



PROBLEMATIC USE OF MOBILE PHONE AMONG POSTGRADUATE STUDENTS IN PURULIA DISTRICT, WEST BENGAL

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RESEARCH ARTICLE



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Abstract

People in the 21st century now consider using the mobile phone to be essential. This study aimed to know about the Problematic use of Mobile Phone among the Postgraduate Students in Purulia district. The study employed A descriptive survey method. For this study, 410 postgraduate students are selected as a sample by using the simple random sampling technique from Sidho-Kanho-Birsha University of Purulia district. Mobile Phone Problematic Use Scale (MPPUS) developed by Kalhori, S.M. et al. has been used to gather data. For analysing the data t-test has been used. The findings revealed that no significant difference between male and female; rural and urban; arts and science postgraduate students regarding Problematic Use of Mobile Phone.

Keywords: *Problematic Use of Mobile Phone, Postgraduate Students, t-test, Gender, Residence, Stream*

Introduction

The present era is the era of science and technology. One of the most wonderful inventions of this science and technology is the mobile phone. Since it is wireless, it can be carried from one place to another very easily. Currently, one of the most important tools of communication is the mobile phone. Through this small device, we can easily communicate with people in the country or abroad in an instant. In the last few years, this small device has become an integral part of our daily life. Nowadays, we cannot move without it even for a moment. Mobile phones nowadays provide almost all the facilities of modern computer technology in addition to talking. With its help, information exchange is possible in an instant. According to Billieux (2012), problematic use of mobile phone can be regarded as “an inability to regulate one’s use of mobile phone, which eventually involves negative consequences in daily life” (p.1). Over the past few years, the dependence of students on mobile phones has been increasing. Currently, students are facing various types of problems due to excessive use of mobile phones. This problem is not only physical or mental, but its strong impact is also being observed in the field of education.

Review of Related Literature

Giovanni et al. (2011) conducted a comprehensive study revealing that problematic mobile phone use among Italian adolescents was not an isolated issue but rather interconnected with other behavioural addictions, suggesting a broader pattern of compulsive behaviours in modern youth. Musetti et al. (2020) may have pertinent therapeutic ramifications by emphasizing the significance of developing gender-specific therapies for teenagers who exhibit signs of mobile phone addiction. Harris et al. (2020) expanded on this by systematically analysing 78 different measurement scales, uncovering critical limitations in how researchers assess smartphone addiction - a finding that calls into question the comparability of many addiction studies. The work of El-Ghannam & Abd El-Hamid (2023) provided particularly alarming data from nursing students, where not only did 72.9% show problematic phone use, but this strongly correlated with academic procrastination (76.7%), revealing how technology overuse directly impacts professional education. Gender differences emerged as a consistent theme across multiple studies. Jiang & Zhao (2016) found female university students exhibited significantly higher mobile dependence than males, while Ali et al. (2021) discovered Pakistani female secondary students experienced greater mental health consequences from phone overuse. Stephen & Peterson (2020) his study Among the respondents’ negative psychological outcomes were financial difficulties, infidelity, theft, stress, anxiety, and addiction to mobile phones. However, El-Ghannam & Abd El-Hamid (2023) noted no gender difference in phone addiction itself among nursing students, suggesting disciplinary or cultural factors may moderate these

