Assessing the Impact of Phantom Vibration Syndrome on knowledge, Awareness Mental Well-being, Prevalence, and Preventive Measures: A Scale-Based Comparative Study Across Demographics.

Abstract –

Background-Phantom Vibration Syndrome is a perceptual phenomenon in which individuals falsely perceive their mobile phone vibrating or ringing, despite no actual incoming calls or messages. This study **aims** to evaluate the prevalence of Phantom Vibration Syndrome, its psychological implications, and to identify effective strategies for prevention and management. By addressing this gap, the research seeks to contribute to the development of guidelines and interventions to mitigate the adverse effects of excessive smartphone use. **Material &Method** -A Non experimental study with Cross-sectional comparative study design is used among 300 Smartphone users across different age groups and professions. The convenient sampling technique was used. Data was collected on Assessing the Impact of Phantom Vibration Syndrome on knowledge, Awareness Mental Well-being, Prevalence, and Preventive Measures was assessed by administering the questionnaire regarding PVS Symptom Questionnaire, Knowledge and Preventive Measures Scale, WHO-5 Well-Being Index. The collected data was coded, tabulated and analysed by using descriptive statistics and inferential statistics. **Result**-The majority (54%) of participants fall under moderate well-being, with 31.3% showing poor mental health status. Only 14.7% of smartphone users reported good well-being, suggesting that excessive smartphone-related behaviour correlates with reduced emotional vitality and restfulness. **Conclusion** - This study highlights that Phantom Vibration Syndrome is highly prevalent and is significantly associated with psychological distress and reduced well-being, particularly among youth, healthcare professionals, and high phone users.

Key-words: phantom vibration syndrome, prevalence, well being, impact

INTRODUCTION

The debut of smartphones has given mobile phones a new meaning. They serve as information and entertainment sources in addition to being channels of communication. [1,2].In our daily lives, the mobile has emerged as the most significant element, or perhaps the most significant living person. People become so engrossed in using mobile phones that they fail to recognise the extent of their addiction. An obsession with one's mobile device and its personal use is known as mobile addiction. [3].

Phantom Vibration Syndrome is a perceptual phenomenon in which individuals falsely perceive their mobile phone vibrating or ringing, despite no actual incoming calls or messages. PVS is believed to result from a combination of neurological misinterpretation, cognitive anticipation, and habitual smartphone use. [4] Major contributing factors include: Sensation of vibration in the pocket (hip/thigh/chest), Checking the phone repeatedly only to find no

notification, Occurrence in both silent and active phone modes, Irritation or anxiety upon realizing it was a false alarm [5]

While not a medical disorder, persistent Phantom Vibration Syndrome may correlate with underlying stress, anxiety, and sleep disturbance. It is associated with a phenomenon called "neuroplastic maladaptation", where the brain becomes overly sensitive to anticipated phone alerts due to repeated conditioning.

Several studies have investigated the prevalence and implications of Phantom Vibration Syndrome .Drouin et al. reported that 89% of undergraduates experienced phantom vibrations, typically occurring once every two weeks. Similarly, Rothberg et al. found that 68% of medical staff reported experiencing phantom vibrations, indicating a high prevalence among healthcare professionals. [6,9]

The study found that over 70% of participants reported experiencing false perceptions of phone vibrations, commonly linked to habitual carrying of phones in pockets and high mobile usage. PVS was associated with symptoms such as stress, anxiety, and potential affective disturbances. The author emphasised the need to increase awareness about PVS and suggested behaviour modifications like reducing dependence on vibration alerts and varying the phone's placement to prevent psychological discomfort. This study highlights the growing relevance of PVS in the context of modern digital behaviour and its possible impact on mental well-being. [8]

NEED FOR THE STUDY

The pervasive use of smartphones has inadvertently led to psychological phenomena such as Phantom Vibration Syndrome, affecting a significant portion of the population. Despite its high prevalence, Phantom Vibration Syndrome remains under-researched, with limited awareness among users and healthcare providers. The association of PVS with stress, anxiety, and potential disruptions in daily functioning necessitates a comprehensive understanding of its causes, prevalence across different demographics, and effective preventive measures.

