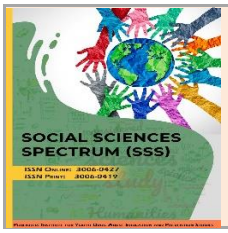

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Navigating the Digital Self: Social Media Addiction and its Effect on Social Comparison and Internalizing Symptoms

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Abstract

Social comparison becomes a problematic behavior for university students because of the excessive usage of social media. This addiction increases social comparison, which in turn increases depression, anxiety, and stress, which are considered internalizing symptoms. This study investigated the effects of social media addiction on social comparison and internalizing symptoms in university students. Using the Social Media Addiction Scale, Social Comparison Scale, and DASS-21, the data were collected from a sample of 165 university students (87 males and 78 females), aged (M = 21.38, SD = 2.52), from various departments of the University of Karachi, Pakistan. The results support theoretical theories that associate internalizing symptoms, including stress, anxiety, and depression, with social media addiction. The surprising protective effect of social comparison against depression implies that comparison processes are influenced by contextual and cultural moderators. Overall, the study emphasizes that to lessen the negative consequences of social media addiction, interventions must address both contextual support (such as family, peers, and campus resources) and individual vulnerabilities (such as coping skills and resilience).

Keywords: Social Media Addiction, Social Comparison, Internalizing Symptoms, University Students, Depression, Anxiety, Stress.

Introduction

The term 'social media' refers to the various internet-based networks that support verbal and visual communication and interaction among users (Carr & Haye, 2015). Some popular social media platforms include Facebook, Instagram, TikTok, and X (formerly known as Twitter). The rapid rise of social media platforms and their potential negative effects on human well-being have become a growing concern at the global level. Depending on its uses, social media has both positive and negative impacts on human life and well-being. The positive side of social media includes growing connection and communication (both personal and professional), greater awareness about health, education, politics, social issues, and global movements, marketing and business growth, entertainment, online support communities, and real-time news updates. On the other hand, the negative side of social media includes addiction, cyberbullying, mental health issues, the spread of misinformation, privacy concerns, and reduced real-life interaction.

Excessive and unhealthy use of social media can turn into addiction, which is known as social media addiction or social network site (SNS) addiction. Andreassen and Pallesen (2014) define social network site (SNS) addiction as "being overly concerned about SNSs, to be driven by a strong motivation to log on to or use SNSs, and to devote so much time and effort to SNSs that it impairs other social activities, studies/job, interpersonal relationships, and/or psychological health and well-being". Although social media addiction is not yet officially recognized as a clinical diagnosis, it still shows similarities with other forms of addiction. These include needing more time online to feel satisfied (tolerance), feeling irritated or uncomfortable when social media use is stopped suddenly (withdrawal), facing problems in daily life (conflict), thinking too much about social media that it becomes the most important thing in one's life (salience), returning to social media use after trying to reduce usage (relapse), and using social media to improve mood or as an escape from the harsh realities of life (mood modification) (Andreassen, 2015).

There is a noticeable amount of research that links excessive social media use to mental health-related issues. A systematic review suggested that there is a significant relationship between problematic social media use and the symptoms of anxiety and depression among children and adolescents (Piteo & Ward, 2020). Another systematic review, particularly conducted on Facebook use, concluded that Facebook use has been associated with several mental health issues, including Facebook addiction, anxiety, depression, body image-related issues, eating problems, beliefs about alcohol and its consumption, and other mental health issues (Frost & Rickwood, 2017).

In the bibliographical research of Santos et al. (2021), they summarized that the most common consequences of social network site use include mood change, anxiety, and social isolation, whereas in severe cases, it can lead to depression, lack of contact with reality, or even suicide attempt. Braghieri et al. (2022) found that the rollout of Facebook in US colleges harmed the mental health of students. Moreover, students' poor mental health contributed to a decline in their academic performance. Additionally, the underlying mechanism was that Facebook promoted unfavourable social comparison.

One key psychological mechanism that may explain how social media affects mental health is social comparison. The term 'social comparison' was coined by the social psychologist Leon Festinger in 1954. Social comparison theory states that people often compare themselves with others to better understand their opinions, status, appearance, and other aspects of themselves. Social comparison can be upward, where an individual compares himself with people who are better than him, or downward, where an individual compares himself with people who are worse than him. A third type of social comparison is called horizontal or lateral social comparison, in

which an individual compares himself with people of a roughly equal status (American Psychological Association, 2018).

