaken to evaluate whether a brief VATP on the ill effects of internet usage could reduce IA levels among adolescents residing in a selected community area of Madurai, Tamil Nadu.

Conceptual Framework

The study was guided by the General System Theory model proposed by von Bertalanffy (1968), operationalised as an input–throughput–output–feedback sequence. Input comprised the demographic profile of adolescents and their pre-test IAT scores. Throughput was the VATP delivered to the experimental group, while the control group received no intervention. Output was the resulting change (or absence of change) in IA level, categorised as normal, mild, moderate, or severe, with feedback conceptually completing the loop for future refinement of the intervention.

Objectives

1. To assess the pre-test and post-test levels of internet addiction among adolescents in the experimental and control groups.
2. To evaluate the efficacy of the video-assisted teaching programme by comparing post-test internet addiction scores between the experimental and control groups.
3. To compare pre-test and post-test internet addiction levels within the experimental and control groups.
4. To determine the association between pre-test internet addiction levels and selected demographic variables (age, sex, educational status, religion, parental education and occupation, family income, family type, place of residence, hobbies, hours spent on the internet per day, and sleeping hours per day) in both groups.

Hypotheses

H1: The efficacy of the VATP differs significantly between the experimental and control groups, as reflected in post-test internet addiction scores.

H2: Pre-test and post-test internet addiction levels differ significantly within the experimental group (and, separately, within the control group).

H3: Pre-test internet addiction levels are significantly associated with selected demographic variables in the experimental and control groups.

MATERIALS AND METHODS

Research Approach and Design

A quantitative research approach was adopted, using a quasi-experimental, pre-test–post-test control group design to evaluate the efficacy of the VATP on adolescent IA.

Setting and Population

The study was conducted in two community areas in Tamil Nadu. The target population comprised adolescents residing in community areas; the accessible population was adolescents aged 13–18 years, studying in grades 7–12, and residing in the two selected areas.

Sample and Sampling Technique

A total sample of 60 adolescents (30 in the experimental group and 30 in the control group) was selected using non-probability convenience sampling. Inclusion criteria were: age 13–18 years, daily internet use, willingness to participate, and presence during data collection. Adolescents were excluded if they used the internet only for educational purposes, were not studying and were employed to meet family financial needs, or had prior structured knowledge of the ill effects of internet use.

Tool:

Data were collected using a two-part tool. Section A recorded demographic variables: age, sex, educational status, religion, parental education, parental occupation, family monthly income, type of family, place of residence, hobbies, hours spent on the internet per day, and sleeping hours per day. Section B was the Internet Addiction Test (IAT; Young, 1998), a 20-item, 5-point rating scale yielding a total score of 0–100, categorised as normal internet use (0–30), mild addiction (31–49), moderate addiction (50–79), and severe addiction (80–100).

Content validity was established by six nursing experts, one psychiatrist, one clinical psychologist, and one sociologist, and the tool was refined according to their recommendations. Reliability was established using the split-half method with the Cronbach coefficient, yielding $r = 0.90$, indicating high internal consistency.

Intervention

The VATP consisted of a 15-minute Tamil-language video covering the meaning of the internet, the concept of internet addiction, its causes, types, consequences, side effects, and preventive measures. The video was delivered individually to each adolescent in the experimental group in their home setting; the control group received no intervention during the study period, and the VATP was offered to the control group after post-test data collection was complete, for ethical parity.

Pilot Study

A pilot study was conducted with six adolescents meeting the inclusion criteria in a nearby community area not included in the main study. Pre-test IAT was administered, the VATP was delivered, and post-test IAT was administered after seven days. The pilot confirmed that the tool and procedure were feasible and practicable, and no modifications were required before proceeding to the main study.

Data Collection Procedure

Data collection for the main study spanned six weeks. Following institutional and ethical approval, the researcher obtained informed consent and administered the pre-test IAT to both groups in week one. The VATP was delivered individually to the experimental group in weeks two and three. The post-test IAT was administered to both groups in week four.

Ethical Considerations

Institutional ethical clearance was obtained (Reference: ECR/1325/Inst/TN/2020, approved 05 February 2019) prior to data collection. Written informed consent was obtained from participants (with parental/guardian consent as applicable), confidentiality of participant information was maintained throughout, and participants retained the right to withdraw from the study at any stage without penalty.

Data Analysis

Data were analysed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics. Pre-test and post-test IA scores within each group were compared using the paired t-test; post-test scores between the experimental and control groups were compared using the unpaired t-test; and the association between pre-test IA level and demographic variables was analysed using the chi-square test. A p-value of $< .05$ was considered statistically significant.

