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RELATIONSHIP BETWEEN SMARTPHONE ADDICTION, LONELINESS, AND PERCEIVED SOCIAL SUPPORT AMONG COLLEGE STUDENTS

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Abstract
The study aimed to investigate the relationship between Smartphone addiction, loneliness, and perceived social support among college students. A cross-sectional study was conducted among 1st-year and 2nd-year students from various colleges in KP, Pakistan. The data were collected from a sample of 199 college students, including both male and female students from various colleges in KP, Pakistan. The scales used were Smartphone Addiction Scale-Short Version (SAS-SV), UCLA Loneliness Scale, and the Multidimensional Scale of Perceived Social Support (MSPSS) to assess the study variables. Descriptive statistics and Pearson Product-Moment Correlation were used to analyze the data using SPSS 25. An independent sample t-test was also done for gender differences on the variable of loneliness. Findings showed that Smartphone addiction was significantly positively correlated with loneliness. Findings also showed that Smartphone addiction was negatively correlated with perceived social support. Result also showed gender differences on the variable of loneliness as female students had significantly higher scores on the variable of loneliness compared to male students.

Keywords: Smartphone addiction, social support, cross-sectional, SAS-SV, UCLA, MSPSS

Introduction
The 21st Century has seen the expanding development of innovation, leaving an imprint on altogether aspects of a person's life. One of these mechanical progressions is the Smartphone and its various applications that offer speedy access to the Internet and social media through applications like Facebook, WhatsApp, and Twitter. Information technology has changed the way of life of an individual and their innovation appropriation. The novelty in information technology provides a chance to create unique products. This fascination with smart gadgets has resulted in increased interaction of people with technology, which is even greater than with people. Smartphones have developed to the degree of becoming a necessary part of individuals' lives. Smartphones are used for many reasons such as communication, entertainment, productivity, social networking, and gaming (Kwon, M., et al., 2013). Smartphones have supplanted the usual cell phone as well as supplanted PCs and numerous other comparable gadgets. Individuals these days feel inseparable from their Smartphones. In correspondence with the growing development

of novelty and excessive use of Smartphones, one of the major issues that scientists have noticed and are chipping away at is smartphone enslavement.

The word "Addiction" is a Latin word, which means "bound to". Addiction is a real, ongoing reliance on a substance or activity. Glanze et al. (1998) defined addiction as it is an uncontrollable dependence on a substance, habit, or practice to such a degree that termination causes a severe emotional, psychological, or physiological effect." Researchers have given different concepts of addiction. Peele (1985) termed addiction as an uncontrollable or overused activity. Akers (1991) relates addiction as a psychological demand of a drug, which is represented through intolerance, leaving, and dependence. Now, the psychological demand is explained by the habitual behavior represented an addicted person. The addicted person intends to get relief from pain, nervousness, and other behavioral demands such as improved power, relief, control, and self-worth. Doorn (2011) stated that this addiction level is a thought-frustrating and significant finding in understanding the lives of people nowadays.

Smartphone Addiction

Smartphone addiction is one of the disorders that involves the excessive use of smartphones, checking smartphones repeatedly. Individuals who are addicted to smartphones can't spend time without smartphones. Smartphone addiction and mobile phone addiction are not the same. Smartphone addiction has some main criteria based on its several different features (Kwon et al., 2013). Aljomaa et al. (2016) surveyed undergraduate students' addiction level to smartphones and found a high level of Smartphone addiction at 48%. Too much use of smartphones affects a person's day-to-day life, work, and their relationship with other people. Several studies have found that females have a higher prevalence of Smartphone addiction than male participants.

