Social Interaction Anxiety, Social Isolation, Self-efficacy, and Depression in Social Networking Users

Shaista Jabeen[1*], Mamoona Mushtaq[2], Arfa Ayesha Shahid[3]

Abstract

This research was designed to explore the relationship between social interaction anxiety, social isolation, self-efficacy, and depression in men and women using different social networking sites. The study also explored social interaction anxiety as a predictor of social isolation, self-efficacy, and depression in social network users. A sample of 275 social network users (men = 136, women = 139) was employed from public and private sector universities of Lahore and Khyber Pakhtun Khwa (KPK), Pakistan by using a purposive sampling technique. Social Interaction Anxiety Scale, Social Isolation Scale, Generalized Self-Efficacy Scale, and Beck Depression Inventory were used to assess the study variables. Results showed that social interaction anxiety has a significant positive association with social isolation and depression, and a negative association with self-efficacy in men and women using social networking sites ($p < .01$). Further, multiple regression analysis showed that social interaction anxiety was found to be a significant positive predictor of social isolation and depression. Social interaction anxiety was found to be a negative predictor of self-efficacy among men and women using social networking sites. Some demographic variables such as physical activity, hours of using different social networking sites, and self-reported quality of sleep turned out to be significant predictors of social interaction anxiety, social isolation, self-efficacy, and depression among young adults using social networking sites. Furthermore, gender differences were significant across all the variables. The current findings have practical implications for social networking users, teachers, parents, researchers, policymakers, and information technology professionals.

Keywords: Depression, Self-efficacy, Social Interaction Anxiety, Social Isolation, Social Networks Users

[1*]Associate Professor, Department of Psychology, Forman Christian College (A Chartered University) (FCCU), Lahore, Pakistan.
[2]Professor, Department of Psychology, Government Graduate College, Township, Lahore, Pakistan.
[3]BS (Hons) Scholar, Ghulam Ishaq Khan Institute of Science and Technology, Topi, Khyber Pakhtun Khwa, Pakistan.

*Corresponding Author Email:
shaistajabeen@fccollege.edu.pk

Introduction

In the rapidly evolving digital era, social networking use has emerged as a ubiquitous platform for communication, self-expression, and social connections among people of all ages, particularly among adults. Social media use helps interaction between users through its multiple channels and assists people in sharing photos, images, documents, and other material smoothly and rapidly (Doganer & Akoglu, 2020). Social media use provides many other opportunities such as interaction and searching for information. Social networks users spend a substantial amount of time on these sites (Twenge & Campbell, 2019). Previous literature on this subject suggests that excessive use of social media

platforms has led to increased mental health issues such as social interaction anxiety, social isolation, and depression (Escobar-Viera et al., 2018). While social media offers unprecedented opportunities for virtual social interactions, it has also introduced various challenges to the mental health of both men and women. Global statistics show that out of 7.87 billion people in the world, 56.8% of the population use social networks, regardless of age or internet access. Out of 4.8 billion internet users, 93.33% are active users. Out of 5.27 billion unique mobile phone users, 85% are active users. In the year 2022, on average, there are about 72.9 million active social networking users in Pakistan every month with an annual growth rate of 4.3 % in 2021-22. This represents about 31.5 % of the total population of Pakistan (Datareportal, 2023). These statistical figures show that social networking users on average spend many hours on social media and each on average has accounts on platforms. While social media offers unprecedented opportunities for virtual social interactions, it has also introduced various challenges to people who use it. The pervasive use of social networking has been associated with a range of psychological outcomes, including social interaction anxiety, social isolation, self-efficacy, and depression (Jiao et al., 2017). This study seeks to investigate the intricate interrelationships between these factors, shedding light on the potential mechanisms through which they influence one another and impact the mental health and well-being of social media users.

Social Interaction Anxiety and Social Isolation

Social interaction anxiety, often characterized by apprehension, self-consciousness, and fear of judgment in social situations, has taken on new dimensions in the digital age. While online platforms offer the advantage of a degree of anonymity and control over self-presentation, they simultaneously introduce novel stressors (Boursie et al., 2020). The curated nature of digital personas and the potential for instantaneous, public feedback can intensify feelings of self-evaluation and heighten fears of negative assessment (Larson, 1999). Moreover, the absence of nonverbal cues in digital interactions may exacerbate uncertainty, leading to hyper-attentiveness to text-based cues and over-analysis of virtual encounters.

Contrary to physical interaction, the ability to communicate instantaneously across vast distances can sometimes lead to shallower, transactional relationships that lack the depth and intimacy of in-person connections (Hermann & Betz, 2006). People find an alternative solution in online communication, which results in diminishing genuine, emotionally fulfilling relationships. The constant availability of digital communication may paradoxically hinder the development of meaningful social bonds, ultimately contributing to feelings of loneliness and isolation (TWenge & Campbell, 2019).