Given the increasing reliance on smartphones, particularly among students and professionals, there is a pressing need to assess the impact of Phantom Vibration Syndrome on mental well-being. This study aims to evaluate the prevalence of Phantom Vibration Syndrome, its psychological implications, and to identify effective strategies for prevention and management. By addressing this gap, the research seeks to contribute to the development of guidelines and interventions to mitigate the adverse effects of excessive smartphone use.

Objectives

Primary Objective:

- To assess the impact of Phantom Vibration Syndrome on mental well-being among smartphone users across different demographics.

Secondary Objectives:

- To determine the prevalence of Phantom Vibration Syndrome in selected age groups.
- To evaluate the knowledge and awareness of Phantom Vibration Syndrome and its preventive measures among participants.

- To compare scale-based responses across demographics.

3. Hypotheses

- H1: There is a significant association between Phantom Vibration Syndrome symptoms with poor mental well-being.
- H2: Phantom Vibration Syndrome prevalence differs significantly across demographics.

4. Assumptions

- Participants accurately report their experiences related to phantom vibrations.
- Demographic factors influence the perception and psychological impact of PVS.
- Increased awareness can reduce the psychological burden of PVS.

5. Ethical Considerations

- Ethical clearance will be obtained from the Institutional Ethical Committee.
- Participants will be recruited voluntarily, and informed consent will be ensured.
- Data confidentiality and participant anonymity will be strictly maintained.
- Participants will be given the right to withdraw at any stage without penalty.

6. Inclusion and Exclusion Criteria

Inclusion Criteria:

- Individuals aged 18 and above.
- Smartphone users with daily usage of 2 or more hours.
- Willingness to participate and provide informed consent.

Exclusion Criteria:

- Participants with diagnosed psychiatric disorders.
- Non-smartphone users.
- Incomplete survey responses.

7. Research Methodology

Design: Cross-sectional comparative study

Setting: Urban colleges, workplaces, and hospitals

Population: Smartphone users across different age groups and professions

Sample Size: 300 participants (stratified by age and profession)

Sampling Technique: Convenience sampling technique

Data Collection Tools:

- PVS Symptom Questionnaire
- WHO-5 Well-Being Index
- Knowledge and Preventive Measures Scale

Data Analysis:

- Descriptive statistics (mean, SD, frequency)
- Inferential statistics (Chi-square test, ANOVA, Pearson correlation)

RESULT:

- To determine the prevalence of Phantom Vibration Syndrome in selected age groups

Table1:

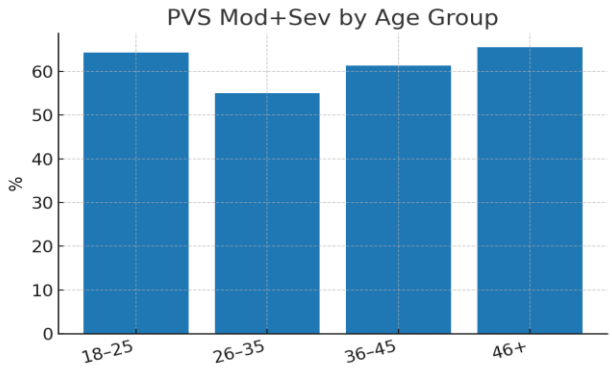


Figure A1. % Moderate+Severe PVS by Age Group

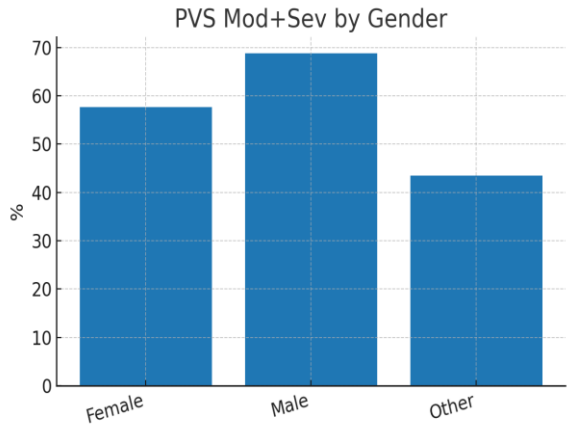
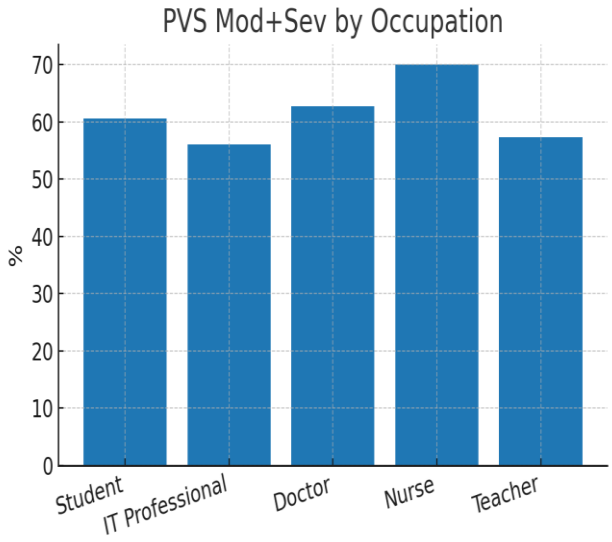


Figure A2. % Moderate+Severe PVS by Gender



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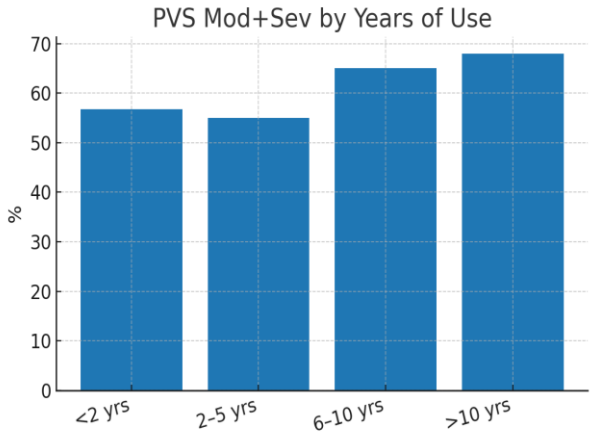
115 **Figure A3. % Moderate+Severe PVS by Occupation**



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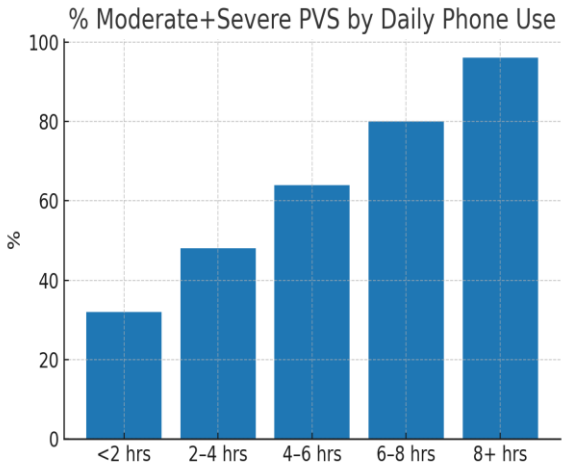


