Smartphone Usage In Relation To Loneliness Among Higher Secondary Students

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Abstract

Smartphones have become increasingly popular in the current scenario, especially among the young generation. These gadgets are more convenient and also highly appealing to young minds, leading to a growing dependency. The present study aimed to examine the relationship between smartphone usage and loneliness among higher secondary students. The survey method was employed, and two tools were used for data collection: the Smartphone Usage Scale, constructed by the investigator, and the UCLA Loneliness Scale – Version 3 by Russell (1996). A total of 320 students from various schools in Tamil Nadu participated in the study. To analyze the relationships between variables, correlational analysis, and t-test were calculated. Results revealed that smartphone usage was significantly associated with loneliness ($r = 0.534$). Furthermore, significant differences in smartphone usage and loneliness were observed based on gender and locality.

Keywords: Smartphone, Loneliness

Introduction

The concept of Smartphones and the research on it reflect the investigator's undertaking to comprehend the usage of smartphones and loneliness among students. In our contemporary world, smartphones are playing a very important role in people's lives. It impacted almost all walks of human life. The prominent areas where the impacts of smartphones are obvious include education, business, health, and social interaction. Despite its usefulness, excessive use of this device has various negative impacts. Students who are of adolescent age, use smartphones beyond their limits run a major risk of brain damage due to the increased heating of brain cells. Studies have shown that prolonged smartphone use can increase the risk of cognitive and emotional issues, including depression, anxiety, and low self-esteem. Adolescents, who often rely heavily on smartphones, are especially vulnerable to these negative outcomes.

Students develop dependency on the smartphone and get a sense of ill-being when they forget to carry it with them. They have a feeling that they have missed something that is never recoverable and get disturbed academically. With the convenience and variety of smartphone functions, users can get overly hooked and distracted by their devices (Ting & Chen, 2020). Smartphone addiction has emerged as a significant problem among users (Kwon et al., 2013). Moreover, smartphone addiction is now recognized as a major issue, with studies indicating that it leads to sleep deprivation, increased stress, and fatigue, which further impair cognitive functioning.

Loneliness is one of the most common feelings that everyone could experience at some stage in their life. Loneliness is a complex and usually unpleasant emotional response to isolation. Loneliness typically includes anxious feelings about a lack of communication and connections with other beings, both in the present and extending the future. As such, loneliness can be felt even by other people. The causes of loneliness are varied and include social, emotional, mental, and physical factors. Loneliness refers to the emotional state of a person experiencing an intense feeling of

emptiness and isolation. According to Perlman and Peplau (1982), pointed out that loneliness is a pessimistic emotion arising as a result of a discrepancy between preferred and achieved levels of personal, psychological, and social goals. Loneliness naturally includes nervous feelings about a lack of connection, friendship, or communication with other people, both in the present and in the future. People ride loneliness for many reasons, like lack of companionship, fear, shyness, low self-esteem can exacerbate feelings of loneliness, making it a complex and multifaceted issue in childhood and adolescence. Loneliness influences feelings, thoughts, and behaviour, and it affects the health and well-being of life.

Interestingly, smartphone, which are primarily designed for social interaction, have become tools for coping with loneliness. To alleviate the loneliness, students actively access social media and web surfing using smartphones, which become indispensable elements in their lives. They particularly tend to prefer communicating via smartphone to face-to-face conversations. They find it comfortable to communicate via smartphones, as it prevents them from having to make eye contact or deal with the ambiguities of body language. Some lonely individuals may use their phones as a source of comfort, spending time browsing content, playing games, or streaming videos to distract themselves from feelings of isolation.

Research by Jin and Park (2012) found that face-to-face interactions are associated with higher tiers of loneliness, whereas increased smartphone calling is associated with greater loneliness. Reid and Reid (2007) also discovered that lonely individuals often prefer texting or short message service (SMS), WhatsApp chat, as a less intimate method of communication. According to Takao et al. (2009), lonely people are keen to keep in contact with their peers through frequent calls to fulfill their loneliness. Therefore, higher or problematic phone use is envisioned by loneliness.

Need for the study

The world is now more digitally oriented. Even before entering school, children are exposed to use the smartphones. This generation of students is highly passionate about using smartphones, and it is common to see them engaged with these devices throughout the day. Although smartphones are primarily meant for social communication with others, students use them for a wide range of activities, such as messaging, sharing photos, and videos on social platforms like Facebook, Instagram, Twitter, and WhatsApp, as well as playing games and consuming entertainment. They can instantly access the most recent news, unique data, online quizzes, study guides, statistics etc. The constant availability of information and entertainment on smartphones fosters of dependence, and students often struggle when they are without their devices.

