



EFFECTIVENESS OF EDUCATIONAL INTERVENTION PROGRAMME ON LEVEL OF ANXIETY RELATED TO PHANTOM VIBRATION/RINGING SYNDROME AMONG STUDENTS IN SELECTED NURSING COLLEGES

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ABSTRACT

Introduction- Mobile phones are widely used worldwide, with 7.26 billion users, and in India, internet subscribers increased to 1002.85 million, mostly wireless. Constant connectivity has led to Phantom Vibration Syndrome (PVS) feeling a phone vibrate when it hasn't and Phantom Ringing Syndrome (PRS) perceiving a non-existent ring. These phenomena are concerning for nursing students, who face high academic and clinical stress, making early identification and intervention essential to prevent anxiety, burnout, and social isolation. **Objectives:-** 1. To assess the level of anxiety related to phantom vibration/ringing syndrome among students in selected nursing colleges at baseline. 2. To evaluate the effectiveness of an educational intervention programme on the level of anxiety related to phantom vibration/ringing syndrome among students in selected nursing colleges. 3. To find the association of study findings with selected demographic variables. **Methodology-** A quantitative, quasi-experimental one-group pre-test post-test design was used to evaluate the effectiveness of an educational intervention programme on level of anxiety related to Phantom Vibration Syndrome (PVS) and Phantom Ringing Syndrome (PRS) among 60 B.Sc. Nursing third-semester students selected by using non-probability convenience sampling. Baseline data were collected using a self-structured questionnaire on phantom vibration/ringing syndrome and the Hamilton Anxiety Rating Scale (HAM-A). The intervention focused on awareness, coping strategies, and anxiety reduction techniques, delivered through lectures, discussions, and interactive activities. Post-test assessment was conducted seven days later to measure changes in level of anxiety. **Results-** Among 60 students, 47 (78.33%) had PVS/PRS present according to the specified cut-off, while 13 (21.68%) were below the cut-off. The mean PVS/PRS score was 53.48 ± 8.15 . Before the intervention, 54 (90%) students had severe anxiety, 5 (8.33%) had moderate anxiety and 1 (1.67%) had mild anxiety. After the intervention, 54 (90%) had moderate anxiety, 5 (8.33%) had severe anxiety and 1 (1.67%) had mild anxiety. The mean anxiety score decreased from 32.21 ± 7.00 in the pre-test to 12.26 ± 7.42 in the post-test. The mean reduction was 19.95 ± 9.65 . The obtained paired t value was 16.001 with 59 degrees of freedom and $p=0.0001$, indicating a statistically significant difference. **Conclusion-** The study revealed significant associations between Phantom Vibration/Ringing Syndrome and selected demographic variables, particularly age, gender, social media usage, online gaming, and time spent on mobile screen use, whereas anxiety was significantly associated only with gender. Therefore, it was concluded that the educational intervention programme was effective in reducing anxiety related to Phantom Vibration/Ringing Syndrome among nursing students.

KEYWORDS : Phantom Vibration Syndrome (PVS), Phantom Ringing Syndrome (PRS), Anxiety, Educational Intervention Programme.

1. INTRODUCTION

Mobile phones have become an essential part of daily life, with approximately 7.26 billion users worldwide. In India, internet subscribers increased from 969.10 million in March 2025 to 1002.85 million in June 2025, including 958.14 million wireless subscribers (Telecom Regulatory Authority of India [TRAI], 2025). Continuous smartphone use and connectivity have contributed to psychological phenomena such as Phantom Vibration Syndrome (PVS) and Phantom Ringing Syndrome (PRS), in which individuals perceive a phone vibration or ringing when none has occurred (Drouin et al., 2012; Lin et al., 2013).

Frequent smartphone use, social media engagement, and anticipation of notifications may increase susceptibility to these phantom sensations (Kruger & Djerf, 2016). Excessive smartphone use and prolonged screen time are particularly common among college students and may affect psychological well-being (Sivakumar et al., 2024). Nursing students may be vulnerable because of academic and clinical stress, making anxiety related to PVS/PRS an important area for early identification and intervention (Gemeay et al., 2018).

