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Facebook Usage and Anxiety Levels among University Students: A Correlational Study

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Abstract

This study aimed to explore the relationship between Facebook usage and anxiety levels among university students. A quantitative research approach using cross-sectional study design was adopted and the sample of 180 participants was taken from Bahria University Islamabad and Air University Islamabad. Data was collected using a self-administered questionnaire comprising two sections; Section 1 included general information regarding demographic factors, while Section 2 included the Facebook Use Intensity Scale (FBI) and Generalized Anxiety Disorder Assessment (GAD-7). To test the hypotheses of the research, Pearson correlation, linear regression analysis, and T-test Analysis were conducted. The findings revealed a significant positive relationship between Facebook usage and anxiety levels, suggesting that Facebook activity predicts anxiety among students. Gender differences in Facebook usage were not significant, but females exhibited higher anxiety levels compared to males, indicating gender-based differences in anxiety experiences.

***Keywords**:* anxiety, Facebook, Facebook Use Intensity Scale, university students

Introduction

The growing popularity of social networking platforms as a means of communication has drawn significant attention from researchers. The digitalization of communication channels has given birth to a completely new form of interaction, which enables users to connect and communicate with acquaintances, family, and colleagues globally via Facebook, WhatsApp, Instagram, and Twitter. People can share their personal experiences, and opinions and as well as view the everyday lives of others with just one click, because of the accessibility of smartphones (Seabrook et al., 2016). Today, the well-known and widespread networking site Facebook has a count of one billion users, with statistics indicating an

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estimated 43.55 million people using Facebook in Pakistan (Kemp, 2022). Facebook has been widely used by people and enterprises as a strategic tool for creating brand awareness, marketing campaigns, and advertising to track customer needs and enhance their businesses (Chakraborty, 2017). However, the beneficial power of Facebook has increased social connectivity and intercommunication, but past studies have also discovered the negative psychological impacts of virtual networking such as depression, anxiety, dissatisfaction with intimate relationships, disturbed sleep, feelings of inferiority, and general distress among people (Kross, 2013).

Facebook was created in 2004 and within two years, it was able to grasp the attention of adolescents and adults worldwide. The emergence of Facebook has not only paved the way for exercising communication effectively but has also given rise to the phenomenon of "Facebook addiction." Facebook addiction can be defined as excessive and habitual use of Facebook for a specific period, which influences the development of pathological attachment towards Facebook, therefore an individual becomes addicted to using Facebook all day (Chakraborty, 2017). In a few studies, Facebook addiction has been positively correlated with anxiety, depression, and insomnia (Koc & Gulyagci, 2013). Meanwhile, personality traits e.g., Neuroticism, Extraversion, also low self-esteem were found to be positively related to Facebook compulsive use (Andreassen et al., 2012). However, the gender of users had no impact on predicting the compulsive behavior of using Facebook (Koc & Gulyagci, 2013).

Most people are aware of the Facebook paradox nowadays. It has been associated with unfavorable outcomes for mental health, particularly depression. Depression is more than just melancholy; many who suffer from depression experience severe impairments in their day-to-day functioning, including loss of interest, enjoyment, focus, and energy in everyday tasks, as well as disruptions in their weight and sleep patterns, feelings of worthlessness and guilt, and suicidal thoughts. Individuals who have an addiction to Facebook use it on a regular basis and engage in "social comparison," which is the practice of comparing one's life to others (Yang et al., 2019). If this comparison is upward, it usually makes the person feel worse, which can lead to them being distant. In addition, they could get anxious about obtaining items that they have compared to other individuals. Anxiety is an emotional state that manifests as tenseness, elevated blood

pressure, and worrisome thoughts. Facebook makes people more anxious because they compare themselves to others and worry excessively about what's happening while they're not online, which drives them to constantly check their newsfeeds, profiles, and other accounts. Due to the constant desire to check Facebook, many become agitated and restless if they are restricted to access it.

