

EMPOWERING THE DIGITAL GENERATION: EFFECTIVENESS OF A MULTI-MODAL NURSING INTERVENTION ON MOBILE ADDICTION AWARENESS AMONG HIGH SCHOOLERS

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Abstract : In the modern digital era, smartphone overuse among adolescents has escalated into a significant public health issue, triggering adverse psychological, physical, and behavioural outcomes. To evaluate the effectiveness of a multi-modal community health nursing intervention (comprising PowerPoint presentations, educational skits, role plays, and expert speeches) on the knowledge regarding mobile addiction among high school students at Gnanodaya Convent, a pre-experimental, one-group pre-test/post-test study design was carried out among 88 high school students across Classes 8, 9, and 10. A structured knowledge questionnaire was utilized to collect data prior to and immediately following the multi-modal intervention. The baseline evaluation showed poor awareness regarding mobile addiction, with a mean pre-test knowledge score of just 3.22 ± 1.06 out of 10. Post-intervention, knowledge scores dramatically surged to a mean of 7.50 ± 1.30 , demonstrating a highly significant average improvement of 4.28 ± 1.64 points ($p < 0.001$). The combination of traditional interactive teaching alongside empathetic visual arts is exceptionally potent at transforming health behaviours and awareness among high schoolers.

IndexTerms - Mobile Addiction, High Schoolers, Multi-Modal Nursing Intervention, Nomophobia, Community Health Nursing, Health Education.

I. INTRODUCTION

Adolescence is a pivotal stage marked by vulnerability, curious experimentation, and peer-driven behaviours. With the proliferation of affordable high-speed internet and smartphones, digital devices have transitioned from luxury utilities into sources of profound behavioral dependency. Mobile addiction, often operationalized as Nomophobia (no-mobile-phone-phobia), among high schoolers is directly linked with severe consequences including sleep deprivation, emotional distress, academic decline, and social withdrawal.

Community Health Nursing plays a frontline role in mitigating behavioral dependencies among vulnerable adolescent cohorts. As preventive care experts, community health nursing personnel are positioned to execute targeted, interactive health education drives. This study evaluates the effectiveness of an innovative, multi-modal educational strategy designed to improve knowledge regarding mobile addiction hazards among high school students.

II. NEED OF THE STUDY

The widespread accessibility of smartphones among high school students in urban and semi-urban settings has created an unaddressed public health concern. While technological literacy has risen, basic awareness regarding the psychological and somatic hazards of screen overexposure remains critically low. Traditional didactic lecturing often fails to capture the attention of adolescents. Therefore, evaluating a dynamic multi-modal teaching framework—combining visual presentations, dramatic skits, role plays, and expert guidance—is essential to establish evidence-based preventive protocols in school health nursing.

III. RESEARCH METHODOLOGY

3.1 Population and Sample

The study was conducted at Gnanodaya Convent among high school students in standard grades 8, 9, and 10. A total of 88 high school students were selected using a purposive sampling technique based on specific inclusion criteria targeting active smartphone users. The cohort comprised 27 students from Class 8 (30.7%), 29 students from Class 9 (33.0%), and 32 students from Class 10

(36.4%). Demographically, 73.9% (n=65) were female and 26.1% (n=23) were male, with ages ranging predominantly between 14 and 15 years.

3.2 Research Design and Data Collection

A pre-experimental evaluative design (one-group pre-test/post-test design) was implemented. Data were collected using a validated 10-point structured knowledge questionnaire covering definitions, warning signs, developmental hazards, and preventive metrics of mobile addiction. A baseline pre-test was administered on day one, followed immediately by the multi-modal intervention package. A post-test was executed following the intervention to quantify knowledge gain.

3.3 Multi-Modal Nursing Intervention Strategy

The intervention package comprised four distinct, complementary educational modalities:

- 1. PowerPoint Presentation (PPT):** Delivered evidence-based data regarding the neurological, physiological, and social impacts of excessive screen radiation and continuous scrolling.
- 2. Educational Skit:** A dramatic narrative illustrating the real-life progression of an adolescent drifting into isolation and academic decline due to smartphone overuse.
- 3. Experiential Role Play:** Interactive scenarios guiding students on practical digital detox techniques, boundary setting, and resisting peer pressure.
- 4. Expert Speech:** A structured summary concluding with actionable healthy habits and mental health strategies.

IV. RESULTS AND DISCUSSION

4.1 Descriptive Statistics of Knowledge Scores

Data were analyzed using descriptive and inferential statistics. Table 1 summarizes the baseline pre-test knowledge, post-test knowledge, and net gain scores across the student cohort.

Table 1: Descriptive Statistics of Knowledge Scores (N=88)

Knowledge Assessment Phase	Minimum Score	Maximum Score	Mean Score	Std. Deviation (σ)
Pre-Test Evaluation	1	5	3.22	± 1.06
Post-Test Evaluation	2	10	7.50	± 1.30
Net Knowledge Gain	-1	9	4.28	± 1.64

4.2 Inferential Statistics and Hypotheses Testing

To determine whether the enhancement in knowledge scores was statistically significant, a paired t-test was executed. The baseline evaluation demonstrated a low mean pre-test score of 3.22 ± 1.06 (32.2%), confirming a pre-intervention knowledge deficit. Following the multi-modal intervention, the mean score increased to 7.50 ± 1.30 (75.0%), representing an average gain of 4.28 ± 1.64 points.

The calculated paired t-statistic yielded $t = -24.51$ with $p < 0.001$ ($p = 7.95 \times 10^{-41}$), rejecting the null hypothesis. This confirms that the multi-modal educational strategy produced a statistically significant enhancement in mobile addiction awareness among high schoolers.

V. IMPLICATIONS AND RECOMMENDATIONS

The findings highlight the effectiveness of integrating interactive performing arts (skits and role plays) with standard visual instruction (PPT and speeches) in community health nursing. Based on the study results, the following recommendations are proposed:

- 1. Curriculum Integration:** School authorities should institutionalize digital hygiene modules and peer-led wellness plays into routine co-curricular schedules.
- 2. Parental Engagement:** Community health nursing drives should involve parents in interactive role plays to enforce screen management guidelines at home.
- 3. Peer Ambassadors:** Students achieving maximum post-test scores (10/10) should be delegate as digital wellness ambassadors within their classrooms.

VI. CONCLUSION

The multi-modal nursing intervention proved highly effective in elevating mobile addiction awareness among high school students at Gnanodaya Convent. Combining structured empirical teaching with relatable artistic media provides a scalable template for school health programs and community nursing initiatives aimed at curbing adolescent digital dependency.

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