2. Background of the Study

The phenomenon of phantom phone sensations has been increasingly recognized with the widespread use of mobile phones. Terms such as "phantom pager syndrome," "ringxiety," and "phantom vibration syndrome" have been

used to describe these experiences. Rothberg et al. (2010) reported that approximately two-thirds of medical staff had experienced phantom vibrations. Subsequent studies identified relationships between phantom sensations, anxiety, stress, and burnout (Lin et al., 2013). Studies among students have also reported a high prevalence of PVS/PRS and associations with smartphone use, social media, and anxiety (Gemeay et al., 2018; Mohammadbeigi et al., 2017). However, limited research has evaluated educational interventions specifically aimed at reducing anxiety related to PVS/PRS among nursing students. Therefore, the present study was undertaken to evaluate the effectiveness of an educational intervention programme on anxiety related to PVS/PRS among students in selected nursing colleges.

3. Objectives

1. To assess the level of anxiety related to phantom vibration/ringing syndrome among students in selected nursing colleges at baseline.
2. To evaluate the effectiveness of an educational intervention programme on level of anxiety related to phantom vibration/ringing syndrome among students in selected nursing colleges.
3. To find the association of study findings with selected demographic variables.

4. MATERIALS AND METHODS

A quantitative research approach with a quasi-experimental

one-group pre-test/post-test design was adopted. The study included 60 B.Sc. Nursing third-semester students selected through non-probability convenience sampling.

The data collection tools consisted of three sections. Section I included demographic variables such as age, gender, family type, residence, smartphone use, social media use, online gaming, screen time and cyber-crime experience. Section II consisted of a 25-item PVS/PRS questionnaire. Each item was scored as strongly agree=3, agree=2, disagree=1 and strongly disagree=0, with a total possible score of 75. A score of ≥ 50 indicated PVS/PRS present.

Section III The HAM-A consisted of 14 items, with each item scored from 0 to 4, giving a total score ranging from 0 to 56 (Hamilton, 1959). The anxiety levels were classified as mild, moderate and severe according to the study criteria.

Content validity was established through expert validation by 13 experts from mental health nursing, psychiatry, psychology, research and statistics. Reliability was determined using the parallel-form method, and the reliability coefficient obtained was 0.9883, indicating high reliability.

The educational intervention programme was conducted for 45 minutes using lecture-cum-discussion, PowerPoint presentation, handouts, flashcards, question-answer, group discussion, role play and counselling demonstrations. The content included definition, causes, signs and symptoms, psychological impact, management and complications of PVS/PRS, healthy digital habits, reduction of unnecessary phone checking and dependency, stress management, mindfulness and relaxation techniques.

After obtaining ethical approval, administrative permission and written informed consent, the pre-test assessment was conducted. The educational intervention was administered on the same day. The post-test was conducted after seven days using the same assessment tool.

Data were analysed using SPSS version 24.0 and GraphPad Prism version 7.0. Frequency, percentage, mean and standard deviation were used for descriptive analysis. A paired *t*-test was used to compare pre-test and post-test anxiety scores, and chi-square test was used to determine associations with selected demographic variables. Statistical significance was set at $p < 0.05$.

5. RESULTS

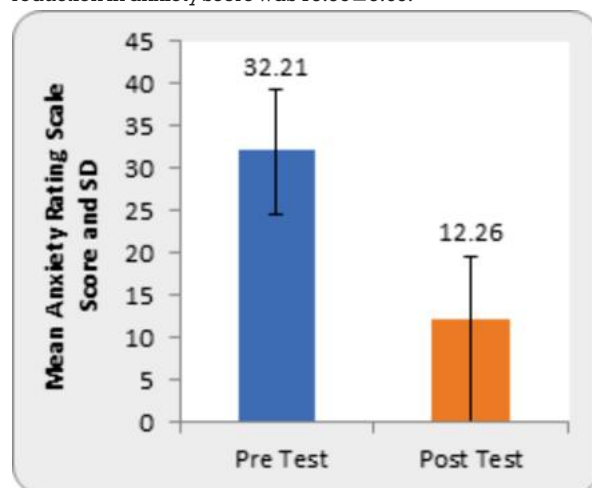
Among the 60 participants, the largest proportion, 26 (43.3%), belonged to the age group of 19 years. Forty-eight (80%) were female and 12 (20%) were male. Forty-two (70%) belonged to nuclear families. Fifty-eight (96.7%) students were residing in hostels. All 60 (100%) students used smartphones. Forty-four (73.3%) used WhatsApp, Instagram, YouTube and other social media platforms. Regarding screen time, 26 (43.3%) reported 3–5 hours and 25 (41.7%) reported 5–10 hours of daily screen use.

