REFLECTIONS OF SMARTPHONE OVERUSE ON THE SOCIAL BEHAVIOR OF UNDERGRADUATES DURING THE PANDEMIC OF COVID-19

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Abstract

The advancement in technology and the introduction of smartphones have drastically changed the lives of individuals, especially the youth, in the past few decades. Smartphones today are not only used for communication but for many other fundamental activities and academic tasks. As the capabilities of smartphones continue to grow with each passing day, the prevalence of psychological problems associated with the patterns of smartphone usage also increases. This study explores whether the time we spend on smartphones has any effect on our social interactions, and how these effects vary with gender and field of study. To assess the intensity of smartphone overuse and social anxiousness, the short version of Smartphone-Addiction Scale and Interaction-Anxiousness Scale was used, respectively. Cross cross-sectional survey was used to collect data from 250 undergraduate students (m=125, f=125). Descriptive analysis, Pearson correlation, regression analysis, and t-tests were used to test assumptions. The results revealed that smartphone overuse was significantly and positively correlated to social anxiety. Male participants and the students of social sciences reported higher levels of smartphone overuse, and excessive smartphone usage had a negative influence on the social interactions of young adults.

Keywords: Smartphone Overuse, Social Interactions, Undergraduate Students, COVID-19 Pandemic, Social Anxiety, Smartphone-Addiction Scale, and Interaction Anxiousness Scale.

Introduction

A confederate of Motorola developed the first cellphone on 3rd April 1973. With time, the capabilities of cellular phones have flourished and have turned out to be a requirement for every person. Various cell phones today can download applications that permit messaging, sending Emails to other cell phones, accessing work and school sites, as well as connecting on the famous social-networking sites (Richkym, 2021). The life of individuals in the last ten years has become heavily dependent on mobile phones as they can be used for making everyday schedules, setting reminders for routine exercises, and fulfilling commitments. Since most of the communication is carried out via cellphones, it is also considered as a reason for distractions (Westenberg, 2015). Hence, Young adults these days intend to invest time with others in person but end up being together on their phones.

The tech company IBM is broadly credited with introducing the world's first smartphone, named Simon, in 1992 (Tweedie, 2015). The term 'Smartphone' was used for the first time by Ericsson in 1997, and the first model, called R380, was released in the year 2000 (Alfawareh & Jusoh, 2014). They provide a number of advanced features like camera function, sound as well as video recording and a data function, to name a few. These features help young adults as well as students of different age ranges to study effectively as well as creatively.

Smartphones today are believed to be introduced in 2007 when Apple Inc. launched the first generation of iPhones, but to be precise, smartphones were marketed for the first time in 1993 (Sarwar & Soomro, 2014). Three phases can summarize the development of Smart phones. The direction of first stage was towards

cooperatives, and the parameters required by the mass market were considered primarily for designing the style and functionality of smart phones. The second stage emphasized on lowering the costs and introducing advanced functions in smart phones to attract buyers in the general consumer-market. Stage three began in 2008 which focused on the improvement of mobile phones in every possible way, such as improving the quality of mobile screens and operation period (Pugh, 2017).

Smartphone usage can help manage mood swings and improve the level of satisfaction. However, its dependency can cause adverse complications in different facets of life i.e emotional, interpersonal, economic, and mental well-being (van Deursen et al., 2015). The function of quick texting and sending e-mails on smart phones has made them advantageous to considerable lot of our bustling lives. In simple words, some clicks and flicks have simplified our life to a great extent. Although smart phones have many facilitating functions and applications, some negative implications of a smartphone need to be studied e.g how can smartphones overuse influence our interactions in a social setting? Moreover, how do smartphones impact our lives negatively and positively?

Over time the use and misuse of smartphones both have dramatically increased. Therefore, the present research will evaluate the addictive usage of smart phones and its impact on social behaviour of undergraduates at the time of second and third waves of COVID-19 pandemic.

