Relationship of Smartphone Usage, Disclosure, and Interpersonal Closeness among Undergraduate Students

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Abstract:

The purpose of the study was to explore the relationship between smartphone usage, disclosure, and interpersonal closeness among undergraduates in Lahore Pakistan. A cross-sectional design was used to examine the relationship between study variables. Convenient sampling was employed on a sample of 350 male and female university students. The subscale of the Functional Idiographic Assessment Template-Questionnaire (Darrow et al., 2014) and problematic mobile phone usage scale (Merlo, 2013) were used to measure study variables. It was hypothesized that smartphone usage negatively impacts interpersonal closeness. Pearson correlation analysis indicated a positive correlation positive correlation between problematic phone usage and interpersonal closeness. Gender differences in Smartphone usage and interpersonal closeness were further examined using an independent sample t-test.

Keywords: Smartphone usage, interpersonal closeness, undergraduate students, Disclosure, Gender differences

Introduction:

Smartphones have become an integral part of modern society, as more than 3.8 billion people around the world are using them (Statista, 2021). A smartphone is a portable device that carries out browsing, GPS functionality, emails, sharing and editing documents, recording audio, keeping musical playlists, electronic diaries, video making and editing, etc. It is believed that smartphones were evolved by a combination of personal digital assistants (PDA) and the mobile phone. Early PDAs were more than the digital diaries of the day however, Research in Motion (RIM) first developed a device “Blackberry 4270” that integrated

the functions of a smartphone, PDA, and, mobile email. It was wider than a high shield shape with an identified keyboard, a very different device compared to the smartphones of the day (Charlesworth, 2009).

Since then, smartphones have rapidly evolved with each new generation. They have transformed the way people communicate and access information, providing instant access to a vast array of knowledge and entertainment (Pew Research Center, 2021). Today, smartphones are used for a variety of tasks, such as monitoring social media, emails, video games, photos, GPS navigation, audio calls, etc. However, the availability of such applications uses, and their excessive usage is unfortunately rising problem in society. Lin et al (2015) also identified excessive phone usage as a current worldwide social issue. The factors involving online gaming, social media engagement (Liu et al, 2016), personality traits, depression, mobility, accessibility to smartphones and the internet (Vaghefi & Lapointe, 2014), use of internet-based applications (Lin et al, 2015), and fear of missing out (FOMO) contributes towards excessive smartphone usage.
Not only the young generation, but people of all ages are dependent on smartphones. Overall, one's familiarization and exposure to new means of communication, applications, video games, and other recent trends on social media has increased the level of smartphone dependency in youth particularly that is uprooting their relationship with their families, friends, and significant others. People spend more time staying online rather than spending time in real-life interaction which has largely affected the quality and quantity of in-person interactions. Smartphones are considered as most powerful personal devices in the world and that could be the reason why it has become a standard practice for people, to carry their smartphones in purses, pockets, and briefcases.

Smartphone usage has become problematic for the current generation, as it is the first thing to look for in the morning and the last thing before sleep (Lee et al, 2014). Whether at the grocery store, Doctors' office, at home, or in a meeting it might be tempting for people to pick up the phone and begin text messaging or scrolling through social media by ignoring their families, friends, and significant others (University of Arizona, 2019). Uperti & Singh (2017) reported that People, no matter how tired they are, use their phones before sleeping when they get home from work. In the past, masters had complete authority over their slaves, but in the modern era, smartphones appear to have replaced old masters who were abusive and cruel to their slaves even when they needed a break.

According to research by Mikulka & Brooks (2014), people treat their smartphones like an always-with-you ankle bracelet that follows them everywhere they go. Singh and Samah, (2018) suggest that cell phones make it more convenient to communicate online, but on a very serious note, they are undermining interpersonal ties in the real world. Even though there are gender differences in psychological features, mobile phone usage, and compulsive behaviors, such as anxiety, depression, sleep quality, gaming, text messaging, and internet social services (Chen et al., 2017). It has been acknowledged that the age of technology has given rise to conflict between families and couples. In addition to the real-world disconnection and conflict between people, smartphone dependency also results in sleep disturbances (Huang et al., 2020), depression, anxiety, loss of real-life social interaction, aggression (Kim et al., 2015) poor conversation quality and a decline in responsiveness and attentiveness (Santhi & Rajesh., 2020).