In a study, a higher prevalence of Facebook usage was found among females compared to males. Also, females reported experiencing insomnia due to excessive use of Facebook and the posted pictures on Facebook were harming their self-image. Additionally, they showed anxiousness and distress upon the deprivation of access to Facebook, indicating addictiveness to the site (Thompson & Lougheed, 2012). Meanwhile, Smahel et al. (2008), found males were more prone to becoming addicted to online social platforms because of the attraction of the gaming features present on social apps. Facebook offers its users multiple benefits and tools, which enable them to interact with friends via texting, liking, commenting, and sharing information such as pictures, videos, and traveling/dining check-ins. Furthermore, an individual can engage in numerous activities using the Facebook platform alone, for instance, users can integrate their Facebook activity with other social sites, such as Instagram, and Twitter. Moreover, Facebook allows users to be continuously notified of Facebook feed activity by sending notifications, which work as a prompt in facilitating "classical conditioning", a principle introduced by Sigmund Freud, where a response is reinforced by some stimulus for a certain amount of time, so in simpler words being aware of Facebook activity continuously encourages the users to become addictive of what's happening on Facebook (Hormes et al., 2014).

According to WHO, mental health is not limited to the absence of any disability or psychological disorders but rather it is a condition characterized by a person's coping mechanism to deal with troubles and worries by utilizing his or her abilities to maintain productive and beneficial attitude towards personal work and communal society (World Health Organization, 2018). Over the past years, the topic of mental has been investigated in association with social networking sites by scholars. However, a longitudinal study was conducted to explore the link between social media and its contribution to psychological problems such as anxiety and depression, yet time spent on social networking sites did not reveal a

decrease or increase in mental health conditions e.g., depression or anxiety (Coyne, et al., 2020). On the contrary, few investigations indicated the persistent use of Facebook-like social media applications to be linked with deteriorating outcomes in terms of anxiety, despair, and psychological distress (Davidson & Farquhar, 2014). Generally, anxiety is perceived as an emotional response marked by heightened tension and excessive feeling of worry along with bodily and physiological changes such as palpitations, tense muscles, rapid heartbeat, and increased blood pressure (American Psychological Association, 2020). Although to some extent anxiety is healthy for daily functioning recurrent, pervasive, and ongoing anxiety that is excessive in actuality, when compared to a real stressor is known as an anxiety disorder (Emery, 2022).

Problem Statement

The emergence of digital mediums and online communication has transformed interpersonal interactions, with many individuals engaging in online chatting, sharing personal information, and browsing on platforms like Facebook. However, the extent to which the use of Facebook and similar apps influences emotional, cognitive, and behavioral changes remains a significant question. While some studies suggest a link between continued use of social networking apps and depression and anxiety, others propose that prolonged use may lead to low self-esteem (Kaye, 2018). On the contrary, there are findings suggesting a positive impact of social media sites on mental health (Pantic, 2014). Despite these conflicting findings, the relationship between Facebook usage and mental health remains controversial, requiring further exploration and clarification. Therefore, it is imperative to investigate the negative impact of Facebook use and its effects on mental health. The primary goal of this research is to examine the relationship between Facebook and anxiety and its implications for individuals' psychological well-being.

Objectives

This study aims to explore the following objectives:

1. To examine the correlation between use of Facebook and anxiety among university students.
2. To assess the impact of demographic variables, such as gender, on Facebook usage and its consequences on university students' mental health.

The research questions are as follows:

1. What is the relationship between the frequency and intensity of Facebook usage among university students and their levels of anxiety?
2. What role does gender play in moderating the relationship between Facebook usage and mental health outcomes among university students?

The following are the study hypotheses:

H 1: There is a significant and positive relationship between Facebook usage and anxiety among university students.

H 2: There are gender-based disparities in both the levels of Facebook usage and the levels of anxiety among university students.

The current study aims to examine the influence of Facebook usage on anxiety levels among the university students, with a focus on moderating aspect of gender. The first research question focuses on the role of Facebook frequency and intensity in explaining the current anxiety levels among the users. Hypothesis (H1) says that there is a linear and significant positive correlation between Facebook usage and anxiety among students at the university. The second research question investigates the influence of gender on the relationship between Facebook usage and mental health outcomes. Hypothesis 2 (H2) proposes that there are gender-based disparities in both the frequency and intensity of Facebook usage and the levels of anxiety among university students. By exploring how Facebook utilization contributes to the mental health of college students, this study aims to shed light on issues such as the frequency as well as intensity of the usage, together with the possible gender differences.