Social Interaction Anxiety and Self-efficacy among Social Networking Users

Adulthood is a critical period marked by significant personal growth, identity formation, and the pursuit of aspirations. At the heart of these endeavors lies the construct of self-efficacy, a central psychological belief that profoundly influences the choices, behaviors, and accomplishments of people (Bandura, 2000). The concept of self-efficacy, rooted in Bandura's social cognitive theory, refers to an individual's belief in their capacity to execute actions required to attain certain goals (Bandura, 1997). It encompasses an individual's assessment of their capabilities to overcome challenges, overcome uncertainties, and produce desired results. Self-efficacy is not only associated with adults' skills but also with self-belief in

what they are doing (Claggett & Goodhue, 2011).

Social interaction anxiety appears as young form new social roles and situations, such as starting friendships, participating in academic or professional activities, and establishing intimate relationships (Ostic et al., 2021). The pressure to conform to social norms and expectations, coupled with the fear of being negatively judged, can contribute to heightened anxiety in such settings (Ahmad et al., 2023; Chen & Li, 2017; Mushtaq et al., 2020). They strive to construct a positive self-image, but the fear of social rejection or criticism may hinder their willingness to engage authentically with others (Barbosa et al., 2020). The advent of digital communication platforms introduces new dimensions to this challenge, as online interactions also carry the potential for misinterpretation and scrutiny.

The relationship between social interaction anxiety and lack of self-efficacy is intricate and potentially reinforcing. Individuals burdened by social interaction anxiety may develop a diminished sense of self-efficacy due to the anticipation of negative outcomes and a lack of confidence in navigating social situations (Cheng & Furnham, 2002). In turn, low self-efficacy may heighten social interaction anxiety by fueling doubts about one's ability to manage these situations competently (Ahmad et al., 2023; Asher & Paquentt, 2003). This cyclical interaction can create a self-perpetuating loop that impedes the personal and social growth of individuals (Ostic et al., 2021; Reer et al., 2019).

Depression in the Context of Social Networking Usage

Deeply involved in social media sites, the potential impact on mental health, resulting in depression, cannot be overlooked (Seabrook et al., 2016). The relationship between social interaction anxiety, social media use, and depression is multifaceted, characterized by intricate interactions and

potential bidirectional influences (Wang et al., 2020). Individuals who experience heightened social interaction anxiety may find mental peace in the mediated environment of social networking channels, where they perceive greater control over their interactions (Seabrook et al., 2016). The literature demonstrates that social anxiety leads to depression and determines the bidirectional relationship between social anxiety, online internet usage, depression, and addiction. People find using mobile gaming and social media as a way to cope with their mental stress (Iqbal et al., 2022). Similarly, another study showed that extreme social media usage leads to isolation and anxiety among adults and disinterest in real-life relationships (King & Delfabbro, 2016). The whole complex situation can cause severe mental health disorders like depression (King & Delfabbro, 2016). Hence, the reliance on these platforms might heighten social isolation and exacerbate depression by substituting genuine connections with superficial virtual interactions (Wang et al., 2020). The amalgamation of social interaction anxiety, social media use, and depression in the lives of people underscores the complexity of the modern digital age. There are reliable sources that no study has been conducted on exploring the relationship between social interaction anxiety, social physique anxiety, self-efficacy, and depression in social networking users in Pakistan. Therefore, the current research was conducted to explore the relationship of social interaction anxiety with social isolation, self-efficacy, and depression in users of social networking sites.

Hypotheses

The following hypotheses were generated from the literature review:

H1: Social interaction anxiety will be positively correlated to social isolation and depression in social networking users.

H2: Social interaction anxiety will be negatively related to self-efficacy among users of social networking sites.

H3: Social interaction anxiety will positively predict social isolation and depression in social networking users.

H4: Social interaction anxiety will negatively predict self-efficacy in social networking users.

H5: Physical activity, social networking usage and quality of sleep will predict social interaction anxiety, social isolation, self-efficacy, and depression in social networking users.

H6: There will be gender differences in social interaction anxiety, social isolation, self-efficacy, and depression in social networking users.

Method

Research Design

The current study was conducted to explore the relationship between social interaction anxiety, social isolation, and self-efficacy in social networking users. The research was quantitative and a correlational research design was used to conduct this study.

Sample

The sample was selected from public and private sector universities and students who were using social media channels for at least three hours a day (excluding university social media use time). For the purpose of data collection, a sample of 275 university students and employees (men = 136, women = 139) was taken from different public universities in Lahore city through purposive sampling (details under Procedure section). The age range of the sample was from 18 to 30 years (Mage = 23.37 years, SD = 4.26 years).