effects. Cultural and generational variations were particularly striking. Bianchi and Phillips (2005) conducted a study on Psychological Predictors of Problem Mobile Phone Use, this study makes a valuable contribution to understanding problematic mobile phone usage patterns in restricted environments. Shekhawat & Batra (2017) try to investigate the relationship between young people's excessive usage of mobile phones and psychological traits. Liu et al. (2024)'s cross-cultural comparison demonstrated Chinese university students showed stronger negative academic impacts from phone dependence than their Czech counterparts, possibly reflecting different educational pressures or social norms. Pundir et al. (2016) Psychological distress, low self-esteem, gender, smartphone use, numerous talking apps, committed relationship status, connection with mother, and frequency of mobile phone use were all shown to be significantly correlated with problematic mobile phone use. Roy and Mahato (2025) studied smartphone addiction among postgraduate students in Purulia, West Bengal, analysing clusters by gender, academic stream (Arts/Science), and residence (rural/urban). They surveyed 410 students using the *Mobile Phone Problematic Use Scale (MPPUS)* and performed cluster analysis (SPSS v26.0). Results showed that key predictors changed with cluster size—academic stream mattered most in 2 clusters, gender in 3 clusters, and all factors (gender, stream, residence) in larger clusters (5+). Female students were more prevalent in most clusters, while rural and urban students had different usage patterns. Unlike some past studies, gender was significant, with interactions (e.g., gender × stream) shaping addiction trends. A study on Problematic smartphone uses and mental health problems: current state of research and future directions by Elhai (2019). Singh and Kumari (2021) The study's goal was to examine the relationship between young adults' perceptions of loneliness and smartphone addiction in a sample of 120 (78 men and 42 women). Kuss et al. (2018) identified fundamental differences in how Generation X and Y engage with phones - with older generations preferring synchronous communication (calls) and younger generations leaning toward asynchronous social media use, implying addiction manifests differently across age groups. Several studies highlighted specific risk factors. Dhanasekaran et al. (2017) identified living in joint families and keeping phones nearby while sleeping as significant predictors in Indian adolescents. Umarji & Patel (2024) in her study the findings indicate that there is no discernible difference in smartphone addiction between boys and girls by gender or by urban and rural places of residence. Santana Vega et al. (2019) introduced the important concept of FoMO (Fear of Missing out) as a psychological driver of compulsive phone use among Spanish youth, while also demonstrating that stronger family communication could mitigate these effects.

The academic consequences were severe and multi-faceted. Swaroop & Reddy Bobba (2021) documented Indian medical students spending 4-6 daily hours on phones primarily for social media, directly competing with study time. Wu & Siu (2020) The study's findings provide some guidance on how to employ a criterion-referenced approach to identify problematic mobile phone users. Visnjic et al. (2018) According to the findings, the degree and kind of mobile phone use may have an impact on the causal chains that result in mental health issues among college students. Gupta et al. (2015) found similar patterns in medical students, with phone overuse degrading sleep quality, mental health, and academic performance simultaneously - a dangerous triad for future healthcare professionals.

The COVID-19 pandemic emerged as a significant factor in Putta & Shalik (2023)'s study of Indian youth, where lockdowns and social isolation exacerbated the relationship between smartphone overuse, depression and OCD symptoms. This suggests crisis situations may accelerate addictive technology use patterns. Measurement challenges and solutions were addressed by Pamuk & Atil (2016), who developed and validated a comprehensive Problematic Mobile Phone Use Scale (PMPUS) with strong psychometric properties, providing researchers with a more reliable assessment tool. Meanwhile, Harris et al. (2020)'s systematic review cautioned that many existing scales lack sufficient reliability, making cross-study comparisons difficult. Practical implications emerged throughout the research. Patil & Dhanawade (2023) balanced their findings by noting that while overuse is harmful, educational apps and purposeful phone use could actually enhance academic performance when used judiciously. Veissière, & Stendel (2018) he wrap up by offering perspectives from harm-reduction methods and contemplative philosophies on how to establish deliberate procedures for the intake of social information and identify appropriate rituals for respecting social ties. Celik & Atas (2023) his study is Addiction among University Students: Prevalence, Student Characteristics, Mobile Phone Use Purposes, and Situations. findings underscore the need for targeted digital wellness interventions, particularly for identified high-risk groups and usage contexts. Ghosh & Mandal (2025)'s urban-rural comparison in West Bengal suggested infrastructure and lifestyle differences may influence addiction patterns, with urban students at higher risk. Martinotti et al. (2011) there study related to Problematic mobile phone use in adolescence should become a public health issue, and it could be a cause of health problems and social costs. Merlo et al. (2013) there study results shows that preliminary support for the use of the PUMP Scale to measure problematic use of mobile phones. Qaisar et al. (2017) College students' academic performance was not significantly predicted by the combined effects of PMP usage and academic delaying. Munusamy et al. (2021) in his study presents a model of the connection between young mobile phone addiction, mobile phone use, and psychological traits. Dhanasekaran (2017) in his study shows that the problematic usage of mobile phones was significantly high among this study population. Glumbic et al. (2020) conducted a study on explore the frequency and predictors of problematic mobile phone use (PMPU) in adolescents with mild intellectual disability (MID) and typically developing adolescents (TDA). Iqbal et al. (2017) studied problematic mobile phone usage among medical students at Mohtarma Benazir Bhutto Shaheed Medical College using the PUMP scale. Their cross-sectional research, focusing on final-year students, found prevalent problematic usage, suggesting the need for preventive measures.