Significance of the Study

Frequent studies have explored the prevalence of anxiety among varied populations and diversified ethnicities; however, the focus of this research is to explore the phenomena of Facebook usage and anxiety levels among the university students. Statistical evaluation in a previous study demonstrated the prevalence of anxiety symptoms among clinical and normal adult populations, selected from diverse zones of Gujrat, Pakistan. 40 percent of the population depicted high-functioning anxiety, while 54 percent of the sample showed a moderate level of anxiety (Bano et al., 2021). Furthermore, a study found 46.8% and 17.8% prevalence of anxiety

among university students of Sialkot, Pakistan, representing a range from high to mild intensity of anxiety (Asif et al., 2020). Many cross-sectional Muzaffar et al. (2018) and longitudinal studies Karim et al. (2020) have analyzed mental health problems with different etiological factors contributing to anxiety and depression. But with the increasing use of Facebook, questions have arisen about its contribution to the deterioration of the psychological health of individuals. While past studies have investigated the possible risks of using Facebook on one's overall psychological and physical health, the existing study aims to explore the presence of anxiety among Pakistani university students due to the use of Facebook. Generally, Facebook has been utilized as an effective medium to connect and communicate with people. Thus this study aims to find the consequences and impacts of Facebook usage on psychological health of the university students.

Cultivation theory originated from the concept of perception alternation due to long-term exposure to television, however, the tremendous fame of social media and massive exposure to Facebook has raised concern among researchers over the negative effect of Facebook on the cognitive and emotional abilities of individuals. Thus, this study aims to integrate the theory of cultivation in the context of Facebook to understand the assimilation process of Facebook into people's lives and how it impacts them cognitively. Also, the findings of this study will deliver an understanding of the significant or non-significant relationships between research variables e.g., Facebook and Anxiety. Such findings will be significant in unveiling the assumptions and concerns of individuals towards new digital networks specifically in the context of Pakistan.

Literature Review

To explore the long-term influence of television watching on an audience's perception of social reality, a theoretical notion known as cultivation theory was formulated by George Gerbner. This theory aimed to explore the psychological alterations related to seeing the real world, shaped by prolonged exposure to television. Cultivation theory is based on the hypothesis that individuals who indulge in more television watching than individuals who are less likely to watch television are likely to perceive the real world in a way that is portrayed in television programs or broadcasts (Gerbner, 1969). Back then, the highly prevalent and significant source of mass media was television which was considered an information-relaying

system having repetitive visual content and messages, and such exposure and assimilation of information over an extended period resulted in the altered reality of the world among spectators (Signorielli & Morgan, 2009). The study of spectators' attitudes toward distorted reality led to a theory based on the cognitive predisposition of individuals which is recognized as "Mean World Syndrome". Gerbner (1969), described the idea of mean world syndrome as a distorted perception of the world as a treacherous place because of prolonged exposure to violent content. Yet such violent depiction on television creates a false reality for viewers which may lead to wariness and skepticism and increased apprehension about becoming victims of violence in reality (Moyer et al., 2008).

Due to the shift in the digital paradigm, several studies over the past years have redirected their attention from traditional channels like television to social media platforms such as, Facebook, Instagram, and Twitter to explore the pathologies and addictions related to the internet and social networking sites. Thus, it is important to explore the cultivation effect of social media and how users' reality is being influenced by the media of today. In today digital landscape, dissemination of news, storytelling, and stereotypical depictions have been shifted to online mediums which create a sense of virtual and fabricated reality among people. The top networking platforms, Facebook, Twitter, Instagram, Snapchat, and YouTube play their role in influencing and changing the perception of the real world through the content shared online. Hence, the cultivation theory of Gerbner is based on the principle that cultivating process begins with presumptions, proceeding with a conclusion, and the process culminates with a judgment, and such a process is similar to how people are acting and perceiving information on social media (Nevzat, 2018). Further, Nevzat (2018), explained that social media users are prepared to engage on these platforms and communicate whatever they wish, like and support. Hence, anything that is posted on online contributes to the formation of beliefs and may result in biases and judgment. So, behaviors such as, posting, following, tweeting, and liking originate from perceived beliefs and assumptions and such behaviors depict the relaying of a person's formulated opinions and judgments.