Upward social comparison is sometimes done for motivation and aspiration, but it becomes problematic when people engage in it in an unhealthy way, which often leads to detrimental effects on their well-being (Butts & Renee, 2024). Previous research showed that upward social comparison on Instagram was positively associated with depression, whereas downward social comparison was negatively associated with depression. Additionally, it suggested that social comparison mediated the effect of Instagram use on depression (Hwnag, 2019).

To understand the broader psychological consequences of these online comparisons, it is important to explore their relationship with internalizing symptoms. Internalizing behaviours are behaviours that are directed inward, such as anxiety, depression, stress, and somatization. It's the opposite of externalizing behaviours that are directed outward, like aggression, hostility, acting out, and antisocial behaviours (American Psychological Association, 2018). Excessive use of social media is associated with internalizing problems, including depression and anxiety, and it has been suggested by many cross-sectional and a limited number of longitudinal studies (Toseeb, 2015; Zink, 2019).

Previous research indicates that online social comparison was negatively associated with mental health (Jang et al., 2016). A cohort study of 6569 US adolescents concluded that adolescents who are involved in excessive social media use (more than 3 hours per day) may be at greater risk of internalizing and externalizing problems (Riehm, 2019). Chentsova et al. (2023) also found an association between higher internalizing symptoms and excessive social media use. Moreover, ruminative thinking mediated the relationship between internalizing symptoms and problematic social media use. A study conducted on Pakistani Youth revealed that excessive TikTok use is associated with higher levels of anxiety, despair, and poor body image because of unrealistic beauty standards and social comparison (Jabeen et al., 2024).

The rise in social media addiction over the past decade has alarmed researchers who examine the mental health of students. One of the most active user groups is university students, who are especially susceptible to problematic usage that impairs their ability to perform academically, socially, and emotionally. Although a growing amount of research shows a strong correlation between internalizing symptoms and social media addiction, it is still unclear which mediating factors, such as self-esteem and social comparison, are responsible for this relationship.

According to the results of a longitudinal study, it has been found that depression and social media addiction were positively correlated with time for both genders. Further, gender differences revealed that females' depression growth was smaller than males if the females reported utilizing more offline, in-person social support than the males, suggesting some level of moderation of the effect of social support through online and offline social support. Demonstrating that protective factors, such as support from family and friends, can serve as a buffer against the negative feelings that can stem from too much social media (Luo et al., 2025).

Based on these findings, other studies in different contexts have identified further links between emotional distress and compulsive social media usage. Landa Blanco et al. (2024) found that addiction to social media did not significantly predict academic engagement; it had indirect negative effects, mainly concerning increasing depressive symptoms because of diminished self-esteem. The internalizing symptoms were mediators, which would support the idea that, rather than directly interfering with behaviors related to academic performance, the negative

consequences of social media addiction on academic performance were primarily linked to its negative consequences on individual psychological well-being.

A cross-sectional study conducted on Saudi Arabian medical and non-medical students by Abdulsalim et al. (2025) supported these findings with a significant association between greater levels of social media addiction and increased anxiety and decreased academic performance. Interestingly, the authors noted anxiety as the predominant internalizing consequence of addicted usage in this group more frequently than stress or depression. This result is consistent with previous research indicating that anxiety can be one of the most acute emotional reactions to obsessive social media use, especially for students who are constantly receiving alerts, comparing themselves to their peers, and experiencing FOMO. Furthermore, the association with worse academic achievement illustrates how psychological discomfort can affect behavioral and cognitive domains, impairing motivation, focus, and learning results.

According to the Social Comparison Theory (Festinger, 1954), people assess themselves by contrasting themselves with others, and social media is dominated by well-manicured, idealized representations of peers, which increases the likelihood of upward comparison. Online distress disclosure and frequent upward comparisons are consistently linked to lower self-esteem and more depression symptoms, according to evidence from larger populations.

Lee et al. (2023) found significant associations between social media addiction, stress, anxiety, and depression, even after controlling cyberbullying victimization. It was found that the odds of having these internalizing symptoms doubled if a participant had experienced victimization from cyberbullying, and that for every 1% higher social media addiction score, stress scores increased by 21%, anxiety scores rose by 15%, and depressive scores rose by 18%. A cross-sectional study by Al Saigh et al. (2022) revealed that poor social media use was found to be an independent predictor of depression, and nearly 45% of students were diagnosed with the illness. A 7% increased risk of depression was linked to every one-point increase in addiction scores; this effect remained even after adjusting for academic discipline and demographic variables. Further research indicated that higher smartphone usage, together with decreased sleep and irregular activity patterns, predicted higher levels of loneliness and depression, even though it did not evaluate social media addiction explicitly (Qirtas et al., 2023).