Table 1

Information of Demographic and Study Variables of the Sample (N=275)

Demographics		f	%
Gender	Men	136	49
	Women	139	51
Physical activity on daily basis (in hours)	½	90	32
	1	70	25
	1½	55	20
	2	30	10
	3	15	05
	No physical activity	16	06
Hours using Facebook (in hours)	½	54	19
	1	100	36
	2	51	18
	3	34	13
	4	32	12
	5	3	1
Hours using WhatsApp (in hours)	½	49	18
	1	106	42
	2	60	22
	3	30	10
	4	20	7
	5	10	3

Hours spent on Instagram (in hours)	1	140	50
	2	85	31
	3	50	19
Hours spent on Snapchat (in hours)	1	132	48
	2	98	35
	3	45	16
Self-reported quality of sleep	Good	95	35%
	Bad	180	65%

Measures

The following instruments were used for data collection:

1. Demographic and Study related Variable Sheet
2. The Social Interaction Anxiety Scale
3. The Social Isolation Scale (SIS)
4. The Generalized Self-efficacy Scale (GSE)
5. Beck Depression Inventory (BDI)

Demographic and Study related Variable Sheet

A demographic information sheet was prepared by the researchers. This information included age, education, monthly pocket money, and physical activity in hours and time spent using Facebook, WhatsApp, Instagram, and Snapchat. The sheet also included items to ascertain information on self-reported quality of sleep as well as hours spent with friends, and family members.

Social Interaction Anxiety Scale (SIAS)

In this study, the Social Interaction Anxiety Scale by Mattick and Clarke (1998a) was-used to measure social interaction anxiety among students using social networking sites. This scale consists of 20 items. Items no. 5, 9, and 11 have reversed scoring. The scale assesses characteristics true of oneself on a Likert scale ranging from 0 to 4 where 0 =not at all true of me, 1 =slightly true of me, 2 = moderately true of me, 3 =very much true of me, 4 =extremely true of me. The scale has a reliability alpha of .91 as reported by the authors (Mattick & Clarke, 1998a). Reliability was .74 in the current study.

The Social Isolation Scale (SIS)

The Social Interaction Scale by De Jong-Gierveld and Kamphuis (1985) was used to assess social isolation among students using social networking sites. The Social Isolation Scale is an 11-items scale and the response options are based upon a Likert-type scale scoring ranging from 1 - 5 (1= strongly disagree, 2 = somewhat agree, 3 = undecided, 4 = somewhat decided, 5 = strongly agree). The highest score would indicate more social isolation (De Jong-Gierveld & Kamphuis, 1985). The original reliability alpha of the SIS reported is .92. Reliability estimated for the current study was also estimated as .92.

The Generalized Self-Efficacy Scale (GSE)

In this study, self-efficacy was measured by the Generalized Self-Efficacy Scale (Schwarzer & Jerusalem 1995). This scale consists of 10 items with the Likert scale scoring method ranging from 1 – 5 where 1 = strongly disagree, 2 = somewhat disagree, 3 = undecided, 4 = somewhat decided, and 5 = strongly agree. The highest scores indicate more self-efficacy in individuals. The scale has a reliability alpha of .87 (Schwarzer & Jerusalem, 1995). Reliability alpha for the current study was reported to be .88.

Beck Depression Inventory (BDI)

Beck Depression Inventory (BDI) consists of 21-items, self-report rating inventory that assesses the severity of depression (Beck et al., 1961). The BDI takes around 10 minutes to complete if the person has sufficient English language proficiency to understand the inventory items. Responses are given on the Likert scale ranging from 0 to 3 where 0

= I don't feel sad, 1 = I feel sad, 2 = I am sad all the time and can't snap out of it, 3 = I am so sad that I can't stand it". Internal consistency for the BDI ranges from .73 to .92 for psychiatric and non-psychiatric populations respectively with a mean of .86 (Beck et al., 1988). The reliability coefficient was .91 in the current study.

Procedure

The study was carried out after obtaining approval from the Board of Studies, Govt MAO Graduate College, Lahore. Following that, permission from the authors of all the scales to be used in the study was obtained via their email addresses. Then, data was collected from different public and private sector universities in Lahore and KPK after obtaining due permission from the chairpersons of the respective departments. The participants were selected based on their willingness to participate in the study and on the fact that they were using social networking channels regularly for more than three hours per day besides using social networking sites on the university premises. Only the students and employees who met the criterion those who were willing to take part in the research project (expressed through informed consent) and who were able to read the English language were included in this study. Before the administration of the scales, the participants were described the nature and purpose of the study. All questionnaires were administered individually in the English language because most students of graduation and postgraduation classes find it convenient to read the English language. Ethical guidelines of the American Psychological Association for Research (APA, 2020) were followed throughout the research.

Results

Preliminary and Descriptive Analysis

The data of the study was screened for all entry errors of the values. The sample's characteristics were estimated using descriptive statistics of means, standard deviations, frequencies, and percentages. After preliminary analysis, descriptive statistics and internal consistencies were calculated for the study variables including social interaction anxiety, social isolation, self-efficacy, and depression (Table 2). Alpha coefficients showed very good internal consistency for each scale e.g., social interaction anxiety, social isolation, self-efficacy, and depression scales used in the study ranging from .76 to .92. Before the final data analysis, assumptions for the inferential statistics (i.e., normality, linearity, univariate and multivariate outliers) were analyzed and no significant violation of assumptions was observed. Skewness values ranging between ±0.5 and kurtosis less than ±3 demonstrated normal data distribution of the study.