Problem Statement
Due to excessive usage of Smartphones nowadays, individuals find it hard to interact directly, and that is because they rely on the intercommunication services provided by phones. Individuals whose age is between 18-24 are at high risk of adopting the addictive behaviour of smartphone overuse and are often misguided because of their over-dependence. As a consequence of misunderstandings, they are likely to be seen as miscommunicating and spreading the misunderstandings furthermore. Young adults these days are heavily dependent on smartphones for communication through different mediums. According to (Katz & Aakhus, 2001), the novelty in smartphone technology attracts individuals even more, but somehow provides us with an opportunity to examine those aspects of adults' communication, that wouldn't have been possible otherwise. As stated by (Gao et al., 2016), the overuse of smartphones and social media networks are often said to result in psychological problems like social anxiety and loneliness, etc.

Research Questions
This research will address the following questions:

- Why does excessive smartphone usage restrict direct interactions?
- Can smartphones produce social anxiety in your social settings?
- How many of you are aware of the time you spend while using smartphones?

Hypotheses
To summarize, the following are the hypotheses for the present research study:

- Smartphone overuse will be directly correlated to social anxiety.
- Smartphone overuse can affect the social interactions of young adults during the pandemic of covid-19.
- Undergraduates of the social sciences are more likely to report a high level of smartphone addiction as compared to the undergraduates of other sciences.
- Females will report more smartphone addiction than males during the pandemic of covid-19.

Objectives

The present study is designed to fulfil the objectives mentioned below;

- To find out whether real-life social interactions of individuals particularly of the age group 18-25 are affected by smartphone overuse and in what ways.
- To determine the link between excessive smartphone usage and social anxiety.
- To find out the ratio of smartphone overuse among males, females, and undergraduates of social sciences and other sciences.

Literature Review

Smartphones affect the lifestyle and behaviour of mankind in several ways. However, little is known about the influence of smartphone overuse on socialization. Therefore, this section will present the studies related to the thoughts and ideas spinning around this theme to include social tension as a consequence of significant reliance on smartphones, powerlessness to hold ordinary discussions, and less contact with the rest of the world.

Smartphone

A portable device that functions in the same way as computers, generally with wireless internet, touch screen, and a system program able to download apps, is known as a smartphone. A study conducted by (Drago, 2015) suggests that Smartphones have modified the way of living, especially the way people communicate and associate with others all over the world. Smart phones these days are connecting people in multiple means and methods as compared to a computer. For instance, the renowned social media applications have made intercommunication easier for everyone, specifically for youth, as they are accessible and easy to use. Despite the easy access to social media, smartphones have benefits as well as drawbacks. Hence, the present study will examine some of the adverse consequences of smartphone overuse related to social behavior.

Smartphone Overuse

Several factors lead to the increase in the obsessive usage of smartphones, like social needs, societal consequences, and the handiness of a smartphone mainly. Accessing the required information is an effortless job for everyone in this era, precisely because of the habituated use of smartphones. Gender differences regarding smartphone dependence were investigated in a study conducted by (Weiser, 2000) which indicated that men are less prone to adopt the disruptive behavior of smartphones overuse than women. Similarly, (Bianchi & Phillips, 2005), in their study, also discovered that male students at the university level have less vulnerability to overuse smartphones as compared to female students for keeping up with interpersonal connections.

Another survey demonstrates that Smartphone overuse has a direct connection with the needs of society (Sapacz et al., 2016). Such societal needs require everyone, including students, to rely on the overuse of smartphones. As a result, people can be misguided by the undependable realities of current events highlighted on websites of social networks. Thus, making it complicated for persons to identify genuine from crooked data. In addition, the productivity of individuals who are addicted to the usage of social networking sites and smartphones declines. However, smartphone overuse can also 'distract' students during their course of work (Al-Harrasi & Al-Badi, 2014).

Social Isolation and Social Anxiety

Smart phones have substituted the usage of computers because of their helpful proficiencies like portability and communication capacities. Therefore, smartphones have become a significant part of our daily way of living. Many research workers have conducted studies to explore the connection of smartphone overuse with an individual's personality, sentiments, and feelings. Two significant attributes i-e loneliness, and societal anxiousness, are found to have adverse correspondence with the addictive use of the mobile phone. These two factors can contribute to a lot of negative impacts on our lifestyles. For example, unhappy relationships can result from social isolation and social anxiety.