The purpose of this study was to

- Investigate the relationship between smartphone usage and interpersonal closeness among undergraduate students in Pakistan.
- Explore gender differences in smartphone usage and interpersonal closeness of students.

This study aims to address the following hypotheses:

- Smartphone usage will likely be negatively correlated with interpersonal closeness among undergraduates.
- Smartphone usage will likely be negatively correlated with age among undergraduates.
- Men and women will likely be different on all study variables

Holte & Richard (2021) suggested that the daily lives of individuals have become increasingly reliant on the usage of smartphones. Numerous people dedicate a substantial amount of time to engaging with their devices. Unfortunately, this growing dependency often leads them to overlook the potential negative consequences associated with excessive smartphone use disregarding its negative outcomes (Abid, 2021). In modern times, people use smartphones more than they focus on building relationships in the real world. This is an undeniable truth that smartphones help people to stay informed and connected, increase productivity, and work efficiently but excessive use negatively influences many aspects of life including social relationships (Obilor, 2023).

Interpersonal closeness is an experience of having an emotional connection with people (Darrow et al., 2014). Several researchers have reported that people who use their smartphones excessively may have poorer degrees of interpersonal closeness because they may become more preoccupied with their smartphones and less aware of their social interactions. Additionally, using a smartphone might have a negative impact on communication skills including nonverbal cues and active listening, both of which are crucial for creating and sustaining strong bonds with others (Misra et al., 2016; Barricket al., 2022 & Obilor, 2023). Excessive smartphone usage may also raise emotions of loneliness and separation, which can reduce interpersonal intimacy even further, paranoia, anxiety, antisocial personality disorder, and narcissistic behavior in young individuals are other indicators of using smartphones excessively. Conflicts in relationships arise from divided attention which are also brought on by excessive smartphone usage (Gritti, Bornstein, & Barbot, 2023). It is crucial to look at the correlation between factors given the potential adverse effects of excessive smartphone usage on interpersonal relationships. For mental health practitioners, educators, and politicians, it may be crucial to comprehend the potential effects of smartphone use on interpersonal connectedness. Interventions to encourage better smartphone usage habits and increase social connectedness could be sustained by understanding the reasons that lead to lower levels of interpersonal closeness in close relationships.

Literature Review:

The relationship between smartphone usage, disclosure, and interpersonal closeness has been extensively explored in previous studies. This section reviews the literature addressing the impact of smartphone usage on the academic, psychological, and emotional aspects of students' lives. Konok et al (2016) explored young people rapidly developing an emotional attachment to their smartphones and experiencing distress when they are separated. For anxiously attached people, maintaining constant contact with others via phone was more important.

A study by Trub & Barbot (2016) on attachment to phones using a sample of 955 adults ages 18-29 years. A preliminary version of the young attachment to phone scale (YAPS), the experience of close relationships scale, and the problematic mobile phone usage scale were used in the study. Findings revealed that phone attachment was positively related to feeling safe with phones and uncomfortable during separation.

Morahan-Martin & Schumacher (2000) conducted research on correlates of pathological internet use among 277 undergraduate students. A questionnaire Pathological use scale (PUS) consisting of 13 questions was distributed to assess academics, work, mood, interpersonal relationships and, distress caused by smartphones. Findings revealed that pathological users were more likely to be males although those who scored higher on the loneliness scale were socially active online.

Emotional attachment to phones does not merely lead to pathological phone usage but also affects relationships at school, home, and work. A qualitative research conducted by Priyadarshini et al. (2020) on the impact of social media, Addiction on employees' well-being and work productivity. Fourteen semi-structured interviews were conducted, audiotaped, and analyzed using interpretative phenomenological analysis (IPS). The results indicated poor relationships with coworkers, not meeting deadlines, facing stress, compromising work quality, and distractions from work.

