The Relationship between Smartphone Usage and Quality of Life of higher secondary students in Tiruvallur District

Mrs P. Iniyaval[1*], Mrs Dr. N. Kalai Arasi[2]

[1]Ph.D. Research Scholar,N.K.T. National College of Education for Women,Triplicane,Chennai-600 005.
[2]Associate Professor of Computer Education,Triplicane,Chennai-600 005.

ARTICLE INFO	ABSTRACT
	Smartphones have significantly expanded in use since the turn of the century, influencing various aspects of people's lives, both positively and negatively. The present study aimed to analyze the relationship between smartphone usage and the quality of life of higher secondary students in Tiruvallur District, Tamil Nadu. The study was conducted at four different schools, representing both urban and rural backgrounds. A survey method, combined with stratified sampling techniques, was used for data collection. A smartphone usage scale and quality of life scale, constructed by the investigator, were administered to higher secondary students. To analyze the relationship between variables, correlation analysis, and t-test were calculated. The results revealed a significantly negatively association between smartphone usage and quality of life ($r = -0.261$). Furthermore, significant differences were found in terms of gender for smartphone usage and locality of quality of life. **Key Words**: Smartphone, Quality of life

Introduction

In recent years, technology has played a vital role, particularly in communication. This technological evolution has drastically altered cultural norms and social behavior, especially among students. Smartphones are one of the important and widely used tools among the younger generation. Smartphones, a major component of this technological shift, become an essential tool for the younger generation. These devices, rapidly advancing in capabilities, are widely regarded as a primary source of information and entertainment in today's society (Kumcagiz, 2018; Lu et al., 2018). The allure of smartphones lies in their variety of features, such as internet access, gaming, music, and social networking sites like WhatsApp, Twitter, Facebook, YouTube, Instagram, and Snapchat. In essence, smartphone brings the world into the palm of one's hand, and individuals without a smartphone is considered to be a person who is out of trend "out of loop". However, despite all the benefits of smartphones, they do have several drawbacks, such as contributing to loneliness, anxiety, headaches, blurred vision, difficulty focusing, insomnia, sleep disturbance, and depression.

Quality of life is the overall well-being of an individual, who, in turn, contributes to society. In 2014, the World Health Organization (WHO) defined the quality of life of an individual's perception of life in the context of education, purpose of life, culture, expectations, priorities, and standards. Smartphones have facilitated communication, allowing students to stay connected with friends, family, and peers, thus strengthening social bonds (Lenhart, 2015).

Students with lower quality of life, particularly in terms of emotional well-being, may turn to smartphones as a coping mechanism. Social media, games, and entertainment apps often provide temporary relief from stress, anxiety, or dissatisfaction, leading to higher usage rates. Conversely, students with higher quality of life are likely to use smartphones more purposefully, such as for productivity, learning, or maintaining meaningful connections.

However, excessive use can replace activities that contribute to well-being, such as physical exercises, hobbies, and quality time with loved ones. Additionally, prolonged smartphone use can distract students from academic tasks, leading to reduced concentration and poorer academic performance (Primack et al., 2017). Berryman et al. (2018) also found that extended smartphone use negatively affects impact life satisfaction, happiness, and

a sense of purpose. This imposes both positive and negative impacts on various aspects of life, including physical health, psychological well-being, education, and social relationships.

Need for study

This study is essential to investigate the extent of smartphone usage in society, particularly among higher secondary students. The quality of life can affect smartphone use, with poor well-being making adolescents more vulnerable to smartphone addiction. The prevalence of smartphone usage among students has increased in recent years, exposing them to its potential complications (Aaron, Lee, & Kathryn, 2011; Smith, 2015). Excessive smartphone usage may affect the quality and quantity of face-to-face interaction, potentially affecting social relationships, and social well-being (Primack et al., 2017). The quality of life influences smartphone use, with poor emotional or social well-being often leading to higher levels of smartphone dependency. When students face challenges in their daily lives, they may turn to their phones for comfort or escape, increasing usage. However, to our knowledge, only limited studies have explored the association between smartphone addiction and students' quality of life. Therefore, this study aims to examine the relationship between smartphone usage and the quality of life among higher secondary students.

Review of literature

In 2022, Mohaimeed et al. examined problematic smartphone usage and quality of life among Saudi adults. The study found a significant relationship between smartphone usage and perceived quality of life, using variance analysis and binary logistic regression. Women, singles, individuals, students, and those who used smartphone applications for movies and music reported lower quality of life scores, particularly in terms of physical and psychological health.