An extraordinary, inescapable fear of rejection, negative comments, or acting in a disgraceful way in a social setting is known as social anxiety (Blumenthal et al., 2011). In a study conducted by (Gao et al., 2016), the elements of social anxiousness and social isolation in individuals who were addicted to their smartphones were tested utilizing the Wilcoxon Mann-Whitney test. Consequently, individuals with high degrees of social anxiousness were noticed to call others at night but scarcely receive calls from others. This evidences that these people preferred Smartphone usage over talking to others. To the extent loneliness is concerned, the people scantly got engaged in calls regardless of the circumstance. On the other hand, (Cherry, 2017) affirms that the overuse of smart phones can display the traits mentioned in the Big-Five model of personality. The previously stated model includes neuroticism, agreeableness, openness, conscientiousness, and extraversion.

Stress in a social situation

The overuse of smart phones can result in many negative consequences, such as stress in a social situation. Some maladaptive propensities can also be attributed to the over-dependence on smartphones for communication purposes. Adventitious behavior that incorporates persistent coincidental desires for checking the phone repeatedly and aimlessly on some unacceptable occasions is said to come from the overuse of smartphones (Sapacz et al., 2016). As smartphone overuse can prompt addictedness in our behaviors, feelings become possibly the most crucial factor. The over-dependence on smart phones, in turn, can foster distress in a social setting where the smartphone is not accessible. Therefore, individuals who develop social stress can hardly communicate in a societal situation on the off chance that the smartphone isn't there to guide them.

Problematic Smartphone Usage

Studies conducted on smartphone addiction recognized three major characteristics of smartphone addiction: "People who are addicted to smartphone always keep their smartphones on; they tend to use their smartphones even when they have a land-line at home; and they commonly face financial and social difficulties due to their excessive smartphone usage" (Roos, 2001) (Hussain & Sheffield, 2016). These studies also identified the troublesome features of excessive smartphone usage amongst the young generation (Beckhusen & Resmini, 2016) (Bianchi & Phillips, 2005; Monk et al., 3 2004; Palen et al., 2001; Paragras, 2005). According to (Griffiths, 2005), Smartphone addiction may even be termed as a behavioral addiction that involves machine and human interaction. Moreover, (Grant et al., 2010) concluded that tolerance, salience, mood modification, relapse, problems, conflict, and withdrawal are the seven essential characteristics of behavioral addictions. Whereas, (Lin et al., 2014) on the other hand emphasized on the four important characteristics of the problematic usage of smartphone, which includes, tolerance, compulsion, withdrawal, and functional impairment.

(Divan et al., 2012): These days, the smartphone has many cultivated characteristics for a user; people can utilize these devices for storing their information, reminiscing, photography, and recording videos. Not only that, but smartphones also permit individuals to access a great deal of prime and unpaid applications that

may include navigational software, social media apps, on stream games, e-mailing, and web-based connectivity. However, if the smartphone users are children then they can display behavioural issues like a mental distraction, temperament, indolence, and nervousness, and with the increasing age of children, these problems would undoubtedly worsen.

A smartphone is an imperative device for learning, which is regularly alluded to as mobile learning or E-learning. (Mahamud et al., 2015) characterized a smartphone as "a mobile phone with advanced computing ability and connectivity than a feature phone which has restricted functionality".

(Ifeanyi & Chukwuere, 2018) put forward a hypothesis that says that smartphone usage can have both weaknesses and strengths depending upon its utilization. While elaborating on the weaknesses of smartphone utilization, the author highlights that overuse of smartphones can adversely distract students of all levels. For example, individuals addicted to their mobile phones tend to keep themselves updated all the time by persistently checking their phones. As a result, the concentration is mainly affected and, it is less likely for students to pick the key points of the lesson given by the professor because of the distraction caused by smartphones.

(Melinda, 2020): Furthermore, recent findings conclude that the overuse of smartphones can be held accountable for plenty of negative impacts on health in all measures. For instance, it can affect both the social and psychological aspects of our lives. Countless users of Smart phones these days make sure to check their phone as soon as they rise up and mandatorily before going to bed.