There is no denying that smartphones are the source of improved quality of life but excessive phone usage has a negative impact on the learning and cognitive abilities of students that they require to succeed in school (Sunday, Adesope & Maarhuis., 2021). Students from high school do not only use smartphones for communication, information, socialization, and entertainment purposes but also for academic purposes and they consider smartphones to be useful devices as they use them to access course material, discuss assignments with peers, take notes and search library catalog (Dukic, Chiu & Lo., 2015). Proximity to smartphones is the main source of distraction that leads to multitasking and task switching resulting in poor academic performance (Junco & Cotten, 2012). In contradiction, Sarwar and Soomro (2013) explored that it makes it possible for students to access a variety of educational resources and offers chances for people to continue their education from distant places. However, previous research has also demonstrated that student's academic life is at risk as greater use of smartphones leads to a greater negative impact on learning and the overall academic life of students.

One of the studies conducted by Nayak (2018) concerned the impact of smartphone usage on students' academic performance. The participants were 429 higher education students from India, 64.8% of whom were females which might have affected the findings. The results revealed that female students use more smartphones than male students while the negative effect of phone usage was found more in the academic performance of males even when the ratio of phone usage was more in females.

The research was conducted in Saudi Arabia among 324 undergraduate students from Najran University. The data was collected using questionnaires related to normal smartphone usage e.g. for entertainment purposes and usage for learning purposes. The findings revealed that 94.4% of the students owned smartphones but they were not utilizing the device appropriately for learning purposes but for making calls, snaps, pictures, etc. The authors suggest that future studies investigate why students in Saudi Arabia are not utilizing smartphones for learning purposes (Alfawareh & Jusoh, 2014).

In context to Pakistani culture, a research conducted by Naureen et al. (2021) intended to investigate the impact of text messaging on the interpersonal relationships of friends. The data was collected from 200 university students belonging to the age groups of 21-25 in Islamabad using a survey and proportionate sampling method. The results suggested that instant messaging had a positive relationship between interpersonal relationships of friends hence the shreds of evidence prove that there is a significant impact of texting via smartphones on maintaining face-to-face relationships or friendships. The suggestions provided for future research were to investigate why students are involved in texting, as it might be used to carry out educational activities.

In the exploration of interpersonal closeness and disclosure, it is essential to first understand the foundational concepts. Villanueva (2017) has defined disclosure as an act of sharing feelings, thoughts, and personal information with others. Another essential way of maintaining and establishing interpersonal closeness with each other is self-disclosure. However, disclosure is defined as feelings of being connected with others. It is also believed that there is a difference between behaving close and feeling close to others. Aron, Aron & Smollan (1992) inquired that "Interpersonal closeness is the inclusion of others in the self and interconnectedness of self and others" Martin (2014) determined that Positive interpersonal relationships have been identified as a defense against stress and risk, as a tool for task completion, as emotional support in daily life, as a company in shared activities, and as a foundation for social and emotional growth.

According to research conducted by Groarke (2014) on the impact of smartphones on social behavior and relationship. The study used a quasi-experimental design and a correlational method. 279 participants ages 17-77 were selected using a snowball sampling strategy. Self-report questionnaires including the Present Absence Scale, Face-to-Face or Computer-mediated Communication Questionnaire, Smartphone Problematic Use Questionnaire, and Cellular Phone Etiquette Questionnaire were used to collect data. The results revealed that smartphone usage was significantly related to preferences for face-to-face interactions. The authors suggested future researchers investigate the possible reasons for the negative influence of smartphone usage.