However, this inadvertent and inappropriate use of a smartphone poses a high risk of isolation. When feelings of loneliness and isolation persist, can lead to increased stress, fear of life, reduced self-esteem, and loss of sleep. Life without a smartphone is for many people is unthinkable, thus people are getting in some way dependent on their smartphone (Haverlag, 2013). The present study is crucial because it focuses on higher secondary students, who are more vulnerable to being affected by smartphones. As these students may not understand the pros and cons of smartphone dependency, this research aims to explore the connection between smartphone usage and loneliness, thus addressing a pressing concern in today's digital age. Thus comes the need for the present study.

Review of literature

Casey (2012), conducted research on university students in Mainland China, investigating Psychological Attributes to Smart Phone Addiction, Face-to-Face Communication, Present Absence, and Social Capital. It examined the relationships among psychological attributes such as shyness and loneliness, and their connection to smartphone addiction. The relative influences were compared by using a pair of hierarchical regression analyses on bonding and bridging social capital. The study revealed students who reported higher levels of loneliness and shyness were more likely to become addicted to smartphones, highlighting the role of emotional vulnerability in excessive device usage.

Loneliness and Smartphone addiction among youths, the study conducted by Rashmi Singh and Vandana Kumari (2021) analyzed the association between smartphone addictions with perceived loneliness among 120 college students aged 20-25years. The study revealed that there was a significant high positive relationship between loneliness and smartphone addiction. There was a significant difference in gender wise, females' students reporting higher levels of loneliness compared to males.

Myer (2013), investigated the connection between social isolation and cell phone usage among college students in California. The study assessed social isolation level of loneliness, traits of shyness, and their correlations with academic performance. They used convenience sampling to recruit 206 students from community colleges and universities who were aged 18+. The results showed that there was a weak negative relationship between the number of calls received by peers and a positive relationship between levels of loneliness and communication with family members. The study revealed that there is no significant relationship between cell phone usage and loneliness, it concluded that cell phone usage had little impact on loneliness among students.

Bhardwaj and Ashok (2015), explored the connection between mobile phone addiction and loneliness among teenagers. The Random sampling method was used by researchers to select the sample, which consisted of 100 teenagers. Results revealed that there was a significant correlation between mobile phone addiction and loneliness among college students. Although, no gender differences were observed in the findings.

Zhang et al. (2023) examined the relationship between loneliness and mobile phone addiction among Chinese college students: The mediating role of anthropomorphism and moderating role of family support. Loneliness, anthropomorphism, family support, and mobile phone addiction were measured in the study. Regression-based statistical mediation and moderation were conducted using the PROCESS macro for SPSS. Results showed a significant positive correlation, with mobile phone addiction, and that link could be mediated by anthropomorphism. Family support was also found to moderate the connection, with weaker family support intensifying the effects of loneliness on smartphone addiction.

Objectives of the study
The objectives of the study are,
1. To find out whether there is any significant relationship between smartphone usage and loneliness of higher secondary students.
2. To find out whether there is any significant difference in smartphone usage and loneliness of higher secondary students with respect to gender and locality.

Hypotheses of the study

The study intended to investigate the following hypotheses,
1. There exists no significant difference between higher secondary boys and girls with respect to:
   a. Smartphone usage
   b. Loneliness.
2. There exists no significant difference between higher secondary urban and rural schools with respect to:
   a. Smartphone usage
   b. Loneliness.
3. There exists a significant relationship between smartphone usage and the loneliness of higher secondary students.

Methodology

A Normative survey method has been employed for this study. The stratified random sampling technique was used to select the sample, which consisted of 320 higher secondary students (140 boys and 180 girls), who were studying in various higher secondary schools located in both rural and urban areas of Tamil Nadu. To measure smartphone usage, the Smartphone Usage Scale was developed by the investigator. The scale was designed based on review of relevant theories, existing literature relevant to the variable and also by discussion with experts in the field. Items were carefully crafted to align with theoretical constructs provided by psychologists. Following the development of the scale, a pilot study was conducted to refine the tool. To identify the underlying factors of smartphone usage scale Exploratory Factor Analysis (EFA) was performed. Based on the analysis, items with factor loading greater than or equal to 0.40 were selected for the final tool. As per the criteria, 30 items of smartphone usage were grouped under five

factors, namely Enhance learning, Social media, Communication, Entertainment, and Safety. To assess loneliness, the UCLA Loneliness Scale -Version 3 (Russell, 1996) was employed. This scale consists of 20 items rated on a 4-point Likert scale, with responses ranging from "never" (1) to "always" (4).

Analysis and Interpretation of Data

The data collected in this study were analysed using IBM SPSS 23. Descriptive statistics were employed to compute the mean and standard deviation of the variables. Independent sample t-text was conducted to compare the mean of variables considered in the study. Additionally, correlation analysis was performed to examine the relationship between the key variables under investigation.