All over the world, the use of smartphones was 1.85 billion in 2014, which is predicted to be 2.32 billion in 2017 and 2.87 billion in 2020 (Cha, S., 2018). Some researchers also observed that the use of smartphones has developed a situation that is gradually affecting the public's mental health and also creating addictive problems. Such too dependent on smartphones makes us "Smartphone addictive". Like internet addiction, Smartphone addiction also has certain symptoms, such as; loss of control, repetitive engagement in actions that give pleasure, negative impact on daily routine, tolerance, craving, and withdrawal when actions are fulfilled. Smartphones make our lives easier, but it also tie us. Smartphone addiction has many impacts on individuals. Excessive use of smartphones not only affects individuals physically, but also psychologically and academically at the same time. Loss of sleep, nervousness, stress, laziness, and depression, which are all associated with internet abuse, have been related to Smartphone usage too. All entities that arouse a person is an addiction. Whenever a habit is changed into a compulsion, it becomes an addiction (Alavi, S.S., et al., 2012). In one study, it is reported that about 40% of adolescents and adults use their smartphones for more than 4 hours per day to make calls and send messages (Aljomaa, S.S., et al., 2016). These people showed more problems in psychosocial, health, and technological dimensions compared to those who use their smartphones less than 4 hours per day (Aljomaa, S., et al., 2016). Some researchers also believed that the use of smartphones and gender are not significantly related (Nishad, P., Rana, A., 2016).

An online study on the Malaysian population found that excessive use of smartphones may lead to physiological and psychological complications when the study was conducted on 409 respondents (Parasuraman, S., et al., 2017). According to the Mobile Marketing Association (2016), the average people spend 3 hours a day using their Smartphones, while the rest of the time they spend watching television and engaging in other media. Many young adults reported that they never turn off their Smartphones. They also sleep with their Smartphone and repeatedly check their Smartphones all through the day.

Therefore, this is termed as being "always on" and for many adolescents and young people it has become the norm (Kuss, D., & Griffiths, M., 2017). Walsh et al. (2008) conducted focus group discussions with 32 young people aged between 16-24 years to identify the psychological benefits that is from the use of using smartphones and whether Smartphone addiction occurred among this group or not. Thematic analysis showed that most young people were extremely attached to their smartphones, exhibiting significant behavioral addiction symptoms as well as numerous benefits to users, where Smartphones were an important part of most young people's lives. Some studies have also showed that individuals who tend to be lonely most of the also lead to Smartphone addiction.

Loneliness

Loneliness is the feeling that people experience in their lives. It is a mood that results from identity crises that is experienced during adolescence. Loneliness is a situation of being away from everyone else. Loneliness may lead an individual to sit alone. Loneliness is mostly experienced during the period of adolescence, but it is not a disorder. Nowadays, adolescents spend most of their time by using smartphones, due to which they have no time for their friends and family, which causes a decreased number of friends and causes them loneliness. Which are the individuals' unpleasant experiences caused by the degradation of quality and quantity in social relations? In order to relieve this loneliness, adolescents may start using Smartphones, which have become one of the irreplaceable elements in our lives. When people have a dependency on smartphones, they feel alone in any event, or even when many people are around them, but they still feel alone. Loneliness is defined as perceived deficiencies in individuals' relationships in both quantity and quality (Russell, D., et al., 1979). Such deficiencies happen when ''a person's network of relationships is either smaller or has less satisfaction than the person desires'' (Peplau, L A., et al., 1979). Previous studies have found an important relationship between loneliness and deficits in social interaction, especially when communicating with others (Spitzberg, B H., & Canary, D., J., 1985). Loneliness is observed to have a significant connection with Smartphone fixation (Bian, M., & Leung, L., 2014). As one has a high score in loneliness, he/she will have a higher opportunity to be a Smartphone addict (Bian, M., & Leung, L., 2014).

Loneliness is one of the emotional problems that individuals go through in adolescence. Loneliness is a very painful internal emotion when a person has plainly insufficient social connection, either in terms of quality or quantity. This distressing experience is often accompanied by several important traits, such as "no sense of value, emptiness, loss of self-control, and personal hazards"

(Ren, Y., &Ji, B., 2019). Previous studies have shown that loneliness enhances teens' need for connection and sense of worth, but melancholy and separation are often highly associated to loneliness. The study of adolescent loneliness is one of the most recent research topics in the disciplines of psychology and education. Among the many factors that affect someone's loneliness, researchers have placed a lot of attention on the role that perceived social support plays (Bian, M., & Leung, L., 2014).