t -Test Related Studies Several studies have been explored for research work related to the t-test. These include:

Karmakar et al. (2016); Chatterjee et al. (2016); Mondal et al. (2018); Gayen et al. (2021); Dandapat et al. (2021); Ansary et al. (2021); Mohanta et al. (2023); Rajak and Gayen (2022); Mahanti et al. (2016); Ansary et al. (2022); Kundu et al. (2015); Kar &

Saha (2021); Khan et al. (2023); Khatun et al. (2022); Adhikari et al. (2023a); Gayen and Sen (2023); Sen et al. (2021); Mahato and Sen (2021, 2023); Mondal and Saha (2013); Ansary (2023); Gayen and Sen (2023, 2023a); Das et al. (2023b); Mahato and Das (2024a, 2024b); Saha & Adhikari (2021); Mahato et al. (2023).

Clustering Technique Studies: Studies employing clustering techniques include:

Mondal and Mahato (2025); Sen et al. (2025a); Das and Mahato (2024a, 2024b); Das et al. (2023a); Sen et al. (2023a); Adhikari and Sen (2023a, 2023b); Gayen (2024,2024a); Gorain et al. (2023); Mohanta et al. (2023b, 2023a); Saha et al. (2021).

Correlation Analysis Studies Correlation analysis has been explored in the following studies: Sen et al. (2023b); Das and Mahato (2024c); Mahato and Das (2024); Das et al. (2024); Gayen et al. (2023); Sutradhar & Sen (2022); Adhikari et al. (2023c) Adhikari et al. (2023e); Sutradhar et al. (2023); Sen et al. (2023c); Kar et al. (2016).

Z-Transformation, parametric and non- parametric and other related Studies Recent research involving includes: Das et al. (2024); Mahato et al. (2024); Das and Mahato (2024); Mahato and Das (2024b); Adhikari et al. (2023b); Gayen and Mahato (2023); Gayen et al. (2021); Mahato and Sen (2021a); Gayen and Sen (2021); Adhikari et al. (2023d); Mahato et al. (2022).

The Mahalanobis distance method has been studied in: Mahato et al. (2023); Ahmed et al. (2020, 2021, 2022a, 2022b); Sen et al. (2023); Adhikari (2023); Mahato and Sen (2021); Mahato and Das (2024c); Gorain et al. (2021); Mohanta et al. (2023).

Structural Equation Modelling (SEM) and Confirmatory Factor Analysis (CFA)

These advanced statistical techniques are featured in:

Sen et al. (2025b).

Objectives of the Study

The objectives of the present study are:

- i. To compare the problematic use of mobile phone between the male and female postgraduate students in Purulia district.
- ii. To compare the problematic use of mobile phone between the rural and urban postgraduate students in Purulia district.
- iii. To compare the problematic use of mobile phone between the arts and science postgraduate students in Purulia district.

Hypotheses of the Study

To fulfil the objectives, the following hypotheses are formulated:

H₀₁: There is no significant difference between male and female postgraduate students regarding problematic use of mobile phone in Purulia district.

H₀₂: There is no significant difference between rural and urban postgraduate students regarding problematic use of mobile phone in Purulia district.

H₀₃: There is no significant difference between arts and science postgraduate students regarding problematic use of mobile phone in Purulia district.

Methodology of the Study

Method: It is a descriptive survey- type research.

Population: All the postgraduate students of Purulia district are considered as the population for the present study.

Sample and Sampling Technique: For this study, 410 postgraduate students of Sidho-Kanho-Birsha University of Purulia district are taken as a sample through using the stratified random sampling techniques.

Tools Used: Mobile Phone Problematic Use Scale (MPPUS) developed by Kalhori, S.M. et al. used in this study to collect the data from samples.

Statistics Used: For analysing the data descriptive statistics like Mean, SD and inferential statistics such as t- test has been used.