Shahrestanaki et al. (2020) explored the relationship between smartphone addiction and quality of life among students at Tehran University of Medical Sciences. Using a stratified sampling method, the study found a significant inverse relationship exists between smartphone addiction scores and the quality of life across physical, mental, and social aspects. The result showed that females, bachelors, students, and married individuals had higher smartphone addiction scores. The smartphone addiction score determines 6% of the variance in quality of life.

In 2017, Rotondi et al. investigated the impact of smartphones on the quality of social interactions and subjective well-being. Their findings revealed that individuals who used smartphones valued time spend with friends less in terms of life happiness. The study found a strong correlation between instrumental variables' estimation to deal with possible endogeneity, also found the positive association between time spent with friends and satisfaction with those relationship, though this association was weaker for individual who frequently used smartphone.

Mei-chun Cheung et al. (2022) examined the influences of smartphone and computer use on health-related quality of life of early adolescents. The study found that the more time adolescents spent using smartphones, the lower their physical and mental health-related quality of life scores. The time spent using smartphones was negatively associated with the physical domain and mental domain of health-related quality of life of early adolescents, whereas the average daily time spent using computers was negatively associated with the mental domain. Hence, early adolescents who spend more time using smartphones and computers are significantly poorer.

Objectives of the study
The objectives of the study are,
1. To find out whether there is any significant relationship between smartphone usage and quality of life of higher secondary students.
2. To find out whether there is any significant difference in smartphone usage and quality of life 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. Quality of life.
2. There exists no significant difference between higher secondary urban and rural school with respect to:
a. Smartphone usage
b. Quality of life.
3. There exists a significant relationship between smartphone usage and quality of life of higher secondary student.

Methodology

A Normative survey method was employed for this study. The stratified random sampling technique was used, with a sample consisting of 320 higher secondary students, who were studying in various higher secondary schools located in both rural and urban areas of Tiruvallur District, Tamil Nadu. For the present study, the investigator developed two scales: the smartphone usage scale and quality of life scale. These tool were administered to higher secondary students. The items in the scale were prepared based on review of relevant theories and literature to the variable and also by discussions with experts in the field. As a result, the scales were developed with the support of theoretical constructs provided by the psychologists.

Following the pilot study, Exploratory Factor Analysis (EFA) was performed to identify the factors for both the smartphone usage scale and the quality of life scale. It was decided to select the items with factor loading greater than or equal to 0.40 for the final tool. Based on this criterion, 30 items of smartphone usage scale were grouped under five factors: Enhance learning, Social media, Communication, Entertainment, and Safety. Similarly, 18 items of quality of life scale were grouped under three factors: Physical health, Psychological, and Social relationship.

Analysis and Interpretation of Data

In the present study, the data collected were analysed using IBM SPSS 23. Descriptive statistics were employed to calculate the mean and standard deviation of the variables. Independent sample t-text were conducted to compare the mean of variables considered in the study. Correlation analysis was performed to explore the relationship between the variables selected for the study.

Hypothesis 1: There exists no significant difference between higher secondary boys and girls with respect to Smartphone usage and Quality of life.

Table 1: Showing the analysis of smartphone usage and quality of life of higher secondary students with respect to gender

Variables	Boys (N =180)		Girls (N = 140)		t value	P
	Mean	SD	Mean	SD		
Smartphone usage	70.64	8.18	74.29	8.46	3.888	0.000
Quality of life	36.19	4.69	36.97	5.02	1.420	0.156

Significant at the 0.001 level

It can be observed from table 1 that the mean difference between higher secondary boys and girls with respect to smartphone usage (t = 3.888; p = 0.000) was found to be statistically significant. And quality of life (t = 1.420; p = 0.156) with respect to gender was found to be statistically not significant. This shows that boys and girls are not similar in their smartphone usage. Hence, the formulated hypothesis there is no significant difference between boys and girls with respect to smartphone usage was not accepted. By comparing mean values, girls have a higher usage of smartphones than boys. Also inferred from the table that there is no significant difference between higher secondary students of boys and girls in quality of life.