Results

Sample Characteristics

Of the 30 adolescents in the experimental group, 60% were aged 13–15 years and 40% were aged 16–18 years; 53.3% were female. In the control group, 66.7% were aged 13–15 years and 33.3% were aged 16–18 years; 63.3% were female. Both groups were entirely drawn from rural residences. Regarding hours spent on the internet per day, the majority of adolescents in both the experimental group (53.3%) and the control group (56.7%) reported 4–6 hours of use daily.

Pre-test and Post-test Levels of Internet Addiction

Table 1 presents the distribution of pre-test and post-test IA levels in both groups. At pre-test, none of the adolescents in either group scored in the normal range; in the experimental group, 20% had mild, 46.7% moderate, and 33.3% severe IA, while in the control group, 26.7% had mild, 40% moderate, and 33.3% severe IA. Following the intervention, 40% of the experimental group scored in the normal range, 53.3% mild, and 6.7% moderate IA, with none in the severe category. In the control group, post-test scores showed no adolescents in the normal range, 23.3% mild, 43.4% moderate, and 33.3% severe IA — a distribution essentially unchanged from pre-test.

Group	Time point	Normal (0–30) %	Mild (31–49) %	Moderate (50–79) %	Severe (80–100) %
Experimental (n = 30)	Pre-test	0.0	20.0	46.7	33.3
Experimental (n = 30)	Post-test	40.0	53.3	6.7	0.0
Control (n = 30)	Pre-test	0.0	26.7	40.0	33.3
Control (n = 30)	Post-test	0.0	23.3	43.4	33.3

Table 1. Distribution of pre-test and post-test internet addiction levels among adolescents in the experimental and control groups (N = 60).

Comparison of Post-test Scores Between Groups

The post-test mean IA score of the experimental group (34.4 ± 9.90) was significantly lower than that of the control group (67.6 ± 18.5), a mean difference of 33.2 points (unpaired $t = 8.64$, $p < .001$), supporting hypothesis H1.

Comparison of Pre-test and Post-test Scores Within Groups

Within the experimental group, the mean IA score decreased from 66.5 ± 16.2 at pre-test to 34.4 ± 9.90 at post-test, a mean reduction of 32.13 points (paired $t = 11.04$, $p < .001$). Within the control group, the mean score changed only marginally, from 67.3 ± 18.4 to 67.6 ± 18.5 (mean difference 0.3; paired $t = 1.77$, $p > .05$, not significant). These findings support hypothesis H2 for the experimental group, confirming that the observed reduction in IA is attributable to the VATP rather than to the passage of time alone.

Group	Pre-test M $\pm$ SD	Post-test M $\pm$ SD	Mean difference	t value	p value
Experimental (n = 30)	66.5 $\pm$ 16.2	34.4 $\pm$ 9.90	32.13	11.04	< .001***
Control (n = 30)	67.3 $\pm$ 18.4	67.6 $\pm$ 18.5	0.3	1.77	> .05 (NS)

Table 2. Within-group comparison of pre-test and post-test internet addiction scores. *** $p < .001$; NS = not significant.

Association Between Pre-test Internet Addiction and Demographic Variables

Chi-square analysis revealed no statistically significant association between pre-test IA level and age, sex, educational status, religion, parental education, parental occupation, family income, family type, place of residence, hobbies, or sleeping hours in either group (all $p > .05$). The single exception was hours spent on the internet per day, which was significantly associated with pre-test IA level in the control group ($\chi^2 = 12.03$, $df = 4$, $p = .017$) but not in the experimental group ($\chi^2 = 2.87$, $p = .580$). Hypothesis H3 was therefore not supported for most demographic variables, with the exception of daily internet use hours in the control group.

DISCUSSION

This study found that a brief, individually delivered VATP produced a substantial and statistically significant reduction in adolescent IA, while adolescents who received no intervention showed no meaningful change over the same period. These findings support the value of structured, low-cost educational interventions delivered at the community level.

The high pre-test burden of moderate-to-severe IA observed in both groups (approximately 80% combined) is broadly consistent with the wider Indian literature: prevalence estimates among school-going adolescents have ranged from roughly 30% in Raipur (Shalini & Gupta, 2021) and Gwalior (Bhatia et al., 2016) to over 35% in Aligarh (Arthanari et al., 2017), and a recent systematic review and meta-analysis situates such community- and school-level findings within a persistently high national burden of problematic internet use among Indian students (Joseph et al., 2021), consistent with earlier observations that IA has remained a growing, unresolved concern in India for over two decades (Dalal & Basu, 2016). The pattern also mirrors international evidence: a 31-nation meta-analysis estimated global IA prevalence at approximately 6%, with higher rates in settings of lower life satisfaction and greater internet accessibility (Cheng & Li, 2014), and a systematic review of African students found a pooled prevalence above one-third, with heavier daily use and urban residence as key risk factors (Zewde et al., 2022) — risk factors that align with this study's own finding that daily internet-use hours, rather than most demographic characteristics, were significantly associated with IA severity in the control group.