Perceived Social Support

Perceived or subjective social support constitutes an important aspect linking social networks and quality of life. One related concept – loneliness – represents the cognitive awareness of deficiency in one's relationships, involving affective reactions of sadness, longing, and emptiness, associated with a felt deficiency of contact with people and socially dissatisfied (Asher, S. R., & Paquette, J.A., 2003). Perceived social support is defined as the level of satisfaction people feel with regard to the respect, understanding, and support that they perceive in their living environment (Zhou, K., Li, H., Wei, X., Li, X., &Zhuang, G., 2017). For adolescents, their main social support comes from their parents, that is, the family system. However, peer relationships become an increasingly important source of social support with the increase in age and shift in life focus. Social support plays an important buffering role in adolescents' social adaptation and can reduce the incidence of mental illness, such as loneliness. According to the social-cognitive perspective, perceived social support promotes self-esteem, which subsequently leads to positive mental health outcomes (Ioannou, M., Kassianos, A. P., &Seymour, M., 2019). Perceived social support is suggested to be related to positive thoughts about one's; thus, a direct and indirect impact on mental well-being through self-worth.

Social scientists have been analyzing how changes in social communication technologies affect the creation and maintenance of social support ties for users (Kraut, R., Patterson, M., Lundmark, V., Kiesler, S,. Mukhopadhyay, T., Scherlis, W,. 1998). These studies initially focused on communication technologies such as accessing the Internet through residential equipment – desktop computers and telephone and cable connections (Herrero, J., et al., 2019). Most recent studies have analyzed the use of mobile phones and Smartphones (Herrero, J., et al., 2019).

The mobile revolution has changed our daily experiences, including the way we work. Many studies investigate the addition of Smartphones because of trying to maintain or boost the levels of social support using information technologies. The main area of research in the field is the need to make support ties with the user, which leads to the wider and more widespread use of terminals, which in the end can lead to behavioral addiction.

Several cross-sectional investigations have recognized that individuals with lower levels of social support also show higher levels of Smartphone addiction (Kwon, M., et al., 2011). Herrero et al. (2019) found a representative sample of 416 Smartphone users in a Spanish national study; they found that previous levels of addiction affect the evolution of social support.

Thus, prior research on early adolescence focused on clinical aspects such as depressive symptoms, outcomes of loneliness trajectories, and programs of intervention. Not as much attention has been paid to analysis of this construction from the perspective of positive psychology, taking into consideration the protective factors, mediators, and predictors. Despite the extensive literature on psychological correlations, predictors, and effects of perceived social support and loneliness on well-being, relatively little attention has been paid to studying simultaneously relationships between perceived social support, loneliness, self-efficacy, and self-esteem in adolescents. This study aims to find the relationship between Smartphone addiction, loneliness, and perceived social support.

Rationale

Smartphone addiction nowadays has become a seriously growing issue, especially among adolescents and early adults, such that Excessive use of smartphones affects the individual's day-to-day life, work, study, and their relationship with people around them (Aljomaa, S. S., et al., 2016). Moreover, it is found that it is equally harmful for those suffering in their psychological makeup. Studies on Smartphone addiction have publicized across the globe in different fields of social sciences, but has not been discussed scholarly by the researcher in the field of psychology in Pakistan properly, in this regard this current study helped to find the relationship of Smartphone addiction with loneliness and perceived social support among the Adolescents/College students as well as, highly benefited the scientific community of psychological research and local psychologist in Pakistan. In this current study, the researcher focused on Smartphone addiction, loneliness, and perceived social support as people became dependent upon smartphones due to loneliness, which led them to Smartphone addiction (Bian, M., & Leung, L., 2014). Social Support is an important determinant that may lead to Smartphone Addiction. So there was a relationship between Smartphone and perceived social support. By determining that Social Support leads to Smartphone Addiction in our area of interest, this study found it at an early age.