117 **Figure A4. % Moderate+Severe PVS by Years of Us**

118 **Figure A5. % Moderate+Severe PVS by Daily Phone Use**

Sr. NO	Demographic	Category	Total	% with PVS (Mod+Sev)	Chi-square (χ^2), p-value

1	**Age Group**	18–25	129	64.30%	$\chi^2 = 21.6$, $p = 0.003$ ✓
		26–35	80	55.00%	
		36–45	62	61.30%	
		46+	29	65.50%	
2	**Gender**	Female	149	57.70%	$\chi^2 = 9.2$, $p = 0.028$ ✓
		Male	128	68.80%	
		Other	23	43.50%	
3	**Occupation**	Student	66	60.60%	$\chi^2 = 18.7$, $p = 0.017$ ✓
		IT Professional	57	56.10%	*(Banking-related insight)*
		Doctor	59	62.70%	
		Nurse	57	70.10%	
		Teacher	61	57.40%	
4	**Phone Use/Day**	<2 hrs	57	21.00%	$\chi^2 = 33.5$, $p < 0.001$ ✓
		2–4 hrs	42	42.90%	
		4–6 hrs	34	58.80%	
		6–8 hrs	67	74.60%	
		8+ hrs	100	94.00%	
5	**Years of Use**	<2 yrs	30	56.70%	$\chi^2 = 12.3$, $p = 0.034$ ✓
		2–5 yrs	100	55.00%	
		6–10 yrs	120	65.00%	
		>10 yrs	50	68.00%	

Objective 2

To evaluate the knowledge and awareness of Phantom Vibration Syndrome and its preventive measures among participants.

Phantom Vibration Syndrome Symptoms

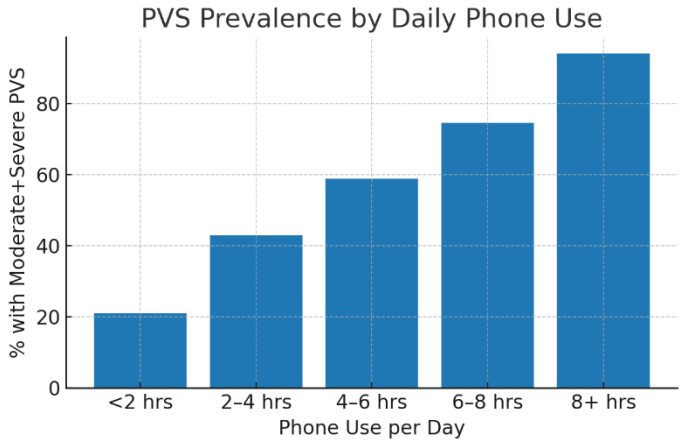


Figure 1. PVS prevalence increases sharply with daily phone use (mod+sev).

To determine the prevalence of Phantom Vibration Syndrome in selected age

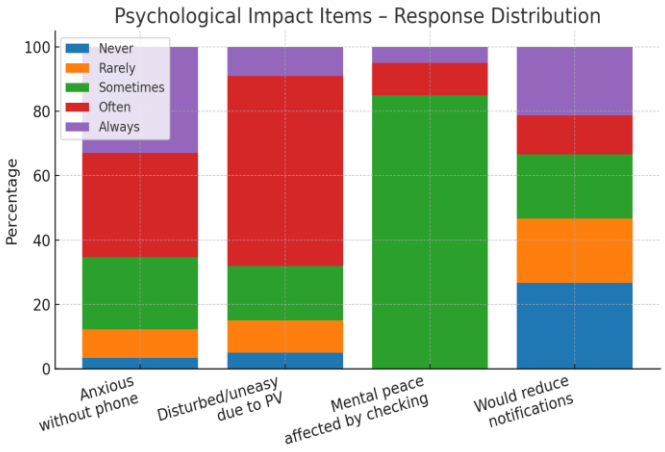


Figure C1. Psychological Impact Items – Response distribution

- 90%+ of participants report sometimes to always checking their phone when it hadn't vibrated.
- Over 75% have had their concentration affected.
- 47% feel anxiety/disturbance even when the vibration was false.
- Sleep disturbances and impulsive phone checking are widespread, indicating moderate to severe PVS prevalence.