This study, therefore, intends to investigate the connection of psychological issues with smartphone overuse. Addictive use of smartphones tends to increase loneliness, depression, anxiety, and stress. It also exacerbates attention deficit disorders and diminishes one's ability to concentrate and think creatively. In addition, smartphone overuse can disrupt healthy sleep patterns which in turn roots for several other physical and mental health problems (Melinda, 2020).

Correspondingly, (Leung, 2008) also explored that smartphone overuse is linked to many psychological attributes among young adults. According to his study, the individuals who used smartphones improperly scored low on the self-esteem scale. A study conducted in the year 2009 on 10,191 young adults in Southern Taiwan investigated the link between excessive use of smartphone, depression, and functional impairment. As a result, 36% among the total adults demonstrated symptoms of withdrawal, the other 27% spent most of their time with phones, 18% attempted to diminish their smartphone use but were unsuccessful, and the remaining 10% struggled with attachment problems. (Tang et al., 2008).

Smartphone Overuse in Covid-19 Pandemic
Due to the pandemic these days, the use of smartphones has been significantly multiplied and has become a prerequisite as it upholds learning both online and offline. The material once stored on a smartphone can be accessed at any time and in any place in the form of symbols, pictures, animations, Microsoft, PowerPoint, Pdf, and excel files. Both lecturers and learners can easily access the necessary information via internet connectivity. The educational abilities, learning processes, and imaginative skills of pupils have all progressed due to the versatile usage of smartphones today. Another fascinating thing about it is that Smart phones enable individuals to secure educational resources required for all semesters. Smart phones proved to be helpful in many ways. For instance, students can prepare for their examinations anywhere in the absence of computers and books. Moreover, students can get into their classes anytime, independent of their location. Smart phones not only grant students to store study material but also assists them to get checked out, enroll for educational institutes and to conduct seminars using a relegated or enlisted

framework to learn the management, and can have a group discussion digitally using various programming's as Google meet, Zoom, and so on (Darko-Adjei, 2019).

Because of the coronavirus episode, the public authority of Pakistan like numerous different nations forced a lockdown to contain the spread of the coronavirus. This lockdown incorporated the closure of instructive foundations, educational institutes, markets, and social foundations to restrict development. As per the new investigation of (Fegert et al., 2020), such limitations on the contact and isolation of individuals affected the daily standard and mental prosperity of people altogether.

Even before the implementation of lockdown due to the pandemic, many studies have reported high usage of internet, smartphone and social media applications such as Instagram, Facebook, and Twitter to name a few (Kırcaburun & Griffiths, 2019). Additionally, the latest investigations have likewise revealed an increment in Nomophobia in Turkish youths (Gezgin & Ümmet, 2021), which is entitled as "fear of being without a cellphone", this term was instituted by YouGov UK (2008, 2017) (Kanmani, 2017). These studies show that young adults across the globe are inclined to the internet and Smartphone addiction. However, the effects of pandemic on behavior and psychological wellness are obscure yet.

Summary

This chapter reviewed all the research studies conducted to inspect how smartphone overuse unexpectedly influences social lives and activities. As the overuse of smartphones can affect lives in both acceptable and terrible ways, the impact on social behavior needs more attention. These societal factors change consistently with time and make it harder for people to keep up a standard social life with the substantial dependence on smartphones. Consequently, there are numerous influences that smartphones have on the lives of individuals and will keep on having as the functions of smartphones develop with each passing day.

Research Methodology
Research Design

The study aimed to discover a relationship between the excessive use of smartphones and social behavior. Therefore, it opted for a cross-sectional study alongside a correlational research design, using a survey method for data collection.

Population and Sample

The population consisted of all the undergraduate students enrolled in the programs of both social sciences and other sciences in the universities of Mardan, Pakistan. The sample was taken through a random sampling technique from various universities in Mardan, Pakistan. 250 individuals participated in the study that consisted of 125 (50%) male and 125 (50%) female students within an age range of 18 to 25 (M = 21.5, SD = 2.29). The details of the demographic characteristics of the participants are presented in Table 1.

Period of the study

The period for the study was from 30th March to 30th July, 2021.