The need to construct a theory regarding the influence of social media on people's perceptions of reality is very crucial and demanding. Gamson et al. (1992), described the reality built by social platforms as stated, "We

carry along media-produced representations of the world that we use to interpret socio-political challenges. The lens that these images are seen through is not objective; rather, it reflects the strength and viewpoint of the political and economic elites who control it and direct its emphasis. And this system's peculiar brilliance is that it renders the total process look so natural and unspectacular that the actual act of social formation remains indeed hidden." (Gamson et al., 1992, p. 373). As stated above, the power of social media cannot be undermined easily as it plays a vital role in the creation of a perfect or idealized view of the world. Gerbner (1969), hypothesized a claim regarding television as a source of distorting reality, thus, similarly portrayal on social media regarding impeccable looks, ideal love, and ideal lifestyle, has tremendously distorted the views of actually flawed realities of the world. However, on social media, users control the portrayal of a relatively flawless, unrealistic picture that is often distinct from their ordinary life (Nevzat, 2018). Previous studies were linked both with the negative and positive impacts of social media, however, researchers have generated diverse results regarding the effect of social media usage. Few studies have shown any detrimental impacts of social media on the psychological health of individuals (Michelle, 2020). While few indicated negative and pathological problems arising from addictive behavioral use of Facebook (Kross, 2013; Chakraborty, 2017).

A longitudinal study conducted by Feder et al. (2020), explored the relationship between mental health and social media usage. The results of the study indicated symptoms of emotional disturbance among participants due to the prolonged and excessive use of Facebook. Furthermore, a study emphasized the communication overload of social media and how it affects the mental health of users. The outcomes indicated that recurrent interaction among Facebook users was associated with increased distress (Chen & Lee, 2013). Another study evaluated the role of social media in the progression of depression, anxiety, and emotional stress among adolescents. This study examined the components of social media which were categorized into four specific areas such as activity (engagement and interaction), investment (putting effort and time), time spent on social channels, and addiction (dependency on social media). The outcomes of this study showed that all these components were correlated with despair, anxiety, and psychological distress (Keles et al., 2019). However, sixteen research papers were reviewed to explore the effects of social network usage on mental health. These reviewed articles had eight cross-sectional studies, three longitudinal

studies, and two qualitative research, and the remaining were systematic analyses. Overall, the major conclusions were categorized into two main themes of psychological crises such as anxiety, and depression. The explored detrimental risk had a positive correlation with the amount of time spent on media, interest, and obsession with social media. Also, this study highlighted social media envy as a moderating factor in inducing anxiety and depression among individuals (Karim et al., 2020).

Lee-Won & Park (2015), highlighted the moderating role of the need for social assurance in predicting the relationship between social anxiety and problematic usage of Facebook. The outcomes of the study signified the positive association between social anxiety and Facebook, because those who had a high need for social reassurance had high social anxiety which led to the use of Facebook. Conversely, users with low levels of social reassurance and social anxiety displayed insignificant results concerning problematic Facebook usage. Additionally, the heightened state of anxious arousal was suggested to be caused and reinforced by enhanced and recurrent behavior of Facebook use. This means individuals having anxiety may suffer from nervousness, worry, and apprehension, and this uncontrolled state of worry, leading them to frequently check their previous posts on Facebook (Muzaffar et al., 2018). Similarly, Shaw et al. (2015), found a positive relationship between Facebook behavioral activation such as liking, chatting, and posting on someone's wall, and heightened generalized anxiety.