Social comparison theory is one of the most widely accepted explanations, according to which people assess their value by contrasting themselves with others (Festinger, 1954). Seeing peers who seem more successful, attractive, or socially connected on social media might cause upward comparisons, which can lower self-esteem and increase suffering (Smith et al., 2004).

Additionally, the combined effects of social comparison, cyberbullying, fear of missing out (FOMO), and social media addiction indicated that social media addiction is the strongest predictor of social anxiety, followed by social comparison and FOMO. The more upward comparison, the more fear of being excluded in social situations appeared to lead to more addictive use, and they all contributed to increasing social anxiety symptoms (Ma'rof et al., 2024).

Based on self-determination theory, researchers contend that people are more likely to experience FOMO when their core psychological demands for relatedness, competence, and autonomy are not satisfied. The symptoms of problematic social media use, including worry, tension, low self-esteem, and compulsive checking habits, are closely linked to this elevated sensation of missing out. Furthermore, FOMO acted as an amplifier of these processes, as students with higher levels of addictive usage also reported higher emotional discomfort and more frequent upward

comparisons (Ma'rof et al., 2024). These results highlight how social comparison and FOMO are mutually reinforcing mechanisms: those who obsessively monitor social media out of fear of being left out are also more inclined to make upward comparisons, which exacerbate psychological effects.

According to Jiang (2021), problematic social media use predicted higher anxiety, demonstrating that psychological capital, which consists of resources within the individual (i.e., hope, optimism, resilience), served as a partially mediating factor in the effect. Further, academic burnout was an important moderator, as students who were academically more exhausted had a greater anxiety effect from their social media addiction. Based on these results, the extent of internalizing symptoms is driven by the interaction of an addictive user and external pressures (e.g., academic) and internal resources (e.g., psychological capital).

Furthermore, excessive or compulsive social media use was regularly associated with heightened stress, anxiety, and depression in college students during COVID-19, depending on states of academic stress (i.e., burnout), personal resources (i.e., psychological capital), and protective factors (i.e., family support and religiousness). This indicates that social media addiction is part of a larger psychosocial ecology; contextual factors and individual vulnerabilities likely work in tandem to affect the mental health trajectories of students, rather than simply being an isolated predictor of internalizing symptoms (Mulansky et al., 2022).

University students worldwide experienced previously unheard-of levels of psychological distress during the COVID-19 pandemic. Extended lockdowns, interrupted school schedules, and enforced social isolation led to a greater dependence on digital devices, with social media emerging as a coping mechanism and a mental health risk factor. Social media provided many people with an escape from loneliness and a replacement for face-to-face interactions, but excessive use of the platform frequently had unforeseen effects. For instance, Sujarwoto et al. (2021) discovered that social media addiction significantly increased the chance of mild to moderate depression.

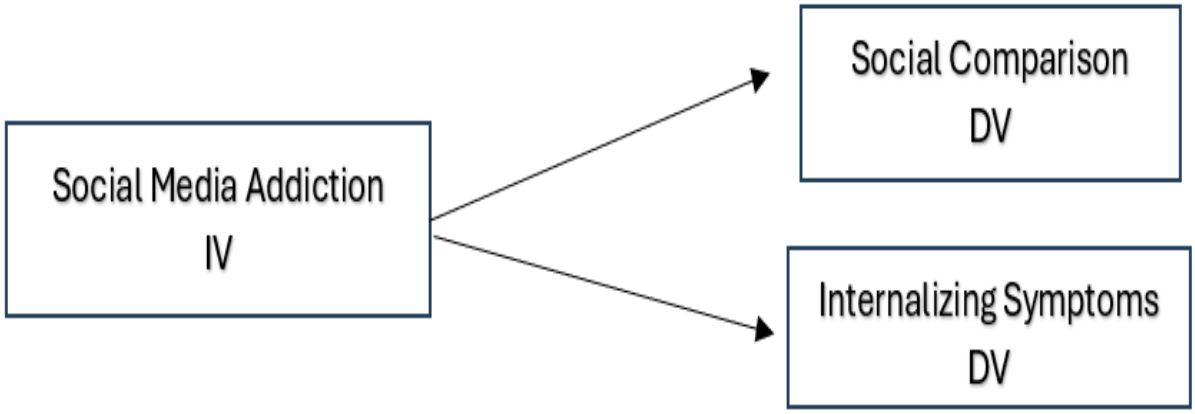
Problem Statement

The rise of social media usage among university students has affected the way of human interaction. It has both good and bad sides. For example, the good side is, we can communicate easily, and the bad side is that we compare ourselves to others and become depressed. Existing research highlights a correlation between excessive social media engagement and the rising prevalence of mental health issues such as depression, anxiety, and stress. However, the specific mechanisms through which social media contributes to these disorders remain inadequately understood, necessitating further investigation into its psychological effects on youth well-being.