Literature Review

The Relationship between Smartphone Addiction, Loneliness, and Perceived Social Support

To investigate the relationship between shyness, loneliness, and smartphone use in predicting the signs of smartphone addiction and social capital, Bian and Leung (2016) performed research. Through an online poll, 414 university students from Mainland China provided the data. It has been determined via the exploratory factor analysis that there are five signs of addiction: inability to regulate need, fixation, feeling concerned or lost, and disdain for negative outcomes. According to the results, those who scored highly on shyness and loneliness would be hooked on smartphones.

In 2017, research was carried out by Dikec, Yalniz, Bektas, Turhan, and Cevik. In a sample of high school students, the research sought to investigate the connection between Smartphone addiction and loneliness. Smartphone Addiction Scale-Short Form and the UCLA Loneliness Scale were used to obtain the data. The findings indicated a strong link between smartphone addiction and feelings of loneliness.

In 2017, Shirani performed research. The research sought to determine the association between mobile phone addiction, social support, and loneliness among Khash students. 250 male and female high school students in the fourth grade were chosen for this descriptive research, which was done. In the research, stratified random sampling was performed. To determine the correlation between these characteristics, they used three widely used surveys on social support, mobile phone addiction, and loneliness. The findings indicated a strong positive association between mobile phone addiction and loneliness. The study's findings also revealed a substantial inverse relationship between social support and mobile phone addiction. In 2018 research by Qiaolei Jiang, Yan Li, and Volha Shypenka looked at 438 foreign students studying in China. The research sought to determine how individualism, loneliness, smartphone usage, and addiction to smartphones interacted. As a consequence, it was determined that foreign students who spend many years studying in China are at a very high risk of developing acute loneliness and smartphone addiction. Students from many nations who had a lesser level of individuality showed a greater amount of loneliness, which prompted smartphone usage and addiction. One of the primary reasons for smartphone addiction was shown to be loneliness.

Necdet Konan et al. (2018) researched university students to determine the link between perceived social support and Smartphone addiction. The sample consisted of 496 senior students from Turkey's Inonu University. The Smartphone Addiction Scale-Short Version and the Multidimensional Scale of Perceived Social Support (MSPSS) were used to gather data (SAS-SV). The findings indicated a poor correlation between perceived social support and smartphone addiction among college students. In 2019, Akturk and Budak carried out research. It sought to understand how social support and smartphone addiction relate to one another. Participants' responses on the Multidimensional Scale of Perceived Social Support and the Smartphone Addiction Scale were utilized to compile the data. The findings indicated that smartphone usage among nursing students was quite high and that having a high score on the Smartphone Addiction Scale had a detrimental impact on one's personal, academic, and social life.

Research on smartphone addiction and loneliness was done in 2019 by Diana Savitri Hidayati. The purpose of the research was to determine if teen loneliness and smartphone addiction are related. 356 Muhammadiyah Malang University students provided the information. The pupils were between the ages of 18 and 22. The Smartphone Addiction Scale (SAS) and the R-UCLA Loneliness Scale were used to gather data. The findings showed a strong positive correlation between Smartphone addiction and loneliness. In 2019, Juan Herrero did research. The objective of the longitudinal research was to determine if there is a connection between smartphone addiction and perceived social support. Over three years, the sample comprised 241 Spanish-speaking smartphone users. The findings demonstrated a harmful correlation between smartphone addiction and perceived social support.

In a study done in 2020 by Kara Nuriye Seyma et al., the researchers looked at how students at the faculty of sports sciences related loneliness to smartphone addiction. Correlational surveying was the research methodology employed. There were 281 students in the study; 61 of them were female and 220 were male. The research also sought to see if there were any gender variations in

smartphone addiction and loneliness. To investigate the connection between smartphone addiction and loneliness among students, the Mobile Telephone Addiction Scale and Loneliness Scale were employed. The results indicated that there was no discernible gender difference in smartphone addiction and loneliness. A statistically significant positive association between smartphone addiction and loneliness was also found.