Regarding PVS/PRS, 47 (78.33%) students had scores indicating PVS/PRS present, while 13 (21.68%) were below the cut-off. The mean PVS/PRS score was 53.48 ± 8.15 .

Table 1. Distribution of Participants According to PVS/PRS Status

Level of Phantom Vibration/Ringing Syndrome Score	Score Range	Level of Phantom Vibration/Ringing Syndrome Score	
		No of Patients	Percentage
Present	≥ 50	47	78.33
Absent	< 50	13	21.68
Minimum score		36	
Maximum score		70	
Mean score		53.48 ± 8.15	
Mean % score		71.31 ± 10.86	

The pre-test mean anxiety score was 32.21 ± 7.00 , whereas the post-test mean anxiety score was 12.26 ± 7.42 . The mean reduction in anxiety score was 19.95 ± 9.65 .



Graph 1: Significance of Difference Between Anxiety Rating Scale Score in Pre and Post-test of Nursing Students

The obtained paired *t* value was 16.001, with *df*=59 and $p=0.0001$. Since the obtained value was statistically significant at the 0.05 level, the null hypothesis was rejected and the alternative hypothesis was accepted.

Table 2. Effectiveness of Educational Intervention Programme

Variable	Mean Difference	SD	Paired <i>t</i>	P value
Anxiety score	19.95	9.65	16.001	0.0001

The association analysis showed that PVS was significantly associated with age ($\chi^2=15.72$, $p=0.003$), gender ($\chi^2=17.89$, $p=0.0001$), social media use ($\chi^2=6.03$, $p=0.014$), online gaming ($\chi^2=43.38$, $p=0.0001$) and screen time ($\chi^2=7.89$, $p=0.042$). No significant association was found with family type or residence. Anxiety was significantly associated with gender ($\chi^2=12.40$, $p=0.002$), whereas other selected demographic variables were not statistically significant.

DISCUSSION

The present study included 60 nursing students, with the majority being 19 years old (43.3%), female (80%), hostel residents (96.7%), and smartphone users (100%). Most students (73.3%) used WhatsApp, Instagram, YouTube, and other social media platforms, while 43.3% reported 3–5 hours and 41.7% reported 5–10 hours of daily screen time. These findings indicate frequent smartphone engagement among the participants. Similarly, Mohammadbeigi et al. (2017) reported PVS in 54.3% and PRS in 49.3% of medical students and found associations with social media use. Sivakumar et al. (2024) also reported phantom vibration/ringing experiences among 60% of Indian medical students and identified excessive smartphone use and related behavioural patterns as important factors.

In the present study, 47 (78.33%) students experienced PVS/PRS, with a mean score of 53.48 ± 8.15 . PVS was present in 36 (60%) students and PRS in 24 (40%). In the pre-test, 54 (90%) students had severe anxiety, with a mean anxiety score of 32.21 ± 7.00 . These findings are comparable with Gemeay et al. (2018), who reported PVS in 77.0% and PRS in 77.3% of nursing students and found a highly significant association between PVS and anxiety ($p < .001$). Kruger and Djerf (2016) also reported that phantom phone experiences were related to psychological factors, particularly attachment anxiety.

The educational intervention produced a significant reduction in anxiety among the participants. The mean anxiety score

decreased from 32.21 ± 7.00 in the pre-test to 12.26 ± 7.43 in the post-test, with a mean reduction of 19.95 ± 9.65 . The calculated paired t value was 16.001 ($df = 59$), with $p = .0001$, indicating a statistically significant reduction in anxiety following the intervention. These findings highlight the importance of educational strategies addressing smartphone-related behaviours, awareness, and anxiety among nursing students.

6. CONCLUSION

The present study concluded that PVS/PRS was common among the nursing students studied and that a high level of anxiety was observed during the pre-test assessment. Following the 45-minute educational intervention programme, anxiety scores showed a statistically significant reduction. The obtained paired t value of 16.001 with $p=0.0001$ demonstrated the effectiveness of the educational intervention programme in reducing the level of anxiety related to phantom vibration/ringing syndrome among nursing students.

7. Recommendations

Similar studies may be conducted with larger samples and across multiple nursing colleges. Randomized controlled and long-term follow-up studies may be undertaken to further evaluate the effectiveness and retention of the educational intervention. Further research may also assess the relationship between smartphone use, screen time, social media, sleep, stress, anxiety and Phantom Vibration/Ringing Syndrome.

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