To investigate students' interpersonal connections with peers and staff at the start of higher education Makara et al. (2015) conducted a study in the US Midwestern public research university using a sample of 290 first-year students. Online surveys

were given to students to assess social networks through piloting. Findings revealed that students used text messaging to communicate with their friends, family, and teachers. It also showed that it was more important for the freshmen students to maintain interaction with the staff than their peers. The study suggested that future research to explore the interaction between demographics and social variables on achievement.

To bridge the gap in the literature, Liu, Yin & Huang (2013) investigated the interpersonal relationships of adolescents not only with friends but also with parents and teachers when using Facebook. The sample of 740 junior students participated in filling Real-life interpersonal relationships (RIR) questionnaire and Virtual Interpersonal relationships (VIR) questionnaire. The findings of the study suggested that higher use of Facebook expands interpersonal relationships of friends while weakening relationships with parents. It was also found that real-world interactions are stronger than virtual relationships of adolescents regardless of their friends, family, and teachers. The future recommendations suggested developing insight for parents regarding their children's Facebook usage, urging them to be vigilant and concerned.

Elsobeihi et al. (2017) conducted a study on the effects of mobile technology on human relationships using convenience sampling with a sample size of 120 at Al-Azhar University. Data was collected through questionnaires and field observations in populated areas of the university. The results showed that face-to-face communication with family and friends is reduced because of the use of technology. People are inhibited by phones in the presence of others and spend little time with their loved ones. Technology is responsible for the lower quality and quantity of face-to-face communications. The recommendations provided for future research are to investigate the reasons for poor social interaction as the technology appeared.

In conclusion, this research review highlights the complex relationship between smartphone usage, sharing personal information, and building close relationships. It shows how smartphones affect various aspects of students' lives, including academic performance, emotional attachment, and social connections. The review also emphasizes the importance of sharing personal information and building close relationships in understanding each other better.As technology continues to evolve, it's crucial to keep exploring these areas to understand how they impact human behavior and relationships.

Methods:

Research Design: This study follows a cross-sectional research design.

Sample Size: The total sample size of this study was 350 (175 males and 167 females) university students.

Study Population: The population of this study was university students from ages between 18 to 24 from Forman Christian College (A Chartered University) in Lahore, Pakistan. Both men and women with basic English reading and understanding skills participated in the study.

Sampling Technique: Convenient sampling was employed using questionnaires.

Data Collection: The data collection was based on formal permission sought by the university after the approval of the Board of Study (BOS), Ethical Review Committee (ERC), and Institutional Review Board (IRB). The students were asked to participate in the study according to their availability and accessibility. Informed consent was collected from the participants before their participation, where they were briefed about the nature of the study, their voluntary participation, and withdrawal rights. Data was collected using questionnaires about Problematic Smartphone usage (Merlo et al., 2013) and a Functional Idiographic Assessment Template-Questionnaire (Darrow et al., 2014) along with demographics like age, gender, marital status, and closeness with others. No identifying information was collected. The participants were thanked for their voluntary participation.

Measures: A problematic mobile phone usage scale (Merlo et al., 2013) was used to measure the intensity of mobile phone dependence and its excessive usage among undergraduate students. The inventory consists of 20 Likert scale questions. On a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), the participants were asked to state how much they agreed with each statement. The questionnaire consisted of close-ended questions with medium difficulty. An example item is "I used my phone when I knew I should be sleeping". The higher score indicates more problems with smartphone usage among undergraduates. The overall alpha of this scale is 0.94 and the correlation with other scales of cellular dependency is ($r = .76$, $p<.001$). For each item, Cronbach's alpha is high (above .931) indicating excellent internal consistency.

Disclosure and interpersonal closeness (Darrow et al., 2014) is a sub-scale of the Functional Idiographic Assessment Template-Questionnaire (FIAT-Q) that was used to measure the close relationships of undergraduate students. The scale is composed of 24 items. The numeric scale ranges from 1-6 indicated by Agreement and Disagreement e.g. (1= Strongly Disagree, 2= Moderately Disagree, 3=Mildly Disagree, 4=Mildly Agree, 5=Moderately, Agree, 6=Strongly Agree). An example item is "I listen to others and offer them support." The overall Cronbach alpha is 0.8 indicating that disclosure and interpersonal closeness have a divergent validity of r=-.39 with the Social expressivity subscale (SSI) and convergent validity of r=.50 with Social avoidance and distress (SAD) also r=.48 with interpersonal relations subscale (OQ-45 TR).