Hypothesis

1. There was a correlation between social media addiction, social comparison, and internalized symptoms, including depression, anxiety, and stress.
2. Social media addiction was hypothesized to be a significant predictor of social comparison.
3. It was hypothesized that social media addiction serves as a significant predictor of internalizing symptoms, including depression, anxiety, and stress.
4. Social comparison was hypothesized to significantly predict internalizing symptoms, including depression, anxiety, and stress.

Research Model



Research Methodology

A correlational quantitative research study was performed to examine the relationship between Social Media Addiction, Social Comparison, and Internalising Symptoms among University Students. This research study was conducted through the following steps:

Sample

The sample for the present study consisted of 165 university students via convenient sampling methods (see Table 1). The following are the inclusion/exclusion criteria:

- Individuals aged 18 to 30 years were included.
- Only adults who volunteered to participate were included.
- An individual enrolled in a university was included.
- Respondents belonging to "middle socioeconomic status" were included.
- Respondents who are "only children" were excluded.

Table 1: *Frequency and percentage of the demographic variables (N=165)*

Variables	***F***	**%**	***M***	***SD***
Age	-	-	21.38	2.52
Gender				
Male	87	52.7		
Female	78	47.3		
Birth Order				
First born	56	33.9		
Middle child	67	40.6		
Last born	42	25.5		
Family System				
Nuclear	75	45.5		
Joint	90	54.5		

Measures

Social Media Addiction Scale (Karadağ et al., 2015). It consisted of 10 items, from 1 (never) to 5 (always) on a 5-point scale, loaded in |.40| in only two factors. Two factors are sharing (6 items, α = .82) and control (4 items, α = .79). The validation results confirm that the Bergen Facebook Addiction Scale produces values within appropriate tolerance levels (Andreassen, 2012) was used (Karadağ et. al., 2015).

Social Comparison Scale (Gilbert & Allan, 1994). assess self-perceptions of social hierarchy and relative social status. This scale employs a semantic differential technique and has 11 bipolar constructs. Respondents must do a global self-assessment in contrast to others and evaluate themselves on a ten-point scale. The scale demonstrates strong reliability, evidenced by Cronbach alphas of .88 and .96 for clinical groups, and .91 and .90 for student populations (Allan and Gilbert, 1995, 1997).

Internalizing Symptoms (DASS-21; Lovibond & Lovibond, 1995). The Depression Anxiety Stress Scales-21 was included to evaluate internalizing symptomatology. The abbreviated version of the original 42-item DASS has 21 items, categorized into three subscales: Depression, Anxiety, and Stress. Each subscale consists of 7 items intended to evaluate emotional states encountered throughout the preceding week. The items are evaluated using a 4-point Likert scale, from 0 (not applicable) to 3 (very applicable). DASS-21 has robust internal consistency, with Cronbach's alpha values often reported as 0.88 for depression and 0.82 for anxiety, signifying high reliability (Henry & Crawford, 2005). It is extensively utilized in both clinical and non-clinical populations to assess symptom intensity and track temporal changes.

Demographic form. used to obtain demographic information. In which age, gender, birth order, socioeconomic status, family system, and related information were asked from the respondents.

Procedure

The sample of university students was selected through convenient sampling techniques from different departments of the University of Karachi, Sindh. The entire sample comprised 165 respondents (87 males and 78 females). Their age ranged from 18 – 30 years. The objective of the study was discussed with them. Respondents were provided with a consent form after they agreed to take part in the study. Respondents were informed about the objective and confidentiality of their personal information. Further, they were informed about their right to withdraw from the study at any time during the study. Once the rapport building was done demographic Sheet was filled, followed by Questionnaires. After collecting the data, all respondents were thanked for taking part in the research study.