Shirasaka et al. (2016), in a survey of Japanese university students and company workers using the IAT alongside the UCLA Loneliness Scale, similarly found that students scored higher on the

IAT than working adults and identified a significant positive correlation between loneliness and IA among students classified as addictive users, suggesting that social isolation and problematic internet use may reinforce one another in younger populations. This resonates with broader findings linking IA to pathological social withdrawal, or hikikomori, as internet-mediated coping increasingly substitutes for offline social engagement (Kato et al., 2020). While the present study did not measure loneliness or social withdrawal directly, the consistently high pre-test IA levels among community-residing adolescents point to a comparable vulnerability that merits further psychosocial assessment in future research.

The lack of significant association between pre-test IA and most demographic variables in this study — including sex — contrasts with some Indian college-based studies that have reported significantly higher IA among male students, including among engineering students (Vyjayanthi et al., 2014) and medical students, where male sex was also linked to altered reaction time and heart-rate variability (Kannan et al., 2019). This divergence may reflect differences between a younger, mixed-sex, rural adolescent community sample and the older, often urban, single-discipline college cohorts examined in prior work, and underscores the value of assessing IA correlates separately across age groups and settings rather than assuming uniform demographic risk factors. The significant association observed between IA and daily hours of internet use in the control group, but not the experimental group, is consistent with the general expectation that greater exposure time is linked to higher addiction risk, echoing the risk-factor profile identified in the African meta-analysis (Zewde et al., 2022), and underscores hours of use as a modifiable target for future community health education efforts, distinct from non-modifiable demographic characteristics. Family-level factors may also matter: research among European adolescents found that higher parental care and monitoring predicted lower excessive internet use, whereas parental overprotection and lower socioeconomic status predicted higher use (Faltýnková et al., 2020), suggesting that a purely adolescent-directed intervention such as the VATP may be usefully complemented by parent-focused components in future iterations.

Comparable community and student-based research in the Indian context has linked heavy, addictive internet use to impaired sleep quality, with one study among Puducherry college students finding students with IA were 1.67 times more likely to report poor sleep (Razik et al., 2021), and a broader meta-analysis has linked IA to significantly elevated odds of comorbid depression, anxiety, attention-deficit/hyperactivity symptoms, and alcohol misuse (Ho et al., 2014), a pattern

also observed specifically in relation to attention-deficit/hyperactivity traits among Japanese college students (Tateno et al., 2016). This body of work reinforces the case for early, low-intensity interventions of the kind evaluated here, delivered before such patterns become entrenched. Encouragingly, prior Indian nursing research indicates that structured, teaching-based interventions can meaningfully shift adolescents' knowledge and attitudes regarding IA — as shown among nursing college students in Mangaluru (Jayaprakash & Pradeep, 2023), school students in Kochi (Paul et al., 2016), and higher-secondary students in Surat, where a planned teaching programme improved both knowledge and attitude scores (Patel & Babu, 2025). The present study extends this evidence base by demonstrating that a brief video-based session can shift not merely knowledge but actual IAT-measured addiction severity, even though a single 15-minute session cannot be expected to address the underlying psychosocial and family-level drivers of heavier, more chronic patterns of use.

Implications for Nursing Practice

Community health nurses are well positioned to deliver brief IA awareness sessions during routine home visits, school health programmes, or adolescent health clinics. Given its low cost and ease of replication, the VATP evaluated in this study could be integrated into existing adolescent and school health nursing curricula with minimal additional resource investment.

Limitations

This study is limited by its non-probability convenience sampling, relatively small sample size ($N = 60$), single geographic setting, and short post-test interval, which restrict generalisability and preclude conclusions about the durability of the observed effect. Self-reported IAT scores are also subject to social desirability and recall bias. Future research should employ larger, randomly selected samples across multiple sites, extend follow-up to assess sustained behaviour change, and consider incorporating psychosocial variables such as loneliness, peer relationships, and parental monitoring.

CONCLUSION

A brief, individually delivered, Tamil-language video-assisted teaching programme significantly reduced internet addiction scores among adolescents in a selected community area of Madurai, while adolescents who received no intervention showed no meaningful change. These findings support the feasibility and short-term efficacy of video-assisted teaching as a community health

nursing strategy for addressing adolescent internet addiction, and justify further study with larger, more diverse samples and longer follow-up to confirm sustained impact.

Conflicts of interest: Nil

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