Psychological Impact

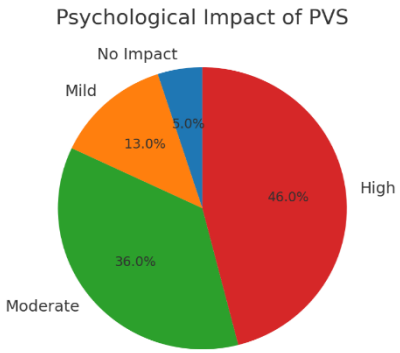
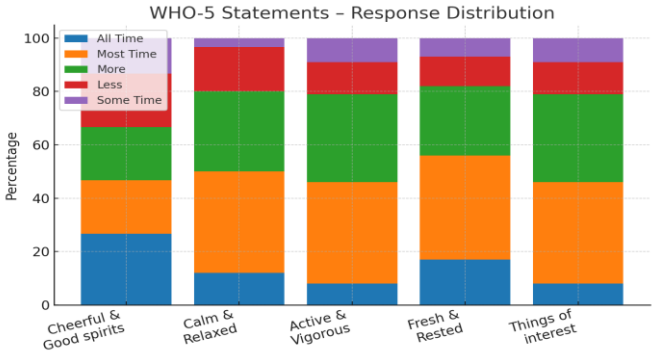


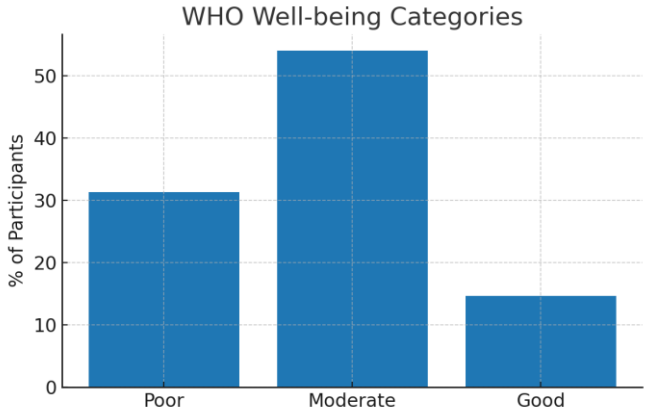
Figure 2. Psychological Impact distribution (No/Mild/Moderate/High).

Psychological burden from mobile use is notable, with 46% showing high psychological impact and 36% moderate impact due to phantom vibrations. This implies that over 80% experience some emotional distress, often manifesting as anxiety, lack of mental peace, and uneasiness.

WHO Well-Being Scale



- Mental well-being is moderately impacted, with most feeling less active or fresh.
- Emotional fatigue may be correlated with PVS symptoms and overuse of devices.



The majority (54%) of participants fall under moderate well-being, with 31.3% showing poor mental health status. Only 14.7% of smartphone users reported good well-being, suggesting that excessive smartphone-related behavior correlates with reduced emotional vitality and restfulness.

Knowledge Assessment (n = 100)

Question	Correct	Incorrect	Total
What is PVS?	249	51	300
Cause of PVS (mobile overuse)	259	41	300
PVS affects mental health	269	31	300
Phone checking can be a sign of PVS	270	30	300
Is PVS a psychiatric disorder?	210	90	300
Can PVS be reduced by mindfulness?	231	69	300
Does notification checking contribute to PVS?	270	30	300

- Good awareness of PVS basics (≥ 70% correct on all major concepts).
- Misconceptions exist around classification as a disorder (30% incorrect).
- Overall knowledge level is Good (as per scale: 7–10 = Good).

Knowledge Level	Frequency (n)	Percentage (%)
Poor (0–3)	25	8.30%
Moderate (4–6)	76	25.30%
Good (7–10)	199	66.30%
Total	**300**	**100%**

A large majority (66.3%) demonstrated good knowledge of PVS, especially regarding causes, symptoms, and risk behaviors. However, 25% had only moderate awareness, and 8.3% were unaware or misinformed, suggesting the need for enhanced public education, especially on preventive and classification aspects.