Table 2

Psychometric Properties of Social Interaction Anxiety, Social Isolation, Generalized Self-Efficacy and Depression in Individuals (men and women) Using Social Networking Sites (N=275)

Variables	*M*	*SD*	*K*	*α*	Skewness	Kurtosis
Social interaction anxiety	38.20	17.09	20	.76	0.75	- 0.28
Social Isolation	15.05	5.16	11	.92	0.63	- 0. 22
General Self-Efficacy	15.85	7.29	10	.88	0.57	- 0 .32
Depression	21.47	6.83	21	.91	0.68	-0.27

Note. *SD* = Standard Deviation, *K* = number of items, *α* = Alpha coefficient of reliability

Table 2 shows descriptive statistics for various scales. All scales were internally consistent because their alpha coefficients were higher than .70. None of the skewness and kurtosis measures were abnormally high,

indicating the variables were normally distributed.

Table 3

Relationship between Social Interaction Anxiety, Social Isolation, Generalized Self-Efficacy, and Depression in Individuals Using Social Networking Sites (N=275)

Variables	Social Interaction Anxiety	Social Isolation	Self-efficacy	Depression
Social Interaction Anxiety	-			
Social Isolation	.33***	-		
General Self-Efficacy	-.22*	-.37**	-	
Depression	.18***	-.10**	-.35	-

Note. ***$p<.001$, **$p<.01$, *$p<.05$, M = Mean, SD = Standard Deviation, SIA = Social Interaction Anxiety Scale, SIS = Social Isolation Scale, GSE= Generalized Self-Efficacy

Correlation coefficients between study variables social interaction anxiety, social isolation, generalized self-efficacy, and depression were calculated and presented in Table 3. Social interaction anxiety was found to be significantly and positively associated with social isolation and depression, and negatively correlated with self-efficacy in social networking users. It was also found that social isolation was found to be negatively associated with self-efficacy in the participants of the current research.

Table 4

Regression Analysis of Social Interaction Anxiety, Social Isolation, and Generalized Self-efficacy in Individuals Using Social Networking Sites (N=275)

Variables	SI			GSE			Dep		
	β	SEB	*t*	B	SEB	*t*	β	SEB	*t*
Constant	9.52	2.14	2.73***	8.92	2.31	1.96***	7.82	1.90	1.16***
SIA	.63	.16	3.18***	-.57	-.13	2.80***	.54	.20	2.25***

Note; β = beta values, SEB = standard error of beta values, Social interaction anxiety, SI = Social isolation, GSE= Generalized Self-Efficacy, Dep. = depression, *** = $p<.001$

Table 4 shows the findings of multiple regression analysis. Social interaction anxiety was entered as an independent or predictor variable and social isolation scale, self-efficacy, and depression were entered as dependent or outcome variables. Overall model was found significant with (F (2, 273) = 82.16, $p<.001$) signifying that social interaction anxiety predicts positively social isolation and depression, and negatively predicts self-efficacy and accounts for 5.37% variance in the outcome variable (R^2 = .43). Social interaction anxiety appeared as a significant positive predictor of social isolation and depression (β = .63, t = 3.18, p < .001) and significant negative predictor of self-efficacy (β = -.57, t = 2.80, p < .001) in individuals using social networking sites.

Table 5

Regression Analysis of Physical Activity, Social Networking Sites Usage, and Quality of Sleep Predicting Social Interaction Anxiety, Social Isolation, Generalized Self-Efficacy, and Depression in Social Networking Sites Users (N=275)

Variables	SIA			SI			SE			Dep		
	B	*SEB*	*t*	*B*	*SEB*	*t*	*β*	*SEB*	*t*	*β*	*SEB*	*t*
Constant	10.21	3.17	4.41***	8.20	4.51	3.48***	3.79	3.26	4.09***	4.01	3.17	3.18***
Physical activity	-.40	.10	3.62***	-.31	-.63	3.97***	.27	.36	3.82***	-.35	.12	4.19***
Hours using Facebook	.48	.17	3.79***	.46	.13	6.02***	-.49	.11	4.03***	.41	.27	4.81***
Hours using WhatsApp	.59	.25	4.03***	.46	.19	4.02***	-.46	.10	3.61***	.37	.16	3.73***
Hours using Insta	.38	.14	4.27***	.51	.18	3.80***	-.51	.24	5.30***	.48	.17	4.17***
Quality of sleep	-.46	.21	3.39***	-.49	.14	3.91***	.47	.20	4.78***	-.27	-.08	3.10***

Note. $β$ = beta values, SEB = standard error of beta values, ***$p < 0.001$, Hour using Insta = Instagram, Social Interaction Anxiety, SI = Social Isolation, SE= Self-efficacy, Dep. = Depression

Table 5 shows the findings of multiple regression analysis for physical activity, social networking sites use, and quality of sleep which were taken as predictor variables, and social interaction anxiety, social isolation, and social self-efficacy were taken as dependent variables. The goodness of the regression model was found significant with (F (2, 273) = 85.82, p < .001) suggesting that physical activity, and quality of sleep negatively predict social interaction anxiety, social isolation, and depression, and positively predict the self-efficacy of social networking users. Whereas, hours of using Facebook, hours of using WhatsApp, and hours of using Instagram positively predict social interaction anxiety, social isolation, and depression, and negatively predict self-efficacy in individuals (men and women) using social networking sites. Self-efficacy accounts for a 6.53% variance in the outcome variable (R^2 = .61).