Statistical analysis:

The Statistical Package for the Social Sciences (SPSS) version 25 was used to perform statistical analyses on the data. Descriptive statistics were used to calculate the demographic information and study variables. Frequencies and percentages were calculated for the categorical variables like gender, marital status, and closeness with others. Mean, Median, standard deviation, and range were calculated for continuous variables like age, smartphone usage, and interpersonal closeness. The Pearson Correlation Coefficient was conducted to measure the nature and significance of the relationship between smartphone usage and interpersonal closeness. An independent sample t-test was carried out to report gender differences in interpersonal closeness of undergraduate students. The psychometric properties of the scales used in the present study were also calculated.

Results:

This section presents Descriptive statistical analysis (Demographics and psychometric properties of scales) and Inferential statistical analysis (Pearson product-moment correlation and t-test) on the study variable. The data was analyzed using a statistical package for the social sciences (SPSS). Problematic smartphone usage and interpersonal closeness including demographic variables. The descriptive statistics including psychometric properties of scales, Pearson correlation, and independent sample t-test are reported in the following section.

Descriptive Statistical Analysis:

Descriptive statistics are calculated for the following demographic variables e.g. number of participants (n) and percentages (%) for nominal variables whereas, mean (M) and standard deviation (SD) are calculated for continuous variables.

Table 1

Demographic Characteristics of participants (n=350)

Variables	*f*	*%*	*M*	*SD*
Age	-	-	20.98	1.63
Gender				
Male	175	51.2	-	-
Female	167	48.8	-	-
Closeness status				
None	2	6	-	-
Father	34	9.7	-	-
Mother	79	22.6	-	-
Sibling	30	8.6	-	-
Friends	88	25.1	-	-
Family	20	5.7	-	-
Family and friends	61	17.4	-	-
All	31	8.9	-	-
Relationship Status				

Single	274	78.3	-	-
Committed	60	17.1	-	-
Married	12	3.4	-	-

Note: f= frequency, %= percentage, M=Mean, SD= Standard deviation

Table 1 shows descriptive for nominal and continuous variables from a sample of *n*=(350) participants. The sample consists of 167 females (48.8%) and 175 males (51.2%) indicating balanced distribution of gender within the study. The average age of students was 20.98 with a standard deviation of 1.63 The participants' closeness status is categorized into different relationships, such as father, mother, sibling, friends, family, family and friends, all, and none. The percentages indicate the proportion of participants falling into each category. For example, 6% of participants reported having no closeness with anyone, while 9.7% mentioned having their father as the closest person. 22.6% of participants reported closeness with their mothers, 8.6% with siblings, 25.1 % with friends, 5.7% with family, 17.4% with family and friends both, and 8.9% of them reported closeness with all. The relationship status is classified as single, in a committed relationship, and married. For most of the students, 78.3% reported being single, 17.1% were committed and 3.4% were married.

Table 2

Descriptive statistics for Problematic phone usage (PUMP) & Interpersonalcloseness and disclosure.

Scale	*M*	*SD*	*Min-Max*	*α*
Problematic phone usage	61.50	12.62	27-90	.82
Interpersonal closeness and disclosure	85.47	12.63	36-124	.62

Table 2 shows the psychometric properties of scales used in this present study. The problematic phone usage scale has an average mean of *M*=61.50, *SD*=12.62, and an overall range of 27-90. The mean score of the Interpersonal closeness and disclosure scale is *M*=85.47 with *SD*=12.63 and an overall range of 36-124. The Cronbach's α value for the Problematic phone usage scale is .82 which indicates good internal consistency reliability. The Cronbach's α value for interpersonal closeness and disclosure scale is .62 which suggests lower internal consistency reliability.