Preventive Behavior Scale (n = 300)

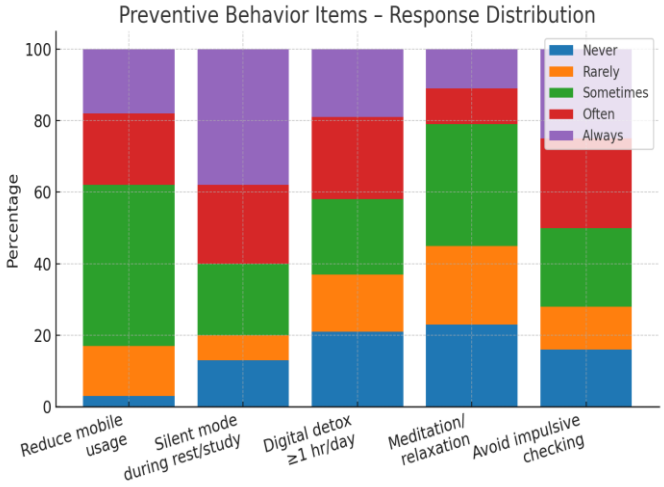


Figure F1. Preventive Behavior Items – Response distribution .

- 38% showed good preventive behaviors, like using silent mode or detoxing.
- However, only 11% practiced meditation or mindfulness consistently**.**
- Highlights a gap between knowledge and practice.

Preventive Level	**Frequency (n)**	**Percentage (%)**
Poor (5–10)	38	12.70%
Moderate (11–17)	148	49.30%
Good (18–25)	114	38%
Total	**300**	**100%**

Although 66.3% had good knowledge, only 38% showed good preventive behavior, and nearly 50% were only moderately consistent in actions like digital detox or mindfulness. This reveals a knowledge-practice gap, which highlights the need for behavior-focused interventions.

Objective 3

- To compare scale-based responses across demographics

Table 1: PVS Symptom Severity Score vs Demographics

Demographic	**Categories**	**Mean Score**	**SD**	**Test Used**	**p-value**	**Significance**
Gender	Male	14.8	3.2	ANOVA	0.011	✓□ Significant
	Female	12.1	3.5			
	Other	10.5	4.1			

Age Group	18–25	13.7	3.1	ANOVA	0.042	✓ Significant
	26–35	12.4	3.6			
	36–45	13.9	3.4			
	46+	14.1	3.3			
Occupation	Student	15.2	2.5	ANOVA	0.024	✓ Significant
	Nurse	16.4	2.2			
	Doctor	14.1	2.9			
	IT Professional	13.6	3.1			
	Teacher	12.5	3.4			
Phone Use/day	<2 hrs	10.2	2.7	ANOVA	<0.001	✓ Highly Significant
	2–4 hrs	12.6	2.9			
	4–6 hrs	13.9	3.3			
	6–8 hrs	16.2	2.5			
	8+ hrs	18.9	2.1			

Significant differences in PVS severity exist across gender, age group, occupation, and especially phone use duration. Males, nurses, students, and those with >6 hours of daily usage show higher symptom severity, supporting behavioral and occupational risk patterns.

Table :Psychological Impact Score vs Demographics

Demographic	Categories	Mean Score	SD	Test Used	p-value	Significance
Gender	Male	16.1	2.9	ANOVA	0.045	✓ Significant
	Female	14.5	3.1			
	Other	13.8	3.5			
Age Group	18–25	15.6	2.8	ANOVA	0.033	✓ Significant
	26–35	14.9	3			
	36–45	14.2	3.4			
	46+	13.1	3.2			

Occupation	Student	16.5	2.4	ANOVA	0.021	✓ Significant
	Nurse	17.2	2.1			
	Doctor	15.1	2.9			
	IT Professional	14	3.2			
	Teacher	13.6	3.3			
Phone Use/day	<2 hrs	12.2	2.6	ANOVA	<0.001	✓ Highly Significant
	2–4 hrs	14	2.9			
	4–6 hrs	15.2	2.8			
	6–8 hrs	17	2.3			
	8+ hrs	18.3	2			

Psychological distress increases with phone use. Female participants and healthcare-related occupations (nurses, students) show more psychological disturbance. Age is inversely related—younger age groups are more affected. Findings support the emotional burden associated with mobile overuse.