Table 6

Gender Differences in Social Isolation, Generalized Self-Efficacy, and Depression in Individuals (men and women) Using Social Networking Sites (N=275)

Variables	Men		Women		t (273)	Cohen's d	95%CI	
	M	SD	M	SD			LL	UL
SIA	21.2	13.62	31.16	6.21	-3.46**	0.71	-3.48	-.83
SI	17.01	5.14	25.91	5.49	6.52***	0.80	-5.31	-4.17
GSE	26.91	6.02	18.00	7.12	4.98***	0.78	3.72	5.09
Dep.	10.35	3.03	23.61	6.11	5.03***	0.86	4.21	6.52

Note. **p<.01, ***p<.001, *M* = Mean, *SD* = Standard Deviation, Social Interaction Anxiety, SI = Social Isolation, SE= Self-efficacy, Dep. = Depression, CI = Confidence Interval, *LL* = Lower Limits, *UL* = Upper Limits.

Table 6 indicates the results of the independent samples t-test which shows statistically significant results of women having more social interaction anxiety, social isolation, social self-efficacy, and depression than men. Whereas, men had significantly high scores on self-efficacy as compared to women.

Discussion

The current study was conducted to explore the relationship between social interaction anxiety, social isolation scale, social self-efficacy, and depression in adult individuals (men and women) who use social networking sites e.g., Facebook, WhatsApp, Instagram, and Snapshot more frequently. The findings of the present research showed that social interaction anxiety was significantly and positively associated with isolation and depression. It was negatively correlated with self-efficacy. Further, social interaction anxiety negatively predicted self-efficacy in individuals (men and women) using social networking sites. Statistically significant gender differences were found in social interaction anxiety, social isolation scale, social self-efficacy, and depression. Whereas, demographic variables such as physical activity, hours of using Facebook, hours of using WhatsApp, and hours of using Instagram positively predict social interaction anxiety, social isolation, and depression, and negatively predict self-efficacy in social networking users. Moreover, the implications and limitations of the current research are given in this section.

The first hypothesis of research was proved and it was found that social interaction anxiety was significantly and negatively related with social isolation and depression in the participants (including men and women) of the current study who were users of social networking sites. The findings are in line with previous findings and provide evidence of a bidirectional association between social interaction anxiety and social isolation in social networking users (Niaz et al., 2023). People with pre-existing social interaction anxiety may turn to social media channels to reduce in-person interactions that can bring about discomfort. The perceived control over virtual communications and the ability to curate one's online persona might provide a sense of security for these individuals. However, prolonged reliance on social media as a coping mechanism may inadvertently lead to increased social isolation as online interactions cannot fully replace the richness and depth of real-world connections. Previous literature show that social anxiety produces psychological and cognitive deficits in people (Wang et al., 2019). Social media usage is correlated with depression (Hawi et al., 2018). The current findings are

in line with previous findings of the research conducted globally reporting the association of social interaction anxiety with depression (Al-Dwaikat et al., 2020; De-Jong et al., 2012; Jiang, 2021).

The findings of the present study showed that social interaction anxiety was significantly and negatively correlated with self-efficacy in social networks users. The findings corroborate with the previous findings reported by previous research that a significant negative correlation exists between social interaction anxiety and self-efficacy in individuals using social media (Niaz et al., 2023). Social interaction anxiety has been found to undermine self-efficacy beliefs, particularly in the domain of social interactions. Individuals experiencing high levels of social interaction anxiety often perceive social scenarios as intimidating challenges, where the negative evaluation and social rejection appear immense. Consequently, they may develop a distorted perception of their competence in having proficient social interactions, leading to lowering self-efficacy beliefs. Fear of failure and humiliation associated with social interaction anxiety might have eroded an individual's sense of control, further inhibiting their belief in their capacity to navigate social contexts (Meher et al., 2022; Niaz et al., 2023). This might be described in the light of the following reasons. First, individuals with social interaction anxiety tend to engage in negative cognitive appraisals of social situations, perceiving them as threatening and challenging. These appraisals undermine the perception of their abilities and undermine self-efficacy beliefs. Such individuals may catastrophize potential outcomes and assume that they lack the skills needed for successful interactions, thereby reducing their self-efficacy. Second, observational learning and vicarious experiences play a role in self-efficacy development. Individuals with social interaction anxiety may observe others' successful interactions on social media, leading them to compare their abilities unfavorably and reinforcing their sense of inadequacy. Third, social media platforms provide immediate feedback in the form of likes, comments, and shares. Positive feedback can enhance self-efficacy, as it serves as evidence of one's competence in navigating online interactions. However, individuals with social interaction anxiety may downplay positive feedback, attributing it to external factors rather than their skills, and instead focusing on any negative feedback, which can reinforce their self-doubt. Similarly, many other factors such as past experiences, social comparison, and the construction of virtual identity can influence the self-efficacy of individuals using social networking sites.