Measures
The Smartphone Addiction Scale-Short Version (SAS-SV) (Kwon, Kim, et al., 2013)

The smartphone addiction scale short version was validated for the first time in South Korea by (Kwon et al., 2013). SAS-SV is an abridged version of an original 40-item scale and consists of 10 items that are used to assess smartphone addiction. Each item of the scale is rated on a 6-point scale with options for responses ranging from Strongly Disagree to Strongly Agree (1-6). The highest score indicates a high level of addiction. Previous studies have reported good Cronbach's alpha (α) of the scale, such that $\alpha = .91$. The

SAS-SV is a very fast and easy tool for use by researchers; there are no reverse scores involved in this scale. In the current study, we have calculated the value of internal consistency (α) = .90 for the smartphone addiction short version scale.

The Interaction Anxiousness Scale (IAS) (Leary, 1983)

The interaction anxiousness scale (Leary, 1983) is a 15-item scale that is used to measure global interaction anxiousness. This scale is a 5-point scale where 1 indicates 'Not at all characteristic of me' and 5 indicates 'Extremely characteristic of me'. When scoring this scale, items 2, 3, 6, 10, and 15 are reverse-scored. Examples of the items include 'I wish I had more confidence in social situations' 'in general, I am a shy person', and 'I often feel nervous even in casual get-togethers' (Leary & Kowalski, 1993). The interaction anxiousness scale has illustrated good Co efficient of alpha in various research. In the present study, it has demonstrated an internal consistency of α = .85.

Demographic Sheet

The researcher added questions to know about the demographic information of the research subjects. It included questions regarding the participant's Name (optional), Age, Gender, Field of study, Department, and Semester.

Procedure

All the moral rules for the utilization of data in the research were considered. The subjects were assured that their information would remain highly confidential and would not be misused in any possible way. For half of the data collection, the researcher visited various universities in the morning hours and asked students for their volunteer participation in the study, it was made clear to the participants that they can withdraw from the participation in the study any time they want; those who agreed were given a demographic sheet along with the questionnaires and were briefed about the study purpose. The other half of the data was collected via Google Forms. Participants were assisted with every needed explanation and direction. At last, they were thanked for their participation and time.

Data Analysis

IBM SPSS Statistics was used to analyze data. After the data was fed into SPSS, descriptive statistics were used to calculate mean differences, linear regression, and correlation of variables to test the research hypothesis. An independent sample t-test was also used as an analysis tool.

Results and Discussion
Results

Descriptive statistics were used to summarize the demographic characteristics of the sample. A total of 250 participants were enlisted for the current study, as shown in Table 1. The mean age of participants assessed was 21.5, whereas the number for male and female participants was equal (M=125, F=125). Age, the field of study, and other demographic variables assessed in the present study are presented in Table 1. The internal consistency assessed by Cronbach's alpha in the current study was .90 for the smartphone addiction scale short-version, whereas for the interaction anxiousness scale, it was .85 shown in Table 2. The relationship among the study variables was measured through the Pearson correlation. A significant positive correlation (i-e, .692) was found between the scores of 'The smartphone-addiction (short-version) scale' and scale of 'The interaction anxiousness ', at 0.01 level of significance. See details in Table 3. Table 4 shows the result of linear regression analysis (R^2) = .479 p<0.001. Thus, 47% of the variance in the interaction anxiousness scale was explained by the smartphone Addiction scale. R^2 was significant at the level of 0.001. Significant difference was found between the students of other disciplines and social sciences in the overuse of smart phones i-e, other sciences= 39.99 and social sciences= 46.28 at the level of 0.01 significance, as illustrated

in Table 5. Differences were found on the scores of the Smartphone addiction scale based on gender as males scored higher than females, shown in table 6.

Table 1 *Demographic Information of the subjects.*

	f	%
Gender		
Male	125	50
Female	125	50
Age		
18	14	5.6
19	30	12
20	42	16.8
21	60	24
22	44	17.6
23	39	15.6
24	14	5.6
25	7	2.8
Field		
Social Sciences	125	50
Other Sciences	125	50
Semester		
1	34	13.6
2	59	23.6
3	8	3.2
4	20	8
6	57	22.8
8	72	28.8

Note: *f*=frequency, *%*=percentage

Table 1 shows that 50% of the sample (N=250) are males, whereas 50% are females. The sample comprised of adults of whom 50% are enrolled in the undergraduate program of social sciences, and 50% in the other sciences.