Results and Discussion

A. Testing of H₀₁: There is no significant difference between male and female postgraduate students regarding problematic use of mobile phone in Purulia district.

Table 1: Group Statistics of Gender for Problematic Use of Mobile Phone

Gender	N	Mean	Std. Deviation	Std. Error Mean
Male	79	85.80	12.353	1.390
Female	331	82.42	14.601	.803

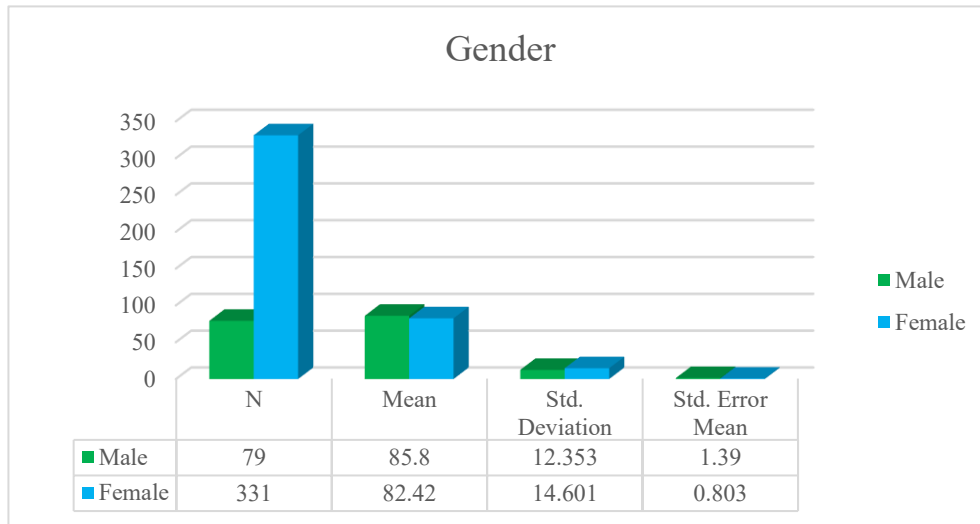


Fig. 1. Represent the Histogram of Gender for Problematic Use of Mobile Phone

Table 2: Independent Samples t- Test between Male and Female on Problematic Use of Mobile Phone

Gender	t	df	Sig. (2-tailed)	Remarks	S/NS
Male VS Female	1.898	408	.058	Null H ₀₁ Accepted	Not Significant

According to Table 2, The calculated t- value (1.898) of Problematic use of Mobile Phone between male and female postgraduate students is less than the critical value (sig. .058 > .05) for the degree of freedom 408. So, it can be said that H₀₁ is accepted at .05 level of significance. It means that there is no significant difference between male and female postgraduate students regarding Problematic Use of Mobile Phone in Purulia district.

B. Testing of H₀₂: There is no significant difference between rural and urban postgraduate students regarding problematic use of mobile phone in Purulia district.

Table 3: Group Statistics of Residence on Problematic Use of Mobile Phone

Residence	N	Mean	Std. Deviation	Std. Error Mean
Rural	333	82.77	13.915	.763
Urban	77	84.39	15.617	1.780



Fig. 2. Display the Histogram of Residence on Problematic Use of Mobile Phone

Table 4: Independent Samples t- Test between Rural and Urban on Problematic Use of Mobile Phone

Residence	t	df	Sig. (2-tailed)	Remarks	S/NS
Rural VS Urban	-.900	408	.369	Null H ₀₁ Accepted	Not Significant

According to Table 4, The calculated t- value (-.900) of problematic use of mobile phone between rural and urban postgraduate students is very less than the critical value (sig. .369 > .05) for the degree of freedom 408. So, it can be said that H₀₂ is accepted at .05 level of significance. It means that there is no significance difference between rural and urban postgraduate students regarding Problematic Use of Mobile Phone in Purulia district.

C. Testing of H₀₃: There is no significant difference between arts and science postgraduate students regarding problematic use of mobile phone in Purulia district.