Gender Differences in Loneliness

Wedaloka and Turnip conducted a study in 2019. The study aimed to find out gender differences in the experience of loneliness among adolescents in Jakarta. The study included 662 participants, of whom 318 were male and 344 were female students. The age ranges of the students were between 15-20. Students were selected from five schools. The method used for selection of the sample was multi-stage random sampling. The scale used in the study was 6 6-item (short) De Jong Gierveld Loneliness Scale. Findings showed that there were significant differences in loneliness between male and female adolescents. Female adolescents had significantly higher scores of loneliness compared to male adolescents.

Methodology

The present study aimed to find out the relationship of Smartphone addiction, loneliness, and perceived social support among college students. This study also focused on finding out gender differences in Smartphone addiction and loneliness.

Objectives

The study aimed at

1. To investigate the relationship between Smartphone addiction and loneliness among college students.
2. To investigate the relationship between Smartphone addiction and perceived social support among college students.
3. To examine the gender difference in loneliness.

Hypothesis

Hypothesis 1:

There will be a significant positive relationship between Smartphone addiction and loneliness among college students.

Hypothesis 2:

There will be a negative relationship between Smartphone addiction and perceived social support among college students.

Hypothesis 3:

There will be a significant gender difference in loneliness.

Operational Definitions

Loneliness

Loneliness is defined as "the perceived discrepancy between one's desired level of social connection and their actual level of social connection (Russell, D. 1996).". In the current study,

scores above `40` on University of California, Los Angeles Scale for Loneliness (UCLA) indicates loneliness (Russell, D,.Peplau, L.A,.&Freguson, M.L,. 1978).

Perceived Social Support

Perceived social support refers to how individuals perceive friends, family members, and others as sources available to provide material, psychological, and overall support during times of need(Zimet, G. D., & Powell, S. S., 1990). In the current study, the score range is between 12 and 84 on Multidimensional Scale of Perceived Social Support (MSPSS); the higher the score, the higher the perceived social support (Zimet, G. D., et al., 1990).

Smartphone Addiction

Smartphone addiction refers to obsessive phone use behaviors such as repetitive checking for messages or updates; tolerance or longer and more intense of use; withdrawal or feelings of agitation or suffering without the phone; and functional impairment or interference with other life activities and face-to-face social relationships (Kwon, M., et al., 2013). In the current study, a high score on the Smartphone Addiction Scale-Short Version (SAS-SV) will be considered a higher level of Smartphone addiction (Kwon, M., et al., 2013).

Instruments

The following instruments were used for the research study.

UCLA Loneliness Scale (version 3)

University of California, Los Angeles Loneliness Scale, developed by Daniel Russell in 1996, comprises 20 20-items. It measures how often a person feels disconnected from others. The responses are rated on a 4-point rating scale (1= never; 4 = always) with options ranging as; 1 = never; 2 = rarely; 3 = sometimes; 4 = always. It is highly reliable both in terms of internal consistency (coefficient ranges from .89 to .94) and test-retest reliability over 1 year (r=.73). UCLA loneliness scoring is done in the following manner. Item 1,4,4,6,9,10,15,16,19, and 20 scores were reversed, i.e, 1 is given for 4, 2 for 3, 3 for 2, and 4 for 1. Finally, all the scores were summed up, and it produced a possible range of 20-80, with higher scores indicating greater loneliness. A loneliness score below 40 is an indication of 'rarely lonely', and scores above 40 indicate 'being lonely'.

The Smartphone Addiction Scale-Short Version (SAS-SV)

The Smartphone Addiction Scale-Short Version was developed by Min Kwon and colleagues in 2013 and comprises of 10-items. It measures Smartphone addiction. The responses are rated on a six-point Likert scale (1: "strongly disagree" and 6: "strongly agree") based on self-reporting. The scale is reliable, with the internal consistency and concurrent validity of SAS-SV verified with a Cronbach's alpha of 0.911.

Multidimensional Scale of Perceived Social Support (MSPSS)

Multidimensional Scale of Perceived Social Support was developed by Gregory Zimet and colleagues in 1988, and comprises 12 12-items. It measures the perceived social support across

three dimensions, family, friends, and significant others. The responses are rated on a seven-point Likert scale (1: "very strongly disagree" and 7: "very strongly agree") based on self-reporting. The MSPSS has strong internal consistency for the measure of total score (0.93-0.98) and for the subscales (0.91-0.81). The MSPSS has good reliability with a Cronbach's alpha of 0.85-0.91.

