



Social Media and Mental Health (A Comprehensive Examination of Depression, Anxiety, and Body Image Concerns)

Dr. Yaser A. Alghamdi

Department of Educational Psychology, College of Education, Taibah University,
Kingdom of Saudi Arabia

Email: yghamdi@taibahu.edu.sa

ABSTRACT

The growing prevalence of media in our lives has sparked discussions among experts about its effects on well-being, especially among vulnerable groups such as young adults and women. Individuals with these demographic characteristics are more prone to mental health issues due to factors such as interpersonal comparison and cyberbullying. In this study, a segmented approach was adopted to examine the connection between media utilization and its influence on psychological health such as depression, anxiety and body image concerns. Using structured questionnaires, data was collected from a sample of 611 Saudi Arabian residents aged 18 and above. Statistical analyses, including Chi-square, correlation and path analysis, were conducted to examine these associations. Results revealed concerning patterns, with 30.6% of participants reporting heightened symptoms of depression. Females exhibited higher rates (35.02%) in comparison to males (22.48%). Anxiety symptoms presented in 66% of the sample group. Additionally, more than 40% of social media users expressed concerns about their body image. Age was found to have a moderating effect on the association between social media usage and anxiety levels, indicating a stronger impact on anxiety symptoms among older individuals compared to younger individuals, while gender did not appear to have any influence. These findings hold implications for public health policies and interventions underscoring the importance of tailored programs that address the health risks associated with social media use. To shape policies, it is important to focus on advancing literacy by implementing awareness programs and creating preventive measures specifically designed for vulnerable groups.

Keywords: body image concerns, mental health, public health, social media, anxiety.



Introduction

Social networking platforms offer various benefits contribute to individuals' overall well-being in terms of their personal and social lives. These platforms encompass a range of media, such as blogs, microblogs, messaging services, photo and video sharing applications, podcasts, virtual worlds, and similar tools (Akram & Kumar 2017). Used widely across the world, these platforms facilitate information exchange as social connections (Ahmed et al., 2008). At an individual level, they enable communication by permitting users to connect with relatives and friends. Moreover, they serve as avenues for acquiring new information, pursuing personal interests, and finding entertainment. Professionally, these platforms offer opportunities to expand domain knowledge and establish professional networks through interactions with industry peers. On a business level, social media platforms facilitate interactive communication with target audiences, gather valuable consumer insights, and bolster brand reputation and visibility (Akram & Kumar, 2017).

While the use of social media has been linked to beneficial outcomes, emerging research underscores its potential negative impact on mental and psychological health, including depression, anxiety, and body image issues (Fardouly et al., 2015; Woods & Scott, 2016). Various elements impact the way social media engagement shapes health outcomes. For instance, comparing oneself to others (comparison) has emerged as a factor in the negative consequences of using social media for mental well-being (Fardouly et al., 2015). Cyberbullying, another prevalent issue on these platforms, has been related to increased levels of depression, anxiety and suicidal thoughts (Patchin & Hinduja, 2010; Selkie et al., 2015). Additionally, the fear of missing out contributes to effects on health and daily productivity associated to the usage of social networks (Rozgonjuk et al., 2020).

Frequent social network use is correlated with a rise in feelings of social isolation (Primack & Escobar-Viera, 2017). Additionally, it is associated with higher rates of depression (Shensa et al., 2017). Excessive social media consumption has been associated with an increase in signs of depression. According to a study conducted by Lin et al. (2016), there seems to be a strong connection between engaging with social networking platforms and experiencing symptoms of depression. People who engage with social networking platforms frequently report experiencing greater levels of depression. In a vein, Twenge et al. (2018) observed that teenagers who devoted time to electronic devices and social media encountered more pronounced signs of depression compared to less engaged peers. However, the role of online social comparison is important. Frequent comparisons with others on social media platforms have been connected to depressive symptoms (Fardouly et al., 2015). Upward social comparison specifically exacerbates these negative effects (Vogel et al., 2014).

The connection between social networking usage and anxiety is intricate. A strong link has been identified between regular social media engagement and increased anxiety (O'Day & Heimberg, 2021). Using these tools excessively can result in heightened anxiety, fear of missing out and overall anxiety (Vannucci et al. 2017). People with elevated anxiety levels are more likely to engage in problematic use of social media (Woods & Scott 2016). Vannucci et al. (2017) specifically studied



emerging adults and found that those who dedicate significant time to social media are more prone to experiencing anxiety symptoms and even develop an anxiety disorder.