Hypothesis 1: There exists no significant difference between higher secondary boys and girls with respect to Smartphone usage and Loneliness.
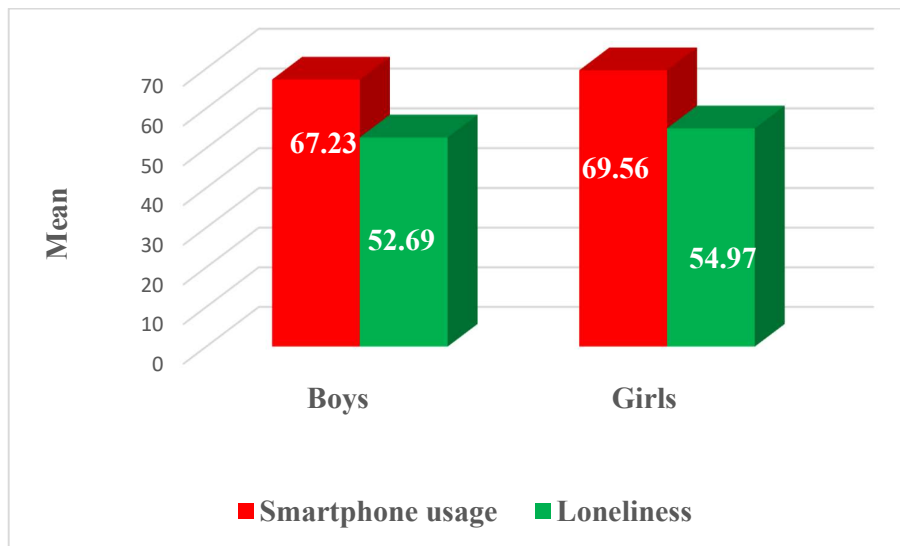
Table 1: Showing the analysis of smartphone usage and loneliness of higher secondary students with respect to gender

Variables	Boys (N =140)		Girls (N = 180)		t value	P
	Mean	SD	Mean	SD		
Smartphone usage	67.23	7.64	69.56	7.80	2.678	0.008
Loneliness	52.69	7.28	54.97	6.82	2.881	0.004

Significant at the 0.01level.

It can be observed from table 1 that the mean difference between higher secondary boys and girls with respect to smartphone usage (t = 2.678; p = 0.008) and loneliness (t = 2.881; p = 0.004) were found to be statistically significant. This shows that boys and girls are not similar in their smartphone usage and loneliness. Hence, the formulated hypothesis there is no significant difference between boys and girls with respect to smartphone usage and loneliness was not accepted. By comparing mean values, girls have higher mean values in the usage of smartphones and loneliness than boys.

Graph 1: Graph showing the mean difference between boys and girls of higher secondary students with respect to smartphone usage and loneliness.

Hypothesis 2: There exists no significant difference between higher secondary urban and rural school with respect to Smartphone usage and Loneliness.

Table 2: Showing the analysis of smartphone usage and loneliness of higher secondary students with respect to locality

Variables	Urban (N =159)		Rural (N = 161)		t value	P
	Mean	SD	Mean	SD		
Smartphone usage	55.28	7.15	52.67	6.84	3.340	0.001
Loneliness	70.15	7.23	66.95	8.04	3.743	0.000

Significant at the 0.01 level.

It can be observed from table 2 that the mean difference between higher secondary urban and rural schools with respect to smartphone usage (t = 3.340; p = 0.001) and loneliness (t = 3.743; p = 0.000) were found to be statistically significant. This shows that urban and rural schools are not similar in their smartphone usage and loneliness. Hence, the formulated hypothesis there is no significant difference between urban and rural school with respect to smartphone usage and loneliness was not accepted. By comparing mean values, urban have higher mean values in the usage of smartphone and loneliness than the rural schools.

Graph 2: Graph showing the mean difference between urban and rural higher secondary students with respect to smartphone usage and loneliness.
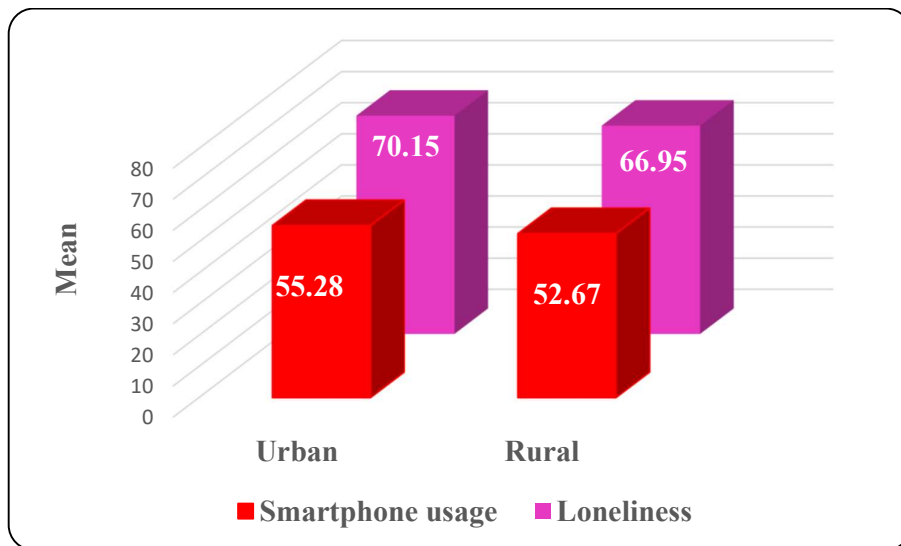
Hypothesis 3: There exists a significant relationship between smartphone usage and loneliness of higher secondary students.