Table 3

Pearson Product Moment Correlation for study variables (N=350)

	N	*M*	*SD*	*1*	*2*	3
1. Age	350	20.98	1.63	-	-	-
2. Smartphone usage	350	61.50	12.62	-.10	-	-
3. Interpersonal closeness and disclosure	350	85.47	12.62	-.03	.33**	-

*Note. ** Correlation is significant at the 0.01 level (2-tailed)*

A Pearson Correlation examined the relationship between Problematic smartphone usage scale, interpersonal closeness, and disclosure. There is a positive correlation between the Problematic phone usage scale and interpersonal closeness, r=.33, n=350, p=.01. The correlation r=-.10 indicates a weak negative correlation of smartphone usage with age while a very weak negative correlation -.03 between age and interpersonal closeness and disclosure indicating age has a minor impact on interpersonal closeness and disclosure.

Table 4

T-test comparisons and descriptive statistics for smartphone usage and interpersonal closeness by gender

	Male		Female				
Variables	*M*	*SD*	*M*	*SD*	*t (340)*	*P*	*Cohen's d*
Interpersonal closeness	84.73	12.41	86.46	12.93	-1.26	.318	0.14
Smartphone usage	61.86	12.89	61.15	12.56	.514	.599	0.06

Note. $N = 350$, $p > .05$

Table 4 provides a comparison between the means and standard deviations of the variables smartphone usage and interpersonal closeness for two groups, males and females. The table shows no significant mean differences in smartphone usage and interpersonal closeness with t (340) =-1.26, p>.05. Findings showed that there are no significant gender differences in terms of using smartphones and having close relationships with others. The value of Cohen's d for smartphone usage was 0.06 (< 0.20) which indicates a small effect size and further supports the findings that there is no substantial statistical difference in smartphone usage in men and women. Likewise, the Cohen's d value for interpersonal closeness was 0.14 (< 0.20) indicating a weak effect size.

Discussion:

The present study aimed to investigate the relationship between smartphone usage and interpersonal closeness among undergraduate students. The study attempts to develop an insight into maintaining the social well-being of individuals. Additionally, it explores the potential gender differences in terms of interpersonal closeness both in male and female students. In light of the hypotheses, the current research's main findings will be summarized about research objectives and existing literature.

The first hypothesis "Smartphone usage will likely be negatively correlated with interpersonal closeness among undergraduates" was not supported in the present study as the results revealed a positive relationship between smartphone usage and interpersonal closeness. Previous research investigating the relationship between these variables at hand also found them to have a positive relationship (Konok, 2016; Naureen et al, 2021). This challenges (Groarke, 2014; Lin 2012; Brown et al, 2016 & Elsobeihi et al, 2017) findings reject the notion of a positive correlation between study variables. This difference in results between western and Eastern society is a very intriguing revelation. The possible explanation for the the current finding is the participants shared different cultural norms, values and social dynamics such as hospitality, respect for elders, extended family culture, community ties and gender roles therefore it is likely that the attitudes and behaviors of participants may have been influenced by cultural similarities like communication and connectivity with family, friends and communities, strong family networks, entertainment and media consumption (Zaman, Stewart & Zaman, 2006). Traditional gender roles exist in many communities that assign specific responsibilities and behaviors to men and women. These norms can influence power dynamics, decision-making processes, and the distribution of emotional support within relationships (Signorielli, 1990). Whereas, communication preferences within the cultural norms might also influence social relationships. These communication styles can affect how people express their emotions, resolve conflicts, and build bonds in their relationships (Cuming & Rapee, 2010). Additionally, family and community influence close family relationships, communal support, a sense of being interconnected, and loyalty within society also impact one's close interpersonal relationships (Umberson & Thomeer, 2020).