Body image concerns are an additional significant issue that are particularly influenced by encounters with idealized body portrayals and comparative judgments made on social media platforms (Fardouly et al., 2015). Social media often promotes unrealistic beauty standards, impacting body image. A meta-analysis by Perloff (2014) revealed a consistent relationship between use of social media and body image concerns, especially among young women. Exposure to idealized images negatively impacts self-esteem and body satisfaction (Fardouly et al., 2015). Moreover, frequent appearance-related comparisons on online social platforms contribute to dissatisfaction with physical appearance and disordered eating behaviors (Perloff, 2014). Image editing tools and filters can exacerbate these concerns, as users aim to meet unrealistic standards (Tiggemann & Slater, 2014).

Variations in factors like age, gender, and personality traits also play a role in shaping how social media engagement impacts mental health outcomes. Woods & Scott (2016) reported that female individuals are more susceptible to body image concerns, while personality traits such as neuroticism and introversion contribute to susceptibility to the negative consequences of social network use.

While previous research has reported both positive and negative impacts of social media on mental health, there remains a significant gap in understanding these relationships specifically within the Arab context. Moreover, limited studies have examined how demographic factors, particularly age and gender, moderate the effects of social media on mental health outcomes. This study addresses this gap by investigating the nuanced ways in which social media influences mental health in the Arab population and how demographic variables affect this relationship. By exploring these demographic dimensions, this study provides insights that can improve public health interventions and policies tailored to variations in social media's impact, addressing a crucial gap in the existing understanding of how social media affects psychological well-being across Arab populations. Thus, this study amid to: 1) explore the impact of social media engagement on health, specifically in relation to depression, anxiety, and body image concerns; 2) to determine the effects of the demographic factors, such as gender and age, among social media users on the mental health outcomes; 3) to discover the protective measures or coping strategies that can help lessen the mental health impact of social media use.

Methodology

A cross-sectional study included 611 individuals aged between 18 and above from the public to explore the connection between media use and mental health, including issues such as depression, anxiety and concerns about body image.



Participants and sampling

This research endeavored to assemble a participant cohort via a combined strategy of convenience sampling. The convenience sampling method was chosen due to its practicality and feasibility in reaching a large and diverse group of social media users quickly and cost-effectively. While convenience sampling may have limitations in generalizability, the sample size of 611 participants is sufficiently large to detect significant associations and provides a broad representation of the targeted population, ensuring a wide range of age, gender, and educational backgrounds. A diverse group of individuals aged 18 and above, representing various age brackets, genders and ethnicities, were purposefully selected as social media users. To ensure inclusivity, this approach aimed to capture a holistic snapshot of the population under investigation. Leveraging the reach of online platforms, the survey questionnaire link was disseminated among Saudi Arabian residents, culminating in an impressive total of 611 completed responses. Notably, prior to the commencement of data collection, stringent adherence to ethical norms was upheld, as all participants unequivocally provided informed consent. Capturing essential contextual information and basic demographic data encompassing age, gender and educational background were meticulously collected from each participant. Employing a judiciously chosen instrument, a comprehensive assessment unfolded, delving into the cadence and extent of participants' social media engagement. This comprehensive evaluation of social media activities, including social comparisons, image sharing, and commenting on others' posts, aimed to shed light on potential connections between these behaviors and the prevalence of depression, anxiety, and body image concerns among participants.

Sample Description

The participants in the study came from a range of age groups ranging from 18 to 70 years. The average age of the respondents was 31.91 years, with a deviation of 11.91 years, as shown in Table 1. Out of the sample, 217 males accounted for 35.51%, and 394 females made up 64.49%. According to the background presented in Table 1, a significant portion 59.31% of the sample held a bachelor's degree, indicating that they were the prevalent group. Additionally, participants with a high school education or below constituted approximately 18.79% of the sample. About 10.46% of the participants held master's degree, and approximately 6.05% indicated completing a diploma program. In addition, approximately 4.90% held PhD degree within our sample group. In terms of relationship status, nearly half of the participants (47.37%) reported being unmarried, whereas a substantial proportion (46.90%) mentioned being married. A small percentage (5.72%) indicated being widowed or divorced, highlighting the diversity within our sample.



Table 1
Demographic Characteristics of the Sample

Factors	Levels	Frequency	Percentage
Gender	Female	394	64.49
	Male	217	35.51
Relationship Status	Single	290	47.37
	Married	286	46.90
	Divorce	31	5.07
	Widow	4	0.65
Educational Level	Elementary school	3	0.49
	High school or less	115	18.79
	Diploma	37	6.05
	Bachelor	362	59.31
	Master	64	10.46
	PhD	30	4.90
Age (years)		Mean	SD
		31.91	11.91

Instruments

The Body Image Concern Inventory (BICI) developed by Littleton et al. (2005) stands as a robust self-report tool meticulously designed to assess dysmorphic appearance concern. Comprising 19 items, this inventory prompts individuals to gauge the frequency of experienced feelings or exhibited behaviors on a 5-point Likert scale, spanning from 1 (never) to 5 (always). The range of scores for this questionnaire varies from 19 to 95. A critical score above 42 signifies significant body image concerns, based on research by Baharvand et al. (2020). A notable achievement, the reliability of the scale in a college sample emerged impressively high, with a Cronbach's alpha of .93 (Littleton et al. 2005). Deeper scrutiny reveals the measure's structural underpinnings. Factor analyses provided substantial support for a two-factor structure, characterized by closely correlated dimensions. The first factor delves into the domain of dysmorphic appearance concern, while the second factor investigates the degree to which appearance concerns impede day-to-day functioning. Both these subscales demonstrated commendable internal consistency, with an alpha of .92 for dysmorphic concern and .76 for interference due to



appearance concerns. This tool's effectiveness extends to differentiating individuals with subclinical symptoms of eating disorders or body dysmorphic disorders from those with more severe conditions, underscoring its diagnostic precision in identifying body image concerns.

The Patient Health Questionnaire-9 (PHQ-9) is a well-established and widely utilized tool for evaluating the intensity of depressive symptoms (Kroenke et al., 2001). It has been translated into Arabic, validated on a Saudi sample, and shown to have a high degree of reliability (AlHadi et al., 2017). Consisting of nine questions aligned with the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) guidelines for major depressive disorder, the PHQ-9 asks individuals to evaluate the frequency of their symptoms during the previous two weeks. Responses for each item are scored from 0 (not at all) to 3 (nearly every day), resulting a total score that spans from 0 to 27.

The psychometric properties of the PHQ-9 underscore its robustness. Kroenke et al. (2001) reported good internal consistency (Cronbach's alpha = .89) and test-retest reliability ($r = .84$) for the measure. The PHQ-9 has demonstrated strong convergent validity, displaying substantial correlations with other depression measures, such as the Beck Depression Inventory and the Composite International Diagnostic Interview. Furthermore, the measure has exhibited sound discriminant validity by demonstrating a weaker correlation with anxiety measures. The utility of the PHQ-9 extends to its sensitivity to change. It has been employed effectively in tracking symptom severity over time and gauging treatment outcomes, making it an invaluable tool for both research and clinical practice. Given its brevity, simplicity and established psychometric properties, the PHQ-9 serves as an essential instrument in assessing depression symptomatology in various populations, contributing to a deeper understanding of this complex mental health domain. In terms of severity, the Patient Health Questionnaire-9 (PHQ-9) encompasses five distinct categories. A threshold range of 0-4 signifies the absence of depression symptoms, while a range of 5-9 indicates the presence of mild depressed symptoms. Additionally, scores between 10 and 14 suggest moderate levels of depressive symptoms, while scores from 15 to 19 reflect the presence of moderately severe depressive symptoms. Lastly, a range of 20-27 represents the presence of severe signs of depression (Kroenke et al., 2001; Urtasun et al., 2019).

The Generalized Anxiety Disorder 7-item (GAD-7) developed by Spitzer et al., (2006) stands as a prominent self-report measure tailored to assess the severity of generalized anxiety symptoms. Its Arabic version, with a concise format comprising seven items, has also been validated on a Saudi sample by AlHadi et al. (2017). It aligns closely with the criteria for generalized anxiety disorder outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Individuals are asked to evaluate how often they have experienced symptoms during the previous two weeks using a scale from 0 (not at all) to 3 (nearly every day), resulting in a final score ranging from 0 to 21. Spitzer et al. (2006) reported adequate reliability, with a Cronbach's alpha of .92 for internal consistency and an Intraclass Correlation Coefficient of .83 for test-retest reliability. Convergent validity has been robustly



demonstrated through significant correlations with established anxiety measures, such as the Hamilton Anxiety Rating Scale and the Beck Anxiety Inventory. Discriminant validity is evident through its distinct association with depression measures, reaffirming its ability to accurately pinpoint generalized anxiety symptoms. Moreover, the GAD-7 showcases sensitivity to change, rendering it valuable for monitoring symptom fluctuations over time and assessing the efficacy of interventions. Its simplicity, brevity and strong psychometric foundations render the GAD-7 an indispensable tool for both clinical practice and research endeavors. As a succinct and validated instrument, the GAD-7 contributes significantly to the systematic evaluation of generalized anxiety symptoms, enhancing our understanding of this intricate facet of mental health. The cut-off thresholds of 5, 10 and 15 might be construed as indicative of varying degrees of anxiety on GAD-7 scale, similar to the classification of depression severity on (PHQ-9) (Spitzer et al., 2006; Thour et al., 2016).

Procedure

This research embarked on a systematic exploration of the intricate interplay between social media utilization and mental health within the Arab context. The study meticulously adhered to ethical guidelines and sought to uncover nuanced insights within a methodologically robust framework. Participants were drawn from a diverse cross-section of individuals residing within the Saudi Arabian region. The recruitment efforts employed convenience sampling methods to ensure representative diversity across age, gender and geographical location. The study targeted individuals aged 18 and above who were active users of various social media platforms. Before participation, potential respondents were given a detailed consent form explaining the study's objectives, procedures, confidentiality safeguards and voluntary nature. Ethical considerations were paramount, and participants were given ample time to review the consent form, seek clarification and provide informed consent prior to proceeding with the study.

To facilitate accessibility and broaden participation, the study instruments were administered via a secure and user-friendly online platform. The participants were directed to a dedicated survey portal through which they accessed various questionnaires, including demographic information and information from the PHQ-9, GAD-7, and BICI. The online format not only offered ease of participation, but also upheld privacy and confidentiality.

Upon accessing the online platform, participants were guided through a series of questionnaires designed to capture key dimensions of their social media usage and mental health experiences. The sequence of the questionnaire presentations was counterbalanced to minimize potential order effects and enhance the validity of the collected data. Participants' responses were collected and stored securely to maintain their privacy. Confidentiality was maintained by employing unique identifiers rather than personal identifiers in the data management. Strict adherence to data protection and privacy regulations ensured the safeguarding of participants' sensitive



information. The research obtained ethical clearance from the Institutional Review Board at King Saud University (No: KSU-HE-23-412).

Data analysis

The analysis was performed using the statistical software (Statistical Package for the Social Sciences version 27). The descriptive statistics, frequencies and percentages were employed to show the prevalence of the mental health, social media, and demographic factors. Chi-square tests were used to determine differences in the prevalence rates of depression, anxiety, and body image problems across demographic factors.

Spearman's rho correlation coefficients were calculated to assess the intricate interplay between social media interaction and mental health outcomes. These coefficients facilitated the identification of connections between the frequency and duration of social media engagement and scores on scales measuring depression, anxiety, and body image concerns. The emergence of positive correlations could indicate a link between intensified social media engagement and heightened levels of psychological challenges.

Path analysis using Smart PLS involved selecting variables based on previous literature and theoretical considerations. Hypotheses were developed to test the direct effects of social media use on mental health consequences moderated by age and gender. Model fit was evaluated using the adjusted goodness-of-fit index (AGFI), and the root mean square error of approximation (RMSEA). The significance of path coefficients and moderating effects were tested using bootstrapping techniques with 5,000 resamples.

By employing moderation and interaction analyses as a lens, this investigation broadens the scope of related research to include the influence of individual variances in the dynamic bond between the utilization of social media and subsequent mental health ramifications. Factors such as age and gender are conceivable moderators, steering the inquiry toward unraveling whether these elements amplify or diminish the connection between involvement in social media and one's mental wellness (see Figure 1).