Ethical Consideration

The researcher maintained ethical consideration throughout the investigation. All respondents were selected with their consent, and confidentiality was maintained throughout the duration of the study. The researcher resolved their concerns and anxieties regarding participation in the study in an efficient way. Only those who were willing to participate in the study. They have the option to withdraw from the study at any time.

Results

Table 2. *Descriptive Statistics and Reliability Coefficient of the study measures.*

Variables	***K***	**α**	***M***	***SD***
Social Media addiction	10	.804	31.29	8.42
Social Comparison	11	.897	76.47	18.64
Internalizing Symptoms	21	.936	31.81	15.40
Depression	7	.848	10.27	5.717
Anxiety	7	.812	10.57	5.387
Stress	7	.837	10.96	5.342

Note. N = 165

Table 2 shows the descriptive statistics and reliability coefficients (α) for the study variables. The measures include Social Media Addiction (α = 0.804, M = 31.29, SD = 8.42), Social Comparison (α = 0.897, M = 76.47, SD = 18.64), and Internalizing Symptoms (α = 0.936, M = 31.81, SD = 15.40), which comprises Depression (α = 0.848, M = 10.27, SD = 5.72), Anxiety (α = 0.812, M = 10.57, SD = 5.39), and Stress (α = 0.837, M = 10.96, SD = 5.34). With a sample size of 165 participants (N = 165), the scales demonstrate good to excellent reliability across all variables, reflecting moderate levels of social media addiction, social comparison, and internalizing symptoms with some variability in responses (Nunally & Bernstein, 1994).

Table 3. *Correlation between Social Media Addiction, Social Comparison, and Internalizing Symptoms (N=165)*

Variables	**1**	**2**	**3**	**4**	**5**	**6**
1. Social Media Addiction	-	.335**	.564**	.494**	.516**	.577**
2. Social Comparison		-	.112	.016	.105	.201**
3. Internalizing Symptoms			-	.941**	.939**	.930**
4. Depression				-	.830**	.807**
5. Anxiety					-	.810**
6. Stress						-

Note. N = 165 **p<0.01

Table 3 shows the correlation between social media addiction, social comparison, and internalizing symptoms. It has been revealed that social media addiction has a significant correlation with social comparison and internalizing symptoms, including depression, anxiety, and stress. Social comparison shows insignificant correlation with internalizing symptoms, including depression and anxiety; however, significant correlation has been shown with stress.

Table 4. *Regression analysis of Social Media Addiction as a predicting variable of Social Comparison.*

Variables	Social Comparison			
	B	***SE***	***T***	***P***
Social Media Addiction	.335	.149	4.536	.000
R	.335			
R^2	.112			
ΔR^2	.107			
F	20.57 (2,162) **			

Note. N = 165, β=Standardized Beta, SE= Standard Error, VIF = Variance Inflation Factor, **p < .01, df = 2, 162

Table 4 shows the results of the regression analysis, indicating that social media addiction significantly predicted social comparison explained by 11.2% variance in social comparison (R^2 = .112, F (2, 162) = 20.57, p < .01). The β values for social media addiction suggest that for each one-unit increase in social media addiction increases social comparison by 0.335 units, indicating positive relationship.

Table 5. *Regression analysis of Social Media Addiction and Social Comparison as a predicting variable of Internalizing symptoms.*

Variables	Internalizing Symptoms				
	B	***SE***	***t***	***P***	***VIF***
Social Media Addiction	.593	2.51	8.654	.000	1.126
Social Comparison	-.087	1.25	-1.263	.209	1.126
R	.570				
R^2	.325				
ΔR^2	.316				
F	38.95 (2, 162) **				

Note. N = 165, β=Standardized Beta, SE= Standard Error, VIF = Variance Inflation Factor, **p < .01, df = 2, 162

Table 5 shows the results of the regression analysis, indicating that both predictors (social media addiction and social comparison) showed significant effect on depression explained 27% of the variance in depression (R^2 = .270, F (2, 162) = 29.88, p < .01). The β values for social media addiction suggested that for each one-unit increase in social media addiction increases depression by 0.551 units, indicating positive relationship. Furthermore, the β values for social comparison

suggest that for each one-unit increase in social comparison, there is a decrease of 0.169 units, indicating a negative relationship. The multicollinearity diagnostics show that the VIF values for both predictors are 1.126 (below 10), indicating the absence of multicollinearity.