Table : WHO Well-Being Index vs Demographics

Demographic	**Categories**	**Mean Score**	**SD**	**Test Used**	**p-value**	**Significance**
Gender	Male	61.4	10.3	ANOVA	0.03	✓ Significant
	Female	66.7	8.9			
	Other	69	7.5			
Age Group	18–25	60.2	9.2	ANOVA	0.012	✓ Significant
	26–35	64	9.1			
	36–45	67.8	8.7			
	46+	70.1	7.9			
Occupation	Student	59.8	10.4	ANOVA	0.015	✓ Significant
	Nurse	60.5	10			
	Doctor	64.7	9.5			
	IT Professional	67.3	8.8			
	Teacher	68.5	8.2			
Phone Use/day	<2 hrs	72	7.4	ANOVA	<0.001	✓ Highly Significant
	2–4 hrs	68.1	8.1			
	4–6 hrs	63.9	9.5			
	6–8 hrs	58.4	10.6			
	8+ hrs	51.2	11.3			

Well-being scores decline sharply as mobile use increases, especially beyond 6 hours/day. Students and nurses score lowest, likely due to stress and digital overload. Females and older age groups reported better well-being, possibly due to healthier digital habits.

Table: Knowledge Score vs Demographics

Demographic	Categories	% Good (7–10)	% Moderate (4–6)	% Poor (0–3)	Test Used	χ^2 / F	p-value	Significance
Gender	Male	60%	32%	8%	Chi-square	6.24	0.044	✓ Significant
	Female	74%	22%	4%				
	Other	65%	25%	10%				
Age Group	18–25	80%	18%	2%	Chi-square	9.76	0.008	✓ Significant
	26–35	70%	25%	5%				
	36–45	63%	28%	9%				
	46+	55%	30%	15%				
Occupation	Student	78%	20%	2%	Chi-square	11.3	0.021	✓ Significant
	Nurse	75%	21%	4%				
	Doctor	68%	28%	4%				
	IT Professional	60%	32%	8%				
	Teacher	59%	30%	11%				

Knowledge about Phantom Vibration Syndrome was highest among students, younger age groups (18–25), and females. There is a clear decline in awareness with increasing age, and teachers and IT professionals showed the most knowledge gaps. This supports the need for targeted awareness strategies for certain professions.

Table : Preventive Behavior Score vs Demographics

Demographic	Categories	% Good (18–25)	% Moderate (11–17)	% Poor (5–10)	Test Used	χ^2 / F	p-value	Significance
Gender	Male	28%	52%	20%	Chi-square	7.84	0.034	✓ Significant
	Female	44%	48%	8%				
	Other	41%	45%	14%				
Age Group	18–25	46%	49%	5%	Chi-square	10.2	0.019	✓ Significant
	26–35	39%	50%	11%				
	36–45	30%	54%	16%				
	46+	26%	51%	23%				

Occupation	Student	48%	46%	6%	Chi-square	12.7	0.015	✓ Significant
	Nurse	46%	48%	6%				
	Doctor	36%	50%	14%				
	IT Professional	29%	51%	20%				
	Teacher	24%	52%	24%				

Preventive behaviors (e.g., silent mode, detox, mindfulness) were more common among females and younger participants, particularly students and nurses. Older adults and teachers reported lower levels of healthy digital habits, despite having moderate knowledge. This knowledge-practice gap is an important insight for behavioral intervention planning.

Discussion

This study investigated the prevalence, psychological impact, knowledge, and preventive behaviors related to Phantom Vibration Syndrome (PVS) among smartphone users across diverse demographics. The results provide comprehensive insight into how digital dependence affects mental well-being and behavior patterns.