Procedure

The present study was conducted on 199 students from different colleges, including both males and females of 1st year and 2nd year. Purposive sampling method was used in order to collect data from only those students who use smartphones. A sample of 199 college students are selected for final data collection. Participants were required to sign the informed consent prior to the administration of the questionnaire. The participants were also informed about the purpose of the study. Administration of the questionnaire required only 10-15 minutes for its completion. The collected data was further analyzed through SPSS-25 version.

Analysis Plan

Data were analyzed through SPSS 25. Pearson's Moment correlation was used to find out the proposed relationship between variables, and a T-test was used to find out the gender differences in variables. Main study was conducted in order to test the hypotheses. In this phase, the data were collected from students of different colleges, including both males and females of 1st-year and 2nd-year students (n=199). They were asked to give their consent and were requested to fill out the questionnaire. At the end, the students were thanked for their cooperation.

Sample

The study was conducted on individuals, including college students (1st year and 2nd year). The sample size was 199 males and females. Public and private sector colleges were approached during data collection.

Results

Table 1: Socio-demographic Characteristics of Participants (n=199)

Variables	N	%
Gender		
Female	89	44.3
Male	110	55.7
College Year		
First Year	96	48.2
Second Year	103	51.8
Age of Participants		
12	1	0.5
15	1	0.5
16	3	1.5
17	59	32.2
18	64	29.6
19	38	32.2
20	21	19.1

21	10	10.6
22	2	1.0

Note. *N*=199(*n*=89 for Females and *n*-110 for Males)

Table 1 showed that the sample consisted of both genders, male (110) and female (89), with a frequency of 44.3 female students and 55.7 male students. The college year of the participants was 96 (1st-year students) and 103 (2nd-year students). The age range of the participants was 12 (min) and 22 (max).

Internal Consistency of the Instruments

Cronbach's Alpha Coefficients of SPSS 25 version were used for Variables in the main study to measure the internal consistency of the instruments.

Table 2: Psychometric Properties for Smartphone Addiction, Loneliness and P. Social scales

Scale	*M*	No. Items	*SD*	Range	Cronbach α
SAS-SV	39.16	10	8.83	10-60	.79
UCLA loneliness	51.48	20	8.82	20-80	.74
MSPSS	57.34	12	14.70	12-84	.89

Note. SAS-SV (Smartphone Addiction Scale-Short version), MSPSS (Multidimensional Scale of Perceived Social Support), UCLA (University of California, Los Angeles Loneliness Scale)

Table 2 showed that all the scales used in Study had an acceptable reliability value (>.5). The reliabilities were good and acceptable.

Table 3: Skewness and Kurtosis for Study Variables

Scales	No. of Items	M	SD	Skewness	Kurtosis
SAS-SV	10	39.16	8.85	-.438	.120
UCLA Loneliness Scale	20	51.28	8.36	.284	.933
MSPSS	12	57.34	14.70	-.687	.668

Note.SAS-SV (Smartphone Addiction Scale-Short version), MSPSS (Multidimensional Scale of Perceived Social Support), UCLA (University of California, Los Angeles Loneliness Scale)

Table 3 shows value of skewness and kurtosis and the data showed that the values of skewness and kurtosis wasacceptable.

Correlation between Smartphone Addiction and Loneliness of Students

Table 4a: Pearson correlation among Smartphone addiction and loneliness (N=199)

Variables	1	2
1. SAS-SV	.342**	1
2. UCLA Loneliness	1.342**	

Note. **. Correlation is significant at the 0.01 level, SAS-SV (Smartphone Addiction Scale-Short

version), UCLA (University of California, Los Angeles Loneliness Scale)
Table 4a showed the moderate positive correlation between smartphone addiction and loneliness, which is significant (p<.05).