The second hypothesis of the present study "Smartphone usage will likely be negatively correlated with age among undergraduates" was supported. The results revealed a negative correlation between smartphone usage and age suggesting that

smartphone usage tends to gradually decrease as the age increases, which means that younger undergraduates appeared to use smartphones more frequently than their older counterparts. These findings are consistent with the research conducted by Sakkthivel, Moovendhan, and Heggde (2020) which also found that younger people are more likely to score high on smartphone usage in comparison to middle and older people. Although age was not a central focus in this study as all participants were undergraduates within the same age group. However, the findings open up opportunities for future researchers to explore the relationship between age and smartphone usage. People belonging to different age groups have different preferences, attitudes, usage habits, and decision-making patterns (Chen, Hung & Goh, 2023).

The other hypothesis of the present study "Men and women will likely be different on study variables" was not supported. Previous research by Lee et al. (2014) Singh et al (2018) and Chen et al (2017) have consistently demonstrated gender differences in various aspects related to phone usage and interpersonal relationships. Specifically, studies have identified gender differences in terms of phone usage, closeness status, social interaction, need for touch, compulsive behaviors psychological features, gaming, text messaging, and internet social services. Lee and Colleagues (2014) also found gender differences in terms of psychological traits and phone usage patterns of men and women. However, the present research does not show any consistent significant differences in terms of closeness status.

There could be several possible explanations in the current study to refute the previous studies including cultural variations, methodological differences, and temporal changes. The cultural elements highlight the importance of understanding the complexities of the phenomenon under investigation. As Cresswell and Cresswell (2017) suggest different research designs such as interviews, observations, content analysis, experiments, or other mixed research methods produce different research findings.

Moreover, unlike Pakistani culture, western students are more likely to be independent at the university level (Butterbaugh, S. M., Ross, D. B., & Campbell, A.; 2020). Male and female students in Pakistan often rely on communal and familial support. Family members especially the parents play a key role in providing emotional, financial, and academic support throughout their educational journey, which eliminates the sense of responsibility in the students of our culture by giving them a sense of preference to use their smart device networks (Khurshid, Zahid, & Nisa., 2023).

Further, the link between gender, smartphone usage, and interpersonal relationships might be influenced by technology developments, societal changes, or changes in cultural standards over time. For instance, when technology spreads and becomes more incorporated into our everyday lives, gender inequalities in phone usage or social interaction patterns may disappear or change (Peterman, Behman & Quisumbing, 2014). However, it is to highlight that earlier studies may not have effectively accounted for these changing elements, the current study may capture the dynamics, as they exist right now.

Limitations and future research directions :

The data relied on the self-report measures e.g. the subscale of the Functional Idiographic Assessment Template-Questionnaire; disclosure and interpersonal closeness (FIAT-QD) and problematic mobile phone usage scale (PUMP). The scale (FIAT-QD) did not demonstrate a satisfactory validity that might have influenced the results. Future research should consider using alternative measures to address the validity concerns and improve the accuracy of the measurement. Additionally, the study's population was confined only to Forman Christian College. The recruitment method of convenience sampling in the current research specifically focused on university students between 18 to 24 years old.

Moreover, further research could be conducted to gain insight into how age-related variables like digital native generation, technological literacy, communication preferences, social networking, real-life connectivity, lifestyles, and life stages may influence smartphone usage behaviors and how these behaviors might connect to interpersonal closeness and other related social interactions. Further, a diverse sample might be included that encompasses participants from different universities, cultural backgrounds, socio-economic status, and age groups to provide a more comprehensive understanding of the relationship between the variables under investigation

Conclusion:

The present study investigated the relationship between smartphone usage Disclosure and interpersonal closeness among undergraduate students. Contrary to the initial hypothesis, a positive relationship was found between smartphone usage and interpersonal closeness. Age was negatively correlated with smartphone usage, indicating that younger students used smartphones more frequently. No significant gender differences were observed in terms of interpersonal closeness and smartphone usage among undergraduates. Further research should explore diverse sample and age groups to gain a deeper understanding of these variables and their implications.

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