Another research established a relationship between Facebook addiction, isolation, social anxiety, mental health, and personality traits which were measured using the Big Five inventory based on extraversion, openness, neuroticism, agreeableness, conscientiousness, and agreeableness. The outcomes of the study indicated an association between Facebook dependence and social anxiety, extroversion, isolation, narcissism, and decreased self-worth among Polish university students. The implications of the study also indicated Facebook addiction as a contributing factor in the deterioration of the overall psychological well-being of individuals e.g., reduced quality of sleep, diminished overall health, and elevated distress (Atroszko et al., 2018).

Furthermore, Kreyar and Wok (2020), supported the idea of applying cultivation theory to social media platforms to explore the high usage of social networking sites and their contribution to the development of mental

health issues. Their research explored the relationship between social media addiction and mental health problems such as, depression, anxiety, and lack of mental attention. Hence, the results of the study highlighted the prevalence and significance of Facebook as the most widely used networking site. Also, this research signified the direct association between the habitual tendency to use social media and psychological problems. Thus, researchers recommended restricting the time spent on social media to prevent emotional wellbeing complications.

To summarize the reviewed literature, there is rising worry among people regarding the unnecessary and unchecked use of Facebook which affects mental health by developing psychological problems like anxiety. However, to prevent users from experiencing a distorted idea of reality, the theory of cultivation has emphasized the significance of comprehending and deciphering the unfiltered and hidden meanings of Facebook posts. In previous research, Facebook has been demonstrated as a contributing component in the development of anxiety, which undoubtedly is one of the most prevalent psychological issues in the technological age and also, heavily prevalent among people. For this purpose, researchers must determine whether internet addiction and subsequent use of Facebook are causing the general public to become more anxious and nervous. Therefore, for a better and more comprehensive understanding of the study variables, this research intends to explore the correlation between Facebook usage and its adverse consequences on users' psychological health.

Methodology

The sample selected for this study comprised university students of both genders, with the age range between 19-30 years. This age group was chosen because these students being in the university with similar life stages are likely to share comparable experiences and perceptions about Facebook use and anxiety. Moreover, this range represents a significant portion of the college student population which is typical thus making it possible to conduct a more representative survey. Moreover, as this age group is much likely to spend more time on social media platforms, and Facebook is the most popular amongst them. Therefore, they are an ideal research subject where the potential influence of Facebook use on anxiety can be assessed.

A total of 180 participants were chosen from two universities: 93 from Bahria University Islamabad and 87 from Air University Islamabad. The

inclusion criteria for recruiting participants included male and female students from these universities. The exclusion criteria excluded students from other institutions. Additionally, participants were required to be aged between eighteen and thirty.

Excessive and uncontrollable worry and feeling of uneasiness or nervousness regarding everyday life is followed by difficulty in relaxing one's mind and being agitated, irritable, and infuriated. Also, dwelling on fearful and anxious thoughts regarding future events that something dreadful might occur (Spitzer et al., 2006). The pattern of using Facebook for an extended period and the active participation from liking, and posting to several contacts on Facebook, create emotional attachment towards to the platform. Also, active engagement leads to the assimilation of Facebook into the everyday life of individuals (Ellison et al., 2007).

This research employed a correlational study design that utilized the survey technique to investigate the relationship between Facebook usage and anxiety. For this purpose, the non-probability sampling technique recognized as the convenience sampling method, was used to gather the data from students of Bahria University, Islamabad, and Air University, Islamabad. The research instruments included demographic information, the Facebook Use Intensity Scale (FBI) (Ellison et al. (2007) and the Generalized Anxiety Disorder Assessment (GAD-7) (Spitzer et al., 2006). Students were requested to provide their age, gender, and institution name to record their demographic specifics. Ellison et al. (2007), developed the Facebook Use Intensity Scale. This instrument consists of 8-items, which were intended to determine the specified period spent on Facebook, social network size, and the extent of assimilation of Facebook in the everyday life of users. The items of scale were assessed on a 5-point Likert scale contrasting from 1 (*strongly disagree*) to 5 (*strongly agree*). Studies have reported relatively high internal reliability of the Facebook Intensity Scale with a Cronbach's alpha = 0.82 (Ellison et al., 2007), and another finding stated Cronbach´s alpha of FBI as 0.89 (O'Hagan, 2013).