Table 6. *Regression analysis of Social Media Addiction and Social Comparison as a predicting variable of Depression.*

Variables	**Depression**					
		B	***SE***	***t***	***P***	***VIF***
Social Media Addiction		.551	.968	7.728	.000	1.126
Social Comparison		-.169	.481	-2.369	.019	1.126
R	.519					
R^2	.270					
ΔR^2	.260					
F	29.88 (2,162) **					

Note. N = 165, β=Standardized Beta, SE= Standard Error, VIF = Variance Inflation Factor, **p < .01, df = 2, 162

Table 6 shows the results of the regression analysis, indicating that social media addiction showed a significant effect on stress, explaining 27% of the variance in internalizing symptoms (R^2 = .519, F (2, 162) = 29.88, p < .01). However, the predictive relationship between social comparison and internalizing symptoms is insignificant. The β values for social media addiction suggested that for each one-unit increase in social media addiction increases internalizing symptoms by 0.551 units, indicating a positive relationship. The multicollinearity diagnostics show that the VIF values for both predictors are 1.126 (below 10), indicating the absence of multicollinearity.

Table 7. *Regression analysis of Social Media Addiction and Social Comparison as a predicting variable of Anxiety.*

Variables	**Anxiety**					
		B	***SE***	***t***	***P***	***VIF***
Social Media Addiction		.541	.911	7.605	.000	1.126
Social Comparison		-.077	.453	-1.078	.283	1.126
R	.521					
R^2	.271					
ΔR^2	.262					
F	30.13 (2,162) **					

Note. N = 165, β=Standardized Beta, SE= Standard Error, VIF = Variance Inflation Factor, **p < .01, df = 2, 162

Table 7 shows the results of the regression analysis, indicating that social media addiction showed a significant effect on anxiety, explained 27% of the variance in anxiety (R^2 = .271, F (2, 162) = 30.13, p < .01). However, the predictive relationship between social comparison and anxiety is insignificant. The β values for social media addiction suggested that for each one-unit increase in social media addiction, anxiety increases by 0.541 units, indicating a positive relationship. The multicollinearity diagnostics show that the VIF values for both predictors are 1.126 (below 10), indicating the absence of multicollinearity.

Table 8. *Regression analysis of Social Media Addiction and Social Comparison as a predicting variable of Stress.*

Variables	**Stress**					
		B	***SE***	***T***	***P***	***VIF***
Social Media Addiction		.575	.864	8.44	.000	1.126
Social Comparison		.009	.429	.126	.900	1.126
R	.578					
R^2	.334					
ΔR^2	.325					
F	40.53 (2,162) **					

Note. N = 165, β=Standardized Beta, SE= Standard Error, VIF = Variance Inflation Factor, **p < .01, df = 2, 162

Table 8 shows the results of the regression analysis, indicating that social media addiction showed a significant effect on stress, explaining 33.4% of the variance in stress (R^2 = .578, F (2, 162) = 40.53, p < .01). However, the predictive relationship between social comparison and stress is insignificant. The β values for social media addiction suggest that for each one-unit increase in social media addiction, stress increases by 0.575 units, indicating a positive relationship. The multicollinearity diagnostics show that the VIF values for both predictors are 1.126 (below 10), indicating the absence of multicollinearity.

Discussion

The current study aimed to investigate the relationship between internalizing symptoms (stress, anxiety, and depression) and social comparison, as well as social media addiction, among university students in Pakistan. The possible psychological effects of problematic use have drawn more scholarly attention because college students are among the most active social media users worldwide (Andreassen, 2015; Keles et al., 2020). Although social media platforms offer chances for networking, communication, and identity exploration. However, compulsive use can worsen emotional distress, particularly in vulnerable groups like young adults going through developmental and academic transitions (Twenge & Campbell, 2018).

The study's conclusions support both expected and rather unexpected correlations. First, social comparison and internalizing symptoms were found to be significantly positively correlated with social media addiction. This is in line with earlier studies that found people who use social networking sites more frequently report a higher tendency to compare themselves to their peers

and concurrently higher levels of stress, anxiety, and depression (Marino et al., 2018; Shensa et al., 2017). According to the current findings, a major risk factor for psychiatric issues seems to be the obsessive aspect of social media use rather than the amount of time spent online. Salience, withdrawal, mood changes, conflict, and relapse are characteristics of addiction-like patterns that closely correlate to mechanisms that could contribute to emotional instability and self-evaluative issues (Andreassen, 2015).