The third hypothesis of the study was supported as many demographic variables predicted social interaction anxiety, social isolation, self-efficacy, and depression in social networking users) (Table 5). Physical activity appeared to be a significant negative predictor of social interaction anxiety, social isolation, and depression, and a positive predictor of generalized self-efficacy in adults using social media more often. Research has established that physical activity, a fundamental aspect of human well-being, has garnered increasing attention for its potential to impact various facets of mental health (Al-Dwaikat et al., 2020; Jiang, 2021). Engagement in regular physical activity has been associated with reduced social interaction anxiety. Physical exercise contributes to the release of endorphins and other neurochemicals, which can alleviate feelings of anxiety and depression (Ernst et al., 2006; Phillips et al., 2001). Furthermore, individuals who partake in physical activity might experience enhanced self-esteem and body image, factors that can mitigate the negative self-perceptions often associated

with social interaction anxiety. This suggests that physical activity can serve as a mediator, enabling people to approach social interactions with greater confidence and reduced apprehension.

The next significant finding was that hours of using Facebook, WhatsApp, Instagram, and Snapchat positively predicted social interaction anxiety, social isolation, and depression, whereas, negatively predicted generalized self-efficacy in young social networking users. Social media has become part and parcel of our lives in this modern age. However, its excessive use brings many physical and psychological health challenges (Jameel et al., 2022). As explored by many researchers social networking use is a significant predictor of anxiety, stress, depression, selfies-posting addiction, narcissism obsessive compulsive disorder, and post-traumatic stress disorder. And many times, these social media users need psychological therapy to normalize their personal lives (Jameel et al., 2022).

Another important finding of the study was the quality of sleep as a significant predictor of social interaction anxiety, social isolation, and depression in young adults. Similarly, it appeared a significant negative predictor of self-efficacy (Table 5). Sleep is a basic motivation of human life, affecting many areas of our physical and mental health and well-being. Among its many benefits, the quality of sleep has emerged as a strong factor in determining an individual's self-efficacy, which is the belief in one's ability to accomplish tasks and achieve goals (Meher et al., 2022). In recent years, researchers and healthcare professionals have increasingly recognized the profound and positive relationship between the quality of sleep and self-efficacy in people (Meher et al., 2022). Because, the quality serves as the body's natural reset button, allowing individuals to recharge, recover, and rejuvenate, it boosts the self-esteem and efficacy of adults to focus

their attention on the other essential tasks to perform (Meher et al., 2022).

Indeed, the results provide unique findings of introducing social interaction, social isolation, self-efficacy, and depression in social networking users. Social isolation, self-efficacy, and depression as outcome mental health problems for a sample taken from an Asian collectivistic cultural context can be compared to many studies conducted with the individualistic Western, American, and Chinese samples. The findings are noteworthy in several other aspects that allow for understanding the previous findings from a different and unique perspective. Notably, the overall findings of social anxiety on severe mental health issues remained a significant predictor of the psychological health of adults.

Limitations, Strengths, and Future Directions

Certain limitations should be considered when interpreting the findings and implications of this study, all of which guide future investigations. First, although the assessment of regression models is guided by and supported by the effects as conceptualized by Mattick and Clarke (1998b) by the theory of social interaction anxiety, the correlation study design limits our ability to draw causal inferences. The small sample size also limits the external validity of the current research. Physical activity and quality of sleep appeared as significant predictors of social interaction anxiety, social isolation, self-efficacy, and depression, hence, future research may explore other important links between them. Further, the association and predictive characteristics of other demographic variables with social interaction anxiety, social isolation, generalized self-efficacy, and depression can be explored.

Conclusion

In conclusion, social interaction anxiety is associated with social isolation, self-efficacy,

and depression. The study found that demographic variables physical activity, hours of social media channels, and quality of sleep predicted social interaction anxiety, isolation, self-efficacy, and depression. Similarly, strong gender differences in social interaction anxiety, isolation, self-efficacy, and depression in individuals using social networking sites.

Implications

The findings may have implications for policymakers, researchers, counselors, and clinical practitioners. Various programs, and services should be designed at government and private levels to enhance the awareness among adults to minimize the use of social media channels to protect their mental health. Lectures and seminars should be arranged in educational institutions to guide the students about the productive and beneficial uses of social media. This study highlights the need to promote the use of general awareness and counseling programs to enhance social media-related physical and health-related challenges. It is expected that the well-being and mental health of social networking users can be increased by employing the recommendations given in the discussion in future research.