GAD-7 was created by Spitzer and his colleagues in 2006 to assess the severity of symptoms related to anxiety. GAD-7 consists of 7 items and responses to the items are based on the Likert scale, which categorizes responses as follows: 0= *not at all*, 1= *several days*, 2= *more than half the days*, and 3= *nearly every day*. The items are intended to measure feelings of nervousness, restlessness, excessive worrying, difficulty in relaxation,

irritability, coping in controlling troublesome thoughts and fearful thoughts. This instrument has demonstrated good validity and reliability. The Cronbach's alpha value for GAD-7 was reported to be 0.89 (Zhong, et al., 2015). A Google response form was created using Microsoft Google Forms in which participants had to provide their demographic information such as age, gender, and institution. Also, participants were required to fill in their desired responses on respective scales, the Facebook intensity scale and the generalized anxiety disorder assessment scale. Suitable instructions related to the purpose of the research and completion of the survey form were given to students. Students provided consent to participate in this study and, the confidentiality of information provided by students was ensured by the researcher. The students of Bahria University and, Air University were approached by the researcher through the sharing of links on WhatsApp and Email related to the Google response forms. The successful responses were recorded and transferred to the datasheet. Later, the response of participants was calculated and evaluated through SPSS, the statistical package for social sciences. By using SPSS, descriptive statistics were obtained to ascertain the frequency and percentage of the sample, also the psychometric properties of research variables were measured. Further, to test the hypotheses of the research, Pearson correlation, linear regression analysis, and t-test Analysis were conducted.

Results

Table 1

Socio-Demographic Attributes of Sample (N=180)

		f	%
Gender	Male	108	60.0
	Female	72	40.0
Institution Name	Bahria university	93	51.7
	Air university	87	48.3
Age	19	16	8.9
	20	21	11.7
	21	27	15.0
	22	22	12.2
	23	28	15.6
	24	23	12.8
	25	9	5.0

	f	%
26	12	6.7
27	8	4.4
28	5	2.8
29	3	1.7
30	6	3.3

Table 1 demonstrates the descriptive statistics of the sample, mainly comprised of university students (*n* =180). In the provided data, 60.0% of participants were male (*n* =108) and 40.0% of the participants were females (*n* =72). Moreover, 51.7% of the sample belonged to Bahria University (*n* =93) while the other 48.7% belonged to Air University (*n*=87). The age group of the sample ranged from 19-30 yrs. All the age percentages of the sample are stated as follows, 8.9% were 19 years old, 11.7% were 20 years old, 15.0% were 21years old, 15.6% were 23yrs old, 12.8% were 24yrs old, 6.7% were 26yrs old, 3.3% were 30yrs old.

Table 2

Psychometric Properties of Facebook and Anxiety (N=180)

			Range		
Variables	*M*	*SD*	Min	Max	Cronbach's *a*
Facebook	27.75	7.74	7	42	.83
Anxiety	12.22	5.91	0	21	.91

Table 2 demonstrates the value related to the alpha reliability coefficient along with the Mean, Standard deviation, and Minimum to Maximum ranges for the Facebook intensity scale and generalized anxiety disorder assessment measures. The reported reliability of the Facebook Intensity scale is (*a* =0.83) and the Generalized Anxiety Disorder Assessment scale has reliability of (*a* =0.91).

Table 3

Pearson Correlation for Facebook Intensity Scale and Generalized Anxiety Disorder Assessment Scale (N=180).

	M	*SD*	1	2
1. Facebook	27.75	7.74	-	
2. Anxiety	12.22	5.91	.63**	-

Note. **p<0.01. *p<0.05.

Table 3 demonstrates the bivariate correlation between Facebook and Anxiety for the study sample (*N*=180). As shown, Facebook usage is significantly positively correlated with anxiety with the value of (r = .63, p = 0.01).