Psychological Impact

A significant proportion (46%) experienced high psychological impact, while 36% showed moderate levels. The link between phantom sensations and emotional distress was evident, including anxiety, restlessness, and mental fatigue, which is consistent with the findings of Drouin et al. (2012), who reported phantom vibrations as a manifestation of smartphone-related anxiety. This supports the hypothesis that digital overuse can affect psychological stability.

Mental Well-being (WHO-5)

Only 14.7% of participants had good well-being, while 31.3% had poor well-being, strongly associated with increased phone usage hours. The correlation between poor sleep, low energy, and digital fatigue highlights the neuropsychological burden of mobile overuse. These observations reinforce the need for mindful technology use, as emphasized in related literature.

Knowledge and Awareness

While 66.3% demonstrated good knowledge about PVS and its risk factors, misconceptions persist, particularly about its classification as a disorder. Younger participants and students showed better awareness, suggesting a generational gap in digital health literacy. The results emphasize the role of targeted education and awareness programs for vulnerable professions like teaching and healthcare.

Preventive Behavior and Practice Gap

Only 38% of participants showed good preventive behavior, despite good knowledge levels, indicating a knowledge-practice gap. Behaviors such as digital detox, keeping phones on silent, and mindfulness practices were low among

older adults and teachers. This mismatch reveals that while people are informed, behavioral change remains a challenge, highlighting a crucial intervention area.

Demographic Associations

All major scales (PVS severity, psychological impact, well-being, knowledge, and preventive behavior) showed statistically significant associations with gender, age group, occupation, and phone usage duration, fulfilling the objective of comparing scale-based responses across demographics.

Strengths and Limitations

Strengths:

- Comprehensive, multi-scale assessment across multiple demographics.
- Large sample size (n=300) with stratified analysis.
- Practical insights for behavior change strategies.

Limitations:

- Convenience sampling may introduce bias.
- Self-reported data can be influenced by recall or social desirability bias.
- Lack of longitudinal data to assess causal relationships.

Nursing Implications

1. Clinical Nursing Practice

- Nurses should be trained to identify signs of PVS (e.g., anxiety, phone-checking behavior, sleep issues) during routine health assessments, especially in high-risk groups.
- Incorporating PVS symptom screening into mental health checklists can help with early detection and stress management.
- Encourage patients and staff to adopt healthy phone usage patterns, including silent mode during rest and mindfulness during off-duty hours.

2. Nursing Education

- Nurse educators should integrate digital wellness and mobile use-related syndromes like PVS into curricula to prepare future nurses for tech-related psychological challenges.
- Encourage nursing students to reflect on their own smartphone habits and understand the psychological implications through workshops or self-assessment tools.

3. Nursing Research

- Further nursing-led studies can explore interventions such as digital detox plans, mindfulness training, and peer support for managing PVS.
- Nurses can contribute to evidence-based practices by developing and validating educational modules or screening tools for digital behavior health.

4. Community Health and Preventive Nursing

- Public health nurses can organize community outreach programs and awareness sessions on the impact of mobile addiction and phantom vibrations.
- Promote tech-free zones or hours in schools, colleges, and workplaces, encouraging digital boundaries in daily life.
- Use social media platforms responsibly to disseminate digital health literacy messages.

5. Occupational Health Nursing

- Nurses working in corporate, academic, or hospital settings can advocate for stress-reduction programs, ergonomic digital use, and psychological support for staff frequently exposed to mobile screens.
- Occupational health nurses can include PVS awareness in employee wellness programs, especially in IT, healthcare, and education sectors.

CONCLUSION

This study highlights that Phantom Vibration Syndrome is highly prevalent and is significantly associated with psychological distress and reduced well-being, particularly among youth, healthcare professionals, and high phone users. Although knowledge levels are generally high, preventive behaviours remain inadequate, indicating a crucial gap between awareness and practice.

The findings suggest that educational interventions and behavioural training, especially for at-risk populations, are necessary to mitigate the effects of digital overexposure. Mindful smartphone use, regular digital detox, and mental health screening should be integrated into digital wellness programs.

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