Table 4b: Pearson correlation among Smartphone addiction and Perceived Social Support (N=199)

Variables	1	2
1.SAS-SV	1	-.013
2. MSPSS	-.013	1

Note. Correlation is non-significant at the 0.01 level. SAS-SV (Smartphone Addiction Scale-Short version), MSPSS (Multidimensional Scale of Perceived Social Support)
Table 4b showed the negative correlation between Smartphone Addiction and P. Social support was non-significant (p>.05).

Table 5: Independent sample t-test shows difference in Loneliness

Variables	Males		Females		t(199)	P	%CI	
	M	SD	M	SD			LL	UL
Loneliness	50.2	7.49	52.61	9.20	.043	.019	-4.741	-.073

***Note*:** p>.05, M=Mean; SD=Standard Deviation; CI=Confidence Interval; LL=Lower limit; UL=Upper Limit.

Table 5. An independent-samples t-test indicated that there was a significant difference between male (M = 50.02, SD = 7.49) and female (M =52.61, SD =9.20), t (199) = .019, p <.05, on the variable of Loneliness.

Discussion
The current research study was carried out to explore the relationship between Smartphone addiction, loneliness, and perceived social support among college students. The present study also aimed to investigate the gender differences in loneliness among college students. In order to conduct analyses of the present study data for acquiring these objectives were carried out by using Statistical Package for Social Sciences version 25 (SPSS, 25).

The socio-demographic characteristics of the participants are given in Table 1. The analyses for the reliability of the scales (Table 2) demonstrate that all the scales used in Study have an acceptable reliability value (>.5). The reliabilities are good and acceptable. All the scales showed good internal consistency. Pearson Product-Moment correlation coefficient (Table 4a) was used to explore the relationship between Smartphone addiction and loneliness. The results showed a significant positive relationship between Smartphone addiction and loneliness (p<.05). which means that there is an impact of Loneliness upon Smartphone Addiction, which supported the Hypothesis 1 ("*there will be a significant positive relationship between Smartphone addiction and loneliness").*

Findings carried out from this research study is consistent with the previous findings defined in the literature review, a study carried out by Shirani in 2015 to find out the relationship between Smartphone addiction and loneliness. The results showed a significant positive correlation between Smartphone addiction and loneliness.

The second hypothesis, which states that there would be a negative association between smartphone addiction and perceived social support, was also tested using the Pearson Product-Moment correlation coefficient Table 4b. A non-significant negative association between smartphone addiction and perceived social support was found in the results.

Juan Herrero conducted a study in 2019 to determine the association between Smartphone addiction and perceived social support, and the results are similar to earlier findings described in the literature review. The findings indicated a poor correlation between Smartphone addiction and perceived social support.

There would be a substantial gender difference in loneliness, according to the third hypothesis, which was tested using an independent sample T-test from table 5. The findings revealed a large gender gap on the loneliness measure, with female students scoring much higher on loneliness than male students.

The results of this study are in accordance with those of a study conducted in 2019 to determine if there are gender differences in loneliness, as stated in the literature review. In comparison to male adolescents, the findings revealed that female adolescents considerably scored lonelier.

Conclusion

The results from the present study indicated that there was a significant positive relationship between Smartphone addiction and loneliness. There was a non-significant negative relationship between Smartphone addiction and perceived social support. The results also showed that there was a significant gender difference on loneliness and no gender difference on Smartphone addiction.

Implications

- This study will help to explore the relationship between Smartphone addiction, loneliness and perceived social support.
- This study will also help understand the impact of loneliness and perceived social support upon Smartphone addiction.
- This study will highlight to teachers and parents the need of awareness and educating the children of such serious issues.

Limitations and Suggestions

- The study is not subject to be generalized to overall population.
- There are more studies required to determine the related factors of Smartphone addiction among the students.

Ethical Consideration

The following ethical issues will be taken into consideration:

- Full consent was obtained from the participants prior to the study
- The protection of the privacy of research participants has to be ensured.
- Anonymity of individuals and organizations participating in the research has to be ensured.
- It was made sure to the participants that their data will be kept confidential and will only be used for the study purposes.

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