Table 4

Independent Sample t-Test Analysis amongst Male and Female University Students on Study Variables of Facebook and Anxiety (N=180)

	Male (*n*=108)		Female (*n*=72)		t	p	95% CL		Cohen's d
	M	*SD*	*M*	*SD*			*LL*	*UL*	
Facebook	27.78	7.12	27.71	8.63	.06	.95	-2.26	2.40	0.01
Anxiety	11.44	5.99	13.39	5.63	2.20	.02	-3.71	-2.26	0.34

Table 4 demonstrates the results of the independent sample t-test related to gender differences (male and females) on research variables Facebook and Anxiety. The statistics indicated no significant differences between males and females for the study variable (Facebook). Meanwhile, significant positive differences between males and females were reported for Anxiety as females had higher levels of anxiousness than males.

Table 5

Linear Regression Analysis to Predict Anxiety by Use of Facebook (N=180).

Effect	Estimate	*SE*	95% Cl		*p*
			LL	*UL*	
Constant	-	1.29	-3.58	1.50	.001
Facebook	4.62	0.45	0.39	0.57	.001

Table 5 illustrates the results of simple linear regression that was conducted to explore the predictive relationship between Facebook usage and anxiety levels. The results depicted a significant regression equation (F= 114.3, p < 0.01) with an R^2 of 0.39. Hence, the participant's anxiety increased by 0.48 for an increase in Facebook.

Discussion

This research aimed to investigate the relationship between Facebook usage and anxiety among university students. The objective of this study was to explore the existence of a significant relationship between Facebook usage

and mental health, specifically anxiety. Moreover, this study incorporated demographic information such as the gender of the participants to assess the differences and levels of Facebook intensity and generalized anxiety. For the exploration of the objectives and hypotheses of the study, the quantitative data was analyzed through descriptive analysis, reliability analysis, Pearson correlation, and independent sample t-test which exhibited the means, frequencies, alpha reliability coefficients, and correlation coefficient for Anxiety and Facebook among university students.

The FDI and GAD-7 have shown good internal consistency as the alpha reliability coefficient values of the 8-item Facebook intensity scale were found to be (a = 0.83), which indicated reliability value consistent with the prior studies which unitized Facebook intensity scale to measure the nature of connectedness and usage of Facebook App. Hence, the reliability values were reported within the 0.82-0.89 range (Ellison et al., 2007). However, the 7-item generalized anxiety disorder assessment scale as shown in Table 2, indicated a reliability coefficient of (a = 0.91), which represents excellent reliability of the measure. The value of internal consistency found in this study was also reliable with earlier studies (a = 0.89) (Zhong et al., 2015).

For research hypotheses, Facebook and anxiety were found to be positively correlated with each other. Hence, the outcomes of this study have been supported by previous studies that showed an association between Facebook and anxiety (Koc & Gulyagci, 2013; Kross, 2013; Shaw et al., 2015; Chakraborty, 2017. Several studies have indicated that internet addiction is a potential factor in inducing distressful emotions among individuals (Kratzer & Hegerl, 2008; Chen & Lee, 2013; Keles et al., 2019). A study by Zaffar et al. (2015), explored the Pakistani student's Facebook addiction as well as its associations with the social and mental wellbeing characteristics, mainly comprised of anxiety, depression, Loneliness, and deteriorated educational performance. The outcomes of this study were consistent and in support of the claim regarding a significant positive relationship between Facebook and anxiety.

The relationship between Facebook usage and anxiety can be attributed to several factors, one of which is the nature of social comparison which frequently happens on the social media platforms. People tend to compare themselves to their Facebook friends, mostly leading to dissatisfaction or low self-confidence. This comparison occurs as people tend to present an

idealized version of their lives on social media, which may not reflect reality, which results in feelings of jealousy and dissatisfaction.

According to "social comparison theory," individuals naturally compare themselves to others, evaluating their own abilities as well as opinions that leads to increased anxiety among users. Furthermore, perpetual availability of social media exacerbates anxiety for many individuals. The continuous stream of messages and notifications can be very stressful and anxiety inducing for the certain persons. Moreover, this fear of missing out (FOMO) which may come when seeing other people's posts about social occasions or activities can also contributes to these feelings of anxiety and insufficiency. In addition to that, the habitual use of social media, particularly for those addicted to it, amplifies this anxiety. The amount of time spent on the internet shifts the individual's focus from other important activities like working or face-to-face interactions, further heightening stress and anxiety.