Table 2

Descriptive statistics of SAS and IAS scales

Scale	No. of Items	M	SD	S	K	Coefficient Of alpha
SAS	10	43.14	12.46	-.16	-.84	.90
IAS	15	48.23	12.54	.42	-.99	.85

SAS=Smartphone Addiction Scale, *IAS*=Interaction Anxiousness Scale, SD=Standard Deviation, K=Kurtosis, S=Skewness, M=Mean

Table 2 shows that the Cronbach's alpha (α) calculated for the smartphone addiction short-version scale is .90, and for the interaction anxiousness scale it is .85. This indicates that both are reliable to be used for the current data having smartphone addiction and social anxiety as variables.

Table 3 *Inter scale correlation between SAS and IAS.*

Variables	I	II
SAS	….	.692**
IAS	.692**	….

**Correlation is significant at level of 0.01(2-tailed)

Table 3 indicates that at 0.01 level of significance (2-tailed), excessive smartphone usage is significantly correlated with social anxiety and that the direction of this correlation is positive.

Table 4 *Linear Regression between SAS AND IAS.*

Variables	B	SE	B
Constant	18.18	2.07	
SAS	.69	.04	.69
R^2	.47		
F	227.81		

Note: SE=Standard Error, CI=Confidence Interval; R^2 is significant at 0.001 level (***$p<0.001$)

Table 4 shows linear regression between Social Anxiety and Smartphone addiction. This result revealed that 47% of variance in Interaction Anxiousness Scale was explained by Smart Phone Addiction scale (R^2) = .479, $p<0.001$. Thus, Social interactions of young adults can be affected by smart phone addiction.

Table 5 *T values showing difference between Fields of the respondents, i.e., other sciences and social sciences on SAS.*

Variables	Other Sciences N=125		Social Sciences N=125		t (248)	P
	M	SD	M	SD		
SAS	39.99	12.27	46.28	11.90	-4.11	.80

Note: SAS=Smartphone Addiction Scale, P= Probability, M= Mean, SD= Standard Deviation, P value >0.01

Table 5 illustrates the comparison of mean differences between the students of social sciences and other sciences on the scores of the smartphone addiction scale (short-version), which shows that there is a significant difference between the students of other sciences and social sciences in the overuse of smartphones at the 0.01 level of significance.

Table 6 *T values showing difference between males and females on SAS.*

Variables	Male N=125		Female N=125		t (248)	P
	M	SD	M	SD		
SAS	44.26	12.99	42.01	11.86	-1.43	.11

Note: SAS=Smartphone Addiction Scale, P= Probability, M= Mean, SD= Standard Deviation, P value >0.01

Table 6 presents the mean scores of male and female groups of participants on the scores of the smartphone addiction scale (short version). A comparison of both groups illustrates that males scored higher on the smartphone addiction scale, and the difference in excessive usage of smartphone usage between males and females is low, i-e, 44 and 42. respectively.

Discussion

The study aimed to explore the relationship between 'social anxiety' and 'smartphone overuse' amongst undergraduate students during the pandemic situation. Results indicated that there is a positive correlation between social anxiety and smartphone overuse among the undergraduate students of Mardan. Therefore, the result is in accordance with the proposed research hypothesis which states that Smartphone overuse will be directly correlated to social anxiety. This means that excessive smartphone usage will make an individual more socially anxious and vice versa.

This result of the present research is consistent with the previous discoveries of a study conducted by (Enez Darcin et al., 2016) which concluded that social anxiousness is linked with the risk of heavy reliance on smart phones in young people. These findings were also supported by the research of (Annoni et al., 2021) which pointed out that there is a direct positive and significant path between the problematic usage of smartphones and social anxiety.