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

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

Variables	Urban (N =159)		Rural (N = 161)		t value	P
	Mean	SD	Mean	SD		
Smartphone usage	73.50	8.07	71.89	8.89	1.700	0.090
Quality of life	37.20	4.87	36.06	4.85	2.107	0.036

Significant at the 0.05 level

It can be observed from table 2 that the mean difference between higher secondary urban and rural schools with respect to quality of life (t = 2.107; p = 0.036) was found to be statistically significant. This shows that urban and rural schools are not similar in their quality of life. Hence, the formulated hypothesis there is no significant difference between urban and rural schools with respect to quality of life was not accepted. Boys

have a higher quality of life than girls. There is no significant difference between higher secondary students of urban and rural schools in smartphone usage.

Hypothesis 3: There exists a significant relationship between smartphone usage and quality of life of higher secondary students.

Table 3: Correlation analysis between smartphone usage and quality of life

Variables	Smartphone usage	Quality of life
Smartphone usage	1.000	- 0.261**
Quality of life	X	1.000

** 0.01 level of significance

From the data in table 3, it is evident that there is a significant negative relation between smartphone usage and quality of life (r = - 0.261) at p < 0.01 level. Hence the formulated hypothesis that there exists a significant relationship between smartphone usage and quality of life was retained.

Major Findings and Discussion

The relationship between smartphone usage and the quality of life of higher secondary students were examined in the current study. A significant difference in smartphone usage based on gender was observed. Specifically, the study found that girls reported higher smartphone usage than boys. This aligns with previous research by Choi, et al. (2015), Park & Lee (2014), & Shahrestanaki (2020), which also reported a higher level of smartphone addiction among females compared to males. This difference is likely due to the fact that females tend to develop and maintain the social relationships more actively, often using smartphones to communicate and share information via social media. As a result, females may experience more negative consequences from excessive smartphone use, as they often rely on digital platforms to maintain indirect relationships and stay connected with friends and family. These findings are consistent with those of Beranuy et al. (2009), Mansourian et al. (2014), Toda et al. (2006), and Yaseminejad et al. (2012). On the other hand, some studies, such as those by Alfawareh & Jusoh (2014), suggest that males may be more addicted to smartphones compared to females.

Regarding quality of life, there was no significant difference between boys and girls in this study. This contradicts the findings of Shahrestanaki et al. (2020), who reported a significant gender-based difference in quality of life. Similarly, a study by Chraif & Dumitru (2015) found that males generally reported a higher quality of life than females.

The study also revealed a significant difference in the quality of life of higher secondary students based on locality. Thus, urban students reporting higher quality of life than their rural counterparts. Urban residents generally have better access to education, healthcare, and opportunity, which likely contribute to their higher quality of life compared to rural residents.

There is no significant difference between higher secondary students in smartphone usage in urban and rural schools. This in line with findings by Chandra and Kumar (2016), who found no significant difference in the duration of smartphone use between urban and rural students in India. However, the study found that urban students are more likely to use smartphones for educational purposes than their rural counterparts. A similar study by Amin et al. (2019) in Pakistan also reported no significant difference in smartphone usage between urban and rural students, though urban students were more likely to use smartphones for academic activities than their rural students.

A significant negative correlation was found between smartphone usage and the quality of life of higher secondary students. This findings is consistent with Rotondi et al. (2017) who discovered that positive association between smartphone use and quality of life. Similarly, Gao et al. (2017) found that smartphone addiction was negatively correlated with quality of life among Chinese university students. Furthermore, studies by Amidtaher (2016) and Beranuy (2009) suggest that addiction to smartphone is linked to physical and mental health issues. A lower quality of life can negatively impact smartphone use, leading individuals to rely more on their phones for distraction or escape. This increased use may further affect their well-being, creating a cycle of dependency.

Conclusion

In conclusion, the study highlights the negative relationship between smartphone usage and quality of life. Excessive smartphone use can have detrimental effects on students' life, such as physical health, psychology, and social interaction. It is crucial to provide proper guidance to students on responsible smartphone usage to help them manage their screen time and prevent overuse. This finding is particularly concerning for adolescents, who are especially vulnerable to the negative impact of prolonged smartphone use, given the physiological, psychological, and social changes they undergo. While smartphones have revolutionized

communication and information access, important to acknowledge their potential downsides. By understanding the link between smartphone usage and quality of life, we can help higher secondary school students navigate the digital world responsibly, ensuring that technology remains a tool for growth and well-being, rather than a source of distress. Parents play a critical role in guiding their children toward healthier social media habits and smartphone use to protect their overall well-being. This emphasizes the importance of fostering a balanced lifestyle to promote healthier engagement with technology.

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