Additionally, it was presumed that there would be a difference between the levels of Facebook usage and levels of anxiety between male and female university students. However, the results of the independent sample t-test indicated contradictory results regarding the difference in Facebook usage among males and females, as no significant differences were found among both genders. This aligns with past research that indicated no correlation between individual's gender and the frequency of using Facebook (Beyens et al., 2016; Biernatowska et al., 2017; Koc & Gulyagci, 2013). On the contrary, the independent sample t-test reported a significant positive mean difference between males and females related to the prevalence of anxiety. The outcomes indicated a prevalence of anxiousness among females to be higher than male participants, such conclusions have also been reported in previous examinations (Hishinuma et al., 2013).

It was also hypothesized that those university students who had higher levels of Facebook usage would report elevated levels of anxiety. This regression analysis indeed indicated a significant positive relation between Facebook usage and anxiety, thereby supporting the claim that Facebook has an important role in predicting anxiety among students. Many studies have supported outcomes like this because the probability of experiencing psychological illnesses like anxiety or sadness among heavy Facebook users was found to be much higher. Increased virtual contact through Facebook provides an opportunity for excessive communication but also

resulted in the elevation of anxiety and worry (Farahani et al., 2011; Labrague, 2014; Vannuccia etal., 2017). Similarly, the cultivation theory (1969), laid stress on the extensive television viewingwhich becomes a reason for the heightened concern amongviewer regarding the prevalence of crime and violence. This, in turn, can provoke an elevated level of anxiety and worry among people about becoming a victim of assault because violence is vastly disproportionately represented on television compared to its prevalence in the actual world. Such misrepresentation on television promotes personal distrust and psychological problems, shaping the belief that the world is a cruel and dangerous place.

Conclusion

The statistical analysis revealed a significant and predictive positive relationship between Facebook usage and anxiety levels. This finding is supported by preliminary explorations that consistently indicated this trend. Essentially, the data show that as Facebook usage intensifies, anxiety levels also increase. This positive association implies that individuals who spend more time on Facebook are likely to experience higher levels of anxiety. This relationship suggests that the nature of interactions and the type of content consumed on Facebook may contribute to increased anxiety. Factors such as social comparison, exposure to negative news, cyberbullying, and the pressure to maintain a certain online image could be contributing elements. These findings underscore the importance of understanding the psychological impacts of social media usage.

Given the pervasive nature of Facebook in daily life, these results highlight a need for further research into how specific aspects of Facebook usage contribute to anxiety. Additionally, it raises awareness about the potential mental health risks associated with extensive social media use and the importance of developing strategies to mitigate these effects, such as promoting digital literacy and healthy online habits

Limitations

This research has delivered an intriguing conclusion that would inspire future investigations, and the outcomes sought to add noteworthy findings or literature relevant to the notion of Facebook and anxiety. Current research has been subjected to many limitations as the sample lacks diversification since it stemmed from two universities in Islamabad namely Bahria University and Air University. As a result, only specific groups have

been analyzed rather than Pakistani society as a whole, which makes it challenging to extrapolate beyond a specific population. The drawbacks related to generalizability make it complicated to understand the comprehensive and widely applicable perspective of the study phenomenon. Also, self-administered questionnaires were utilized in this study, typically subjected to response bias since the respondents tend to provide answers that seem acceptable and appropriate in the court of public opinion. Hence the outcomes of this study have many significant ramifications for researchers, students, academia experts, and mental health professionals because those individuals whose temperament dispositions, and perceptual cognitions are more susceptible to psychological health deterioration due to intense use of Facebook can be monitored and controlled through spreading awareness and restricting Facebook usage by making pleas to the state monitoring establishments to establish specific measures regarding the use of virtual media.

Additionally, the finding of this study will be vital for subsequent future work and the relationship between Facebook and anxiety could be explored in-depth among diverse populations, with different methodological approaches in the fields of Media, Cognitive Psychology, Artificial Intelligence, and social science.

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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