Second, there was a significant relationship between stress and social comparison, but not with anxiety or depression. This lends a little support to the foundations of the Social Comparison Theory (Festinger, 1954), which holds that people assess their own value by contrasting themselves with others. Opportunities for upward comparisons, comparing oneself to others who appear superior, are common and frequently harmful on carefully maintained platforms like Facebook, Instagram, and TikTok (Vogel et al., 2014). According to this study's link between social comparison and stress, comparison processes can be seen as demands and expectations, especially in academic settings where students frequently feel that they are in competition with one another for social, academic, and professional success. Therefore, stress could be the direct emotional price of being constantly exposed to peer standards. Curiously, the lack of clear correlations with anxiety or depression suggests that comparison's impact may be more complex and may be tempered by cultural or contextual elements, such as collectivist ideals that present comparison as energizing rather than solely detrimental (White & Lehman, 2005).

Third, social media addiction was a major predictor of stress, anxiety, and depression. This is consistent with cross-sectional and longitudinal research in a variety of settings. For example, Abdulsalim et al. (2025) observed that social media addiction significantly increased anxiety levels among Saudi students, whereas Luo et al. (2025) revealed that social media addiction among Chinese university students predicted increases in depressive symptoms over three years. Similarly, in their comprehensive review, Keles et al. (2020) found that problematic usage is consistently associated with higher internalizing symptoms in young adults and adolescents. All these results point to addictive use as a significant psychological risk factor rather than a harmless behavioral habit.

Fourth, one of the most interesting findings was that depression was inversely predicted by social comparison ($\beta = -.169$), which may indicate a compensatory or protective function. Given the strong evidence that upward social comparisons frequently promote melancholy affect, this seems contradictory at first glance (Smith et al., 2020). Nonetheless, studies also show that comparing oneself to less fortunate peers, or downward comparison, can be relieving and support positive self-perceptions (Buunk & Gibbons, 2007). Furthermore, by encouraging a sense of belonging, a shared identity, or aspirational objectives, comparison can occasionally serve as a motivating tool in collectivist cultural contexts like Pakistan, protecting against depressed symptomatology (White & Lehman, 2005). Therefore, cultural differences in how people understand and internalize social comparisons may be the cause of the negative predictive effect seen here. It might also imply that social comparison may play a more self-regulating role when it coexists with high levels of social media addiction, thereby reducing some of the depressing effects of obsessive use.

Lastly, there was a significant amount of variance explained by the regression models: roughly 27% for anxiety and depression and 33% for stress. Though they also imply that other psychosocial factors, such as psychological capital, family support, and FOMO, probably play additional roles, these values demonstrate the significant contribution of social media addiction and social comparison to the prediction of internalizing symptoms (Jiang, 2021; Ma'rof et al., 2024). For

example, research done during the COVID-19 pandemic showed that psychological capital (hope, optimism, and resilience) lessened the anxiety impact of problematic use, while family connectedness and religiosity protected against the negative effects of social media addiction (Sujarwoto et al., 2021).

When combined, these results point to a complex picture. First, social media addiction is a strong, stable proxy for stress, anxiety and depression in students, which affirms concerns that problematic use is one of several risk factors for mental health. Second, social comparison has a twinned nature that reflects the influences of cultural, environmental, and motivational factors. While tied to stress, in some contexts it might act as a buffer from depression. The amount of variance explained by personal vulnerabilities and contextual resources illustrates the importance of considering digital usage within a broader psychosocial ecology wherein mental health outcomes emerge from interactions between individual vulnerabilities and contextual resources.

The findings of the present study extend the expanding body of literature pertaining to internalizing symptoms, social comparison, and social media addiction (SMA), especially in the South Asian setting. The findings can be contrasted with international research that has evidenced both the clear direct and indirect impact of digital interaction on mental health outcomes by tracing the predictive nature of social comparison and SMA with a sample of Pakistani university students. The strong positive association observed with SMA and internalizing symptoms (with reference to stress, anxiety, and depression) is consistent with other research conducted in quite varied cultural contexts.

Adolescents and young adults who use social media problematically are more likely to experience internalizing symptoms, according to a systematic analysis by Keles et al. (2020). Our results support this meta-level conclusion by demonstrating that SMA alone accounted for 27–33% of the variation in stress, anxiety, and depression, highlighting its significant contribution as a risk factor for mental health issues. According to Twienge and Campbell (2018), this effect seems to be more pronounced in academic groups where comparing peer and performance pressures already increase stress levels.