Table 5: Group Statistics of Stream on Problematic use of Mobile Phone

Stream	N	Mean	Std. Deviation	Std. Error Mean
Arts	297	82.63	13.980	.811
Science	113	84.25	14.916	1.403

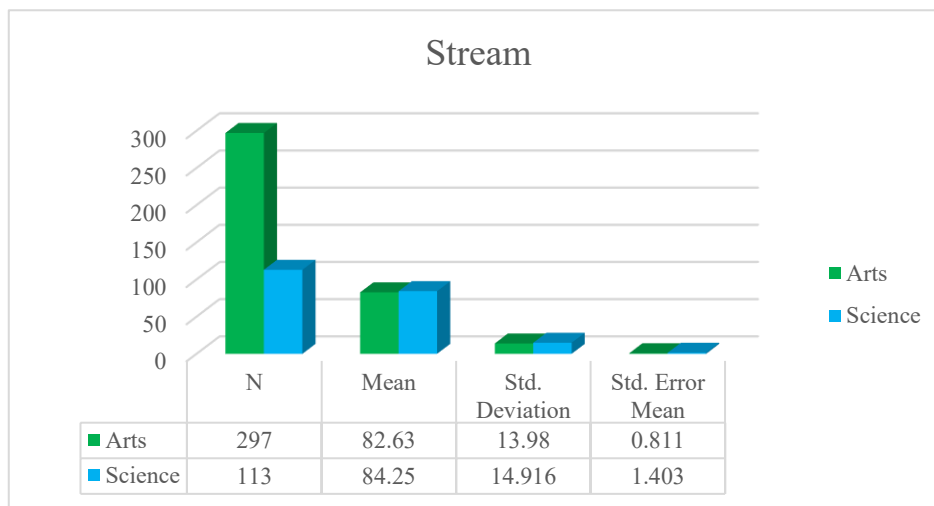


Fig. 3. Represents the Stream on Problematic use of Mobile Phone

Table 6: Independent Samples t- Test between Arts and Science on Problematic Use of Mobile Phone

Stream	t	df	Sig. (2-tailed)	Remarks	S/NS
Arts VS Science	-1.030	408	.304	Null H ₀₁ Accepted	Not Significant

According to Table 6, The calculated t- value (-1.030) of problematic use of mobile phone between Arts and Science postgraduate students is very less than the critical value (.304 > .05) for the degree of freedom 408. So, it can be said that H₀₃ is accepted at .05 level of significance. It means that there is no significant difference between Arts and Science postgraduate students regarding Problematic Use of Mobile Phone in Purulia district.

Findings of the Study

The present study found that there is no significant difference between male and female postgraduate students regarding Problematic Use of Mobile Phone. This result was agreed by El-Ghannam and Abd El-Hamid (2023), Ghosh and Mandal (2025) and contradicted to Jiang and Zhao (2016), Pundi et al. (2016) and Hosoglu (2019). Another finding of this study also showed that no significant difference between rural and urban postgraduate students regarding Problematic Use of Mobile Phone. This result was contradicted to Ghosh and Mandal (2025). Other findings of this study revealed that there is no significant difference between arts and science postgraduate students regarding Problematic Use of Mobile Phone. This result was agreed by Ghosh

and Mandal (2025). Our study also revealed the same results according to various author previously done by there study. The researcher shows that there is no significant differences in respect of Male vs Female, Rural vs Urban and Arts vs Science on Problematic Use of Mobile Phone.

Conclusion

The present study's findings conclusively demonstrate that no statistically significant differences exist between male and female students, rural and urban populations, or arts and science postgraduate students in terms of Problematic Use of Mobile Phones (PUMP). The uniformity of problematic usage patterns across these diverse groups indicates that the issue is fundamentally rooted in the human-technology interaction paradigm rather than being mediated by gender, geographical, or academic factors. In conclusion, this research provides robust evidence that problematic mobile phone use constitutes a truly democratic challenge in the digital age, affecting individuals regardless of gender, residence, or academic discipline. These findings should inform more effective, inclusive approaches to research, prevention, and intervention strategies in the growing field of digital wellbeing. The present study concludes that there is no significant difference between male and female students, rural and urban students, or arts and science postgraduate students regarding Problematic Use of Mobile Phones (PUMP). The findings indicate that mobile phone addiction is not influenced by gender, geographical residence, or academic discipline, suggesting that problematic usage patterns are widespread across all demographics.

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