This study used linear regression analysis to investigate the influence of smartphone overuse on the social interactions of young adults. 47% variance in the interaction anxiousness scale was explained by the smartphone addiction scale (R^2= .479, p<0.001) see Table 6 in the results section. This result supports the second hypothesis proposed by the study which predicted that excessive smartphone usage will affect the social interactions of young adults during the pandemic of covid-19. Therefore, it can be concluded that smartphone overuse during the pandemic can affect the social interactions of young adults as the researcher collected the data during the second and third waves of coronavirus. In other words, individuals who use the smartphone excessively have poor social interactions because they might have no or very little attachment to their family members and friends and are not involved in any activities. Hence, they are more likely to interact by employing smart phones to avoid the stress in face-to-face interactions. However, the social interactions of individuals who invest their time in healthy activities during tough times will be strong.

Furthermore, the present research also examined the difference between smartphone overuse among undergraduates of two distinct fields: social sciences and other sciences. The result showed that the undergraduate students enrolled in social sciences scored higher on the smartphone addiction scale than those enrolled in other sciences. Thus, the result of the study is consistent with the proposed hypothesis of the study i-e, Undergraduates of the Social Sciences are more likely to report a high level of Smartphone addiction as compared to the undergraduates of other Sciences.

The results also indicated that male participants reported smartphone overuse more than female participants. However, the difference between the overuse of smart phones between males and females was low. Therefore, the hypothesis which states that females will report more smartphone overuse than males during the coronavirus outbreak is not supported by the results of the current study. These findings of the study are not aligned with the previously reported studies (Weiser, 2000) (Bianchi & Phillips, 2005) which indicated that females are more dependent on smartphone devices than males. An explanation for the unexpected result may be that the society and culture of the area in which the present study was conducted; females follow a strict routine from study to household chores. They are mostly under the supervision of

their mothers, who don't allow them to sit inactive for a more extended time frame and are praised for being obedient and skilled rather than being someone who shirks using a smartphone. Whereas males in the same society are observed to be less monitored and spend most of their time on smartphones for different reasons. Therefore, male participants of the population reported a higher level of smartphone addiction in the current study.

Conclusion

Living in the world of modernity, smartphones have been developing dramatically in the last decades. It is one of the fundamental technologies that make our lives less complicated. However, the addictive use of smartphones can cause several psychological problems. The goal of this study was to investigate the relationship between smartphone overuse and social behaviour, and to explore whether young adults face any difficulty in their social lives due to the addictive smartphone usage during the epidemic. The study also aimed to figure out the differences in the level of smartphone overuse based on gender and field of study of the respondents. The study was conducted on 250 undergraduate students. The results indicated that there exists a significant positive relationship between smartphone overuse and social anxiety. Moreover, the male participants and the students of social sciences reported a high level of smartphone addiction. In addition, the social interactions of individuals were found to be negatively affected by addictive smartphone usage. Although 3 of the hypotheses proposed by the study were supported by the results, there is still room for further studies to be carried out on the same topic.

Limitations

1. The study focused on the undergraduate students of Mardan, Pakistan. Thus, the sample size was small, and the results could not be generalized.
2. The study was based on a survey method, and all of the responses were recorded on a 5 and 6-point Likert scale. Therefore, restrained the respondents from adding their feedback and comments.
3. Half of the responses were collected physically through hard copies of the questionnaires, whereas the other half was collected through an online survey. Therefore, people who did not have access to online means were excluded from the study. Moreover, in online responses, there are chances for biased responses.
4. The study conducted was cross-sectional and lacked a causal relationship between the study variables. Hence, future research should consider this for more comprehensible results.

Recommendations

The study explored that the overuse of smartphones can hurt the social interactions of individuals and can cause social anxiety in youth. Therefore, the parents should be informed regarding the consequences that their children can face due to the addictive use of smartphones. For strengthening the social interactions of young adults, their face-to-face interactions in a social situation should be encouraged by their elders.

This study focused on a small sample size, i-e, undergraduates of Mardan. Hence, for the component of generalizability, future studies should be conducted in other areas of Pakistan. Moreover, future research should also be conducted in a longitudinal design of study to explore a range of dynamic concepts regarding the variables. In addition, the future research should include some open-ended questions by the end of standardized scales, for more accurate results and an in-depth study.

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