The current investigation produced complex results about social comparison. Social comparison did not show significant relationships with anxiety or depression, but it did show strong correlations with stress. Regression analysis also revealed that depression was adversely predicted by social comparison ($\beta = -.169$), which may indicate a compensatory or protective impact. This pattern deviates slightly from the prevalent body of research, which frequently associates elevated anxiety and depression symptoms with upward social comparison (Smith et al., 2020; Vogel et al., 2014). Marino et al. (2018), for example, discovered that frequent social comparison on Facebook reduced well-being and raised negative affect. According to Shensa et al. (2017), young adults who participate in online social comparison are more likely to experience depressed symptoms.

According to Buunk and Gibbons (2007), depending on the situation and how it is interpreted, social comparison can have positive as well as negative consequences. People frequently experience relief and increased self-esteem when they compare themselves to less fortunate counterparts. Furthermore, White and Lehman (2005) showed that comparison can occasionally have positive rather than negative effects in collectivist cultures, strengthening social identity and resilience. By redefining comparison as inspiration rather than inadequacy, this could help to explain why Pakistani students in this study felt protected from depression when they engaged in comparison.

The study's most surprising finding was that social comparison and depression had a negative predictive connection (β = -.169). The current findings imply that social comparison may occasionally have a protective or compensatory function, even though most previous research highlights the negative effects of upward comparison in reducing self-esteem and intensifying depressive symptoms (Festinger, 1954; Smith et al., 2004).

The kind of comparison that students made could be one reason. The distinction between upward, downward, and lateral comparisons is not made by the Social Comparison Scale (Gilbert & Allan, 1994). It's possible that some individuals used downward comparisons, which have been demonstrated to act as a buffer against depressive mood states and offer momentary reassurance (Wills, 1981; Buunk & Gibbons, 2007). According to Lockwood and Kunda (1997), lateral comparisons with peers who are thought to be similar can also promote a sense of social connectivity and belonging, which can lessen depressed symptoms. Culture could be another explanation. Social comparison can occasionally promote motivation and self-improvement rather than distress in collectivist environments like Pakistan (White & Lehman, 2005). Higher social comparison scores were associated with decreased depression in this population, which may be explained by students viewing comparison as a criterion for growth rather than a danger.

Lastly, methodological considerations need to be made. It is possible that students who experience fewer symptoms of depression are more likely to participate in active comparison as a normal social function, although this is limited by the cross-sectional methodology. Therefore, to distinguish whether social comparison has protective effects under circumstances or whether this finding is a result of sample-specific variability, future research should use longitudinal or experimental approaches.

Limitations

The sample size was small and may not represent all age groups or people from different backgrounds. Data was self-reported, meaning respondents answered questions based on their understanding. The study focused only on a few variables, such as depression, anxiety, stress, and social comparison. There may be other important factors like personality, coping skills, or offline social support that were not included but could also influence the results.

Recommendations

The findings point to several intervention targets. First, compulsive involvement and its negative impacts on mental health can be decreased via psychoeducational programs that encourage healthy digital practices (LaRose et al., 2014). Second, enhancing psychological capital, such as hope, optimism, and resilience, may protect against stress and anxiety associated with social media use (Jiang, 2021). Third, institutions should incorporate well-being programs like stress management workshops and counseling services to support students, as stress and academic burnout can exacerbate symptoms. Social media platforms can help by giving users more tools to track their usage and limit harmful content. It would also be helpful to do longitudinal studies that follow people over time.

Conclusion

The current study increases our theoretical knowledge of digital habits as well as the practical strategies required to manage university students' mental health issues. The results support theoretical theories that associate internalizing symptoms, including stress, anxiety, and depression, with social media addiction (Andreassen, 2015; Keles et al., 2020). The findings underscore the significance of seeing addiction as a maladaptive coping mechanism that interferes

with emotional regulation, rather than just excessive screen time, by showing that social media addiction consistently predicted all three categories of discomfort. Furthermore, the surprising protective effect of social comparison against depression implies that comparison processes are influenced by contextual and cultural moderators (White & Lehman, 2005). This emphasizes how Social Comparison Theory needs to be improved for digital environments, especially in collectivist societies where comparison can promote drive and a sense of belonging rather than anxiety.

Overall, the study emphasizes that to lessen the negative consequences of social media addiction, interventions must address both contextual support (such as family, peers, and campus resources) and individual vulnerabilities (such as coping skills and resilience). The findings theoretically add to existing research by indicating that social comparison is not always detrimental and may even have an adaptive purpose in some cultural and contextual contexts. These subtleties should be investigated in future studies to provide well-rounded viewpoints on digital participation and mental health.

Conflict of Interest

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