Table 3: Summary of Correlation between the study variables

Variables	N		Smartphone usage	Loneliness
Smartphone usage	320	Pearson correlation	1	0.534(**)
		sig. (2-tailed)	.	0.004
Loneliness	320	Pearson correlation	0.534(**)	1
		sig. (2-tailed)	0.004	.

**Significant at the 0.01 level.

From the data in table 3, it is evident that there is a significant positive relation between smartphone usage and loneliness (r = 0.534) at p < 0.01 level. Hence the formulated hypothesis that there exists a significant relationship between smartphone usage and loneliness was retained.

Major Findings and Discussion

The relationship between Smartphone usage and Loneliness among Higher secondary school students were explored in the current study. The findings revealed significant differences in smartphone usage and loneliness based on gender. The study found that girls exhibit higher levels of smartphone usage compared to boys. This difference can be attributed to the fact that boys tend to engage in more physical activities and spend more time with friends, while girls are more likely to stay at home, leading them to rely more on smartphones for entertainment and social connection. Additionally, girls reported higher level of loneliness compared to boys. Previous studies support this finding, indicating that females tend to experience greater loneliness than males (Beutel et al., 2017; Okwaraji et al., 2018). The study found a strong link between increased smartphone usage and heightened feelings of loneliness, particularly among girls, aligning with earlier research by Choi et al., (2015) and Park & Lee (2014), who also identified a correlation between higher smartphone addiction and loneliness in females. Furthermore, other studies have found that females generally score higher on loneliness measures compared male counterparts (Hysing et al., 2020; Pagan, 2020; Rashmi Singh & Vandana Kumari,

2021). However, some studies (Gursoy, & Bicaki, 2006) did not report significant difference in loneliness based on gender. Bharadwaj & Ashok (2015) also found no significant gender-based difference in loneliness and smartphone addiction.

The study also identified significant differences in the smartphone usage and loneliness based on locality. Higher secondary students belonging to urban schools have higher level of smartphone usage compared to those in rural counterpart, likely due to better access to smartphones and advanced technology in urban area. Urban students generally have more exposure to smartphone applications and technology, which makes them more likely to develop a dependency on their devices. Urban students also reported higher levels of loneliness, because city life is often fast-paced and impersonal, making it harder to form close relationships. With heavy academic demands and limited time for socializing, students struggle to connect with others. These factors combine to increase their sense of loneliness. In contrast, rural students feel less lonely because they live in small communities where people know each other well. They have stronger connections with family and neighbours.

Furthermore, the study found significant correlation between smartphone usage and loneliness among higher secondary school students. The evidence supports the idea that loneliness can lead to excessive smartphone use, which may negatively impact emotional and social well-being. Ha et al., (2008) found that excessive smartphone users often experienced difficulty in expressing emotions and exhibited higher interpersonal anxiety. Similarly, Bian and Leung (2014) demonstrated that individuals who score higher on loneliness have a higher chance of being smartphone addicts. Other studies (Parashkoush et al., 2018; Yalcin et al., 2020) also reported a small but positive relationship between smartphone addiction and loneliness. In line with these findings, Yanhong Zhang et al. (2023) found that loneliness is positively associated with mobile phone addiction. This shows that when students feel lonely, they tend to look for psychological satisfaction, engaging in activities such as playing video games, watching videos, browsing the web, doing reels, or viewing social media content.

Conclusion

In this fast-moving world, smartphones and their usage are unavoidable for everyone. It is generally agreed that smartphone usage has a profound influence on adolescents. The current study highlights the significant impact of smartphone usage on the emotional well-being of students. Specifically, it identifies gender and locality differences in both smartphone usage and loneliness among higher secondary school students. The study also found a positive correlation between smartphone usage and loneliness. Since the usage of smartphones among students has increased to a great extent, our interest is to focus more on the scope through which we can learn about the student's approach towards smartphones and how much it has influenced their lives. The result of this study emphasize the need for greater awareness of the potential negative effects of smartphone usage, particularly among younger generations. As smartphone usage continues to rise, it is essential to implement preventive measures to help students manage their device usage.

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