Contribution of Authors

Shaista Jabeen: Conceptualization, Methodology, Writing - Reviewing & Editing, Supervision
Mamoona Mushtaq: Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft
Arfa Ayesha Shahid: Data Curation, Formal Analysis, Writing – Original Draft, Writing - Reviewing & Editing

Conflict of Interest

There is no conflict of interest declared by the authors.

Data Availability Statement

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [S.J.] upon the reasonable request.

References

Ahmad, N. Mushtaq, M. Jabeen, S., & Shah, S. (2023). Social interaction anxiety, self-esteem and academic achievement in students from rural Punjab. *Journal of Policy Research, 9*(1),13-19. https://doi.org/10.5281/zenodo.7726248

Al-Dwaikat, T. N., Aldalaykeh, M., Ta'an, W., & a Rababa, M. (2020). The relationship between social networking site usage and psychological distress among undergraduate students during COVID-19 lockdown. *Heliyon, 6*(12), 56-63. https://doi.org/10.1016/j.heliyon.2020.e05695

American Psychological Association. (2020). *Publication Manual of the American Psychological Association 2020: the official guide to APA style* (7th ed.). American Psychological Association

Asher, S., & Paquentt, J. (2003). Loneliness and peer relations in childhood. *Current Directions in Psychological Science, 12*(3), 75-78. https://doi.org/10.1111/1467-8721.0123

Bandura, A. (1997). Self-efficacy: The exercise of control. New York, NY: Freeman.

Bandura, A. (2000). Self-efficacy. In A. C. E. Kazdin (Ed.), Encyclopedia of psychology (Vol. 7, pp. 212-213).

New York, NY: Oxford University Press. https://doi.org/10.1037/10522-0

Barbosa, B., Chkoniya, V., Somões, D., Filipe, S., & Santos, C. A. (2020). Sempre ligados: Utilização dos smartphones pela geração Y e capital social. *Revista Ibérica de Sistemas e Tecnologias de Informação, 35,* 152-166.

Beck, A. T., Steer, R.A., & Garbin, M.G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*(1), 77-100. https://doi.org/10.1016/0272-7358(88)90050-5

Beck, A.T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961) An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.

Boursier, V., Gioia, F., Musetti, A., & Schimmenti, A. (2020). Facing loneliness and anxiety during the COVID-19 isolation: media, and interpersonal communication. *Journal of Loss and Trauma, 26*(2), 101-115.

Chen, H.-T., & Li, X. (2017). The contribution of mobile social media to social capital and psychological well-being: Examining the role of communicative use, friending, and self-disclosure. *Computers in Human Behavior, 75*(3), 958-965. https://doi/org/10.1016/j.chb.2017.06.011

Cheng, H. & Furnham, A. (2002). Personality, peer relations, and self-confidence as predictors of happiness and loneliness. *Journal of Adolescence, 25,* 327-339. https://doi.org/10.1006/jado.2002.0

Claggett, J.L., & Goodhue, D.L. (2011). Have researchers lost Bandura's self-efficacy concept? A discussion of the definition and measurement of computer self-efficacy. *The 44th Hawaii International Conference on System Sciences.* https://doi.org/10.1109/HICSS.2011.219

Datareportal. Digital 2023 Pakistan. https://datareportal.com/reports/digital-2023-pakistan

De Jong-Gierveld, J., & Kamphuis, F. (1985). The development of a Rasch-type loneliness scale. *Applied Psychological Measurement, 9(2)*, 289-99. http://dx.doi.org/10.1177/014662168500900307

De-Jong, P., Sportel, B., De Hullu, E., & Nauta, M. (2012). Co-occurrence of social anxiety and depression symptoms in adolescence: Differential links with implicit and explicit self-esteem? *Psychological Medicine, 42*(3), 475-484.

de Visser, O. R., & Mushtaq. M. (2021). Masculinity beliefs and willingness to seek help among young men in the United Kingdom and Pakistan". *Psychology, Health & Medicine, 27* (5), 1052-1062.https://doi.org/10.1080/13548506.2020.1847301

Doganer, S., & Akoglu, H. E. (2020). The effect of sports science students' social media addictions on redundant purchasing behavior. *Asian Journal of Education and Training, 6(*4), 616–626. doi:10.20448/journal.522.2020.64.616.626

Ernst, C., Olsen, A. K., Pinel, J. P., Lam, R. W., & Christie, B. R. (2006). Anti-depressant effects of exercise: Evidence for an adult-neurogenesis hypothesis. *Journal of Psychiatry & Neuroscience, 31*(2), 84-92.

Escobar-Viera, C. G., Shensa, A., Bowman, N. D., Sidani, J. E., Knight, J., James, A. E., & Primack, B. A. (2018). Passive and active social media use and depressive symptoms among United States adults. *Cyberpsychology, Behavior, and Social Networking, 21*(7), 4370-443. https://doi/org/10.1089/cyber.2017.0668

Hawi, N. S., Samaha, M., & Griffiths, M. D. (2018). Internet gaming disorder in Lebanon: Relationships with age, sleep habits, and academic achievement. *Journal of Behavioral Addictions, 7*(1), 70-78.

Hermann, K. S., & Betz, N. E. (2006). Path models of the relationships of instrumentality and expressiveness, social self-efficacy, and self-esteem to depressive symptoms in college students. *Journal of Social and Clinical Psychology, 25*(1), 1086-1106. https://doi.org/10.1521/jscp.2006.25.10.1086

Iqbal, J., Asghar, M. Z., Ashraf, M. A., & Rafiq, M. (2022). Social media networking sites usage and depression among university students during the COVID-19 pandemic: The mediating roles of social anxiety and loneliness. *Social Media & Society*, *8*(3). https://doi.org/10.1177/20563051221107633

Jameel, R., Adeeb, S., Latif, S., Mushtaq, M & Jabeen, S. (2022). Social isolation and resilience coping as correlates of mental health in adults during COVID-19 pandemic. *Journal of Medical Sciences Peshawar, 30*(3), 176-181. DOI: https://doi.org/10.52764/jms.22.30.3.3

Jiang, Y. (2021). Mobile social media usage and anxiety among university students during the COVID-19 pandemic: The mediating role of psychological capital and the moderating role of academic burnout. *Frontiers in Psychology, 12*(1,) 76-86.

Jiao, Y., Jo, M.-S., & Sarigöllü, E. (2017). Social value and content value in social media: Two paths to psychological well-being. *Journal of Organizational Computing and Electronic Commerce, 27(1*), 3-24. https://doi.org/10.1080/10919392.2016.1264762

King, D. L., & Delfabbro, P. H. (2016). The cognitive Psychopathology of internet gaming disorder in adolescence. *Journal of Abnormal Child Psychology, 44*(8), 1635-1645. https://doi/org/ 10.1007/s10802-016-0135-y

Larson, R. W. (1999). The uses of loneliness in adolescence. In K.J. Rotenberg & S. Hymel(Eds), Loneliness in childhood and adolescence. (pp. 244-262). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511551888.01

Mattick, R. P., & Clarke, J. C. (1998a). *Social Interaction Anxiety Scale (SIAS)* [Database record]. APA PsycTests. https://doi.org/10.1037/t00532-000

Mattick, R. P., & Clarke, J. C. (1998b). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behavior Research and Therapy*, *36*(4), 455–470. https://doi.org/10.1016/s0005-7967(97)10031-6

Meher, K., Mushtaq, M., & Fatima, S. (2022). Death anxiety and well-being

in doctors during COVID-19: The explanatory and boosting roles of sleep quality and work locality. *Omega*, 302228221078074. Advanced online publication. https://doi.org/10.1177/00302228221 07807

Mushtaq, M. Anjum, A., Jameel, R., Shahis, A. A., Dastgir, M. H. A. (2020). Stigma of disability, social interaction anxiety, and self-worth in adolescents with physical disabilities. *Journal of Post Graduate Medical Institute. 34* (02), 98-103. https://jpmi.org.pk/index.php/jpmi/ar ticle/view/2582/2393

Ostic, D., Qalati, S. A., Barbosa, B., Shah, S. M. M., Galvan Vela, E., Herzallah, A. M., & Liu, F. (2021). Effects of social media use on psychological well-being: A mediated model. *Frontiers in Psychology*, *12*, 381-88.

Phillips, W. T., Kiernan, M., & King, A. C. (2001). *Effects of physical activity on physical and psychological health: Implications for exercise adherence and psychophysiological mechanisms*. In A. S. Baum, T. A. Revenson, & J. Singer (Eds.), *Handbook of health psychology*. London: Lawrence Erlbaum.

Reer, F., Tang, W. Y., & Quandt, T. (2019). Psychosocial well-being and social

media engagement: The mediating roles of social comparison orientation and fear of missing out. *New Media & Society, 21*(7), 1486-1505.

Schwarzer, R., & Jerusalem, M. (1995). *Generalized self-efficacy scale.* In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: Nfer-Nelson.

Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social networking sites, depression, and anxiety: A systematic review. *JMIR Mental Health, 3*(4), 58-65.

Twenge, J. M., & Campbell, W. K. (2019). Media use is linked to lower psychological well-being: Evidence from three datasets. *Psychiatric Quarterly, 90*(2), 311-331.

Wang, H., Mo, C., & Fang, F. (2020). Dissociated deficits in attentional networks in social anxiety and depression science, *China. Life Sciences, 63(5)*, 1071-1078.

Wang, J. L., Sheng, J.-R., & Wang, H.-Z. (2019). The association between mobile game addiction and depression, social anxiety, and loneliness. *Frontiers in Public Health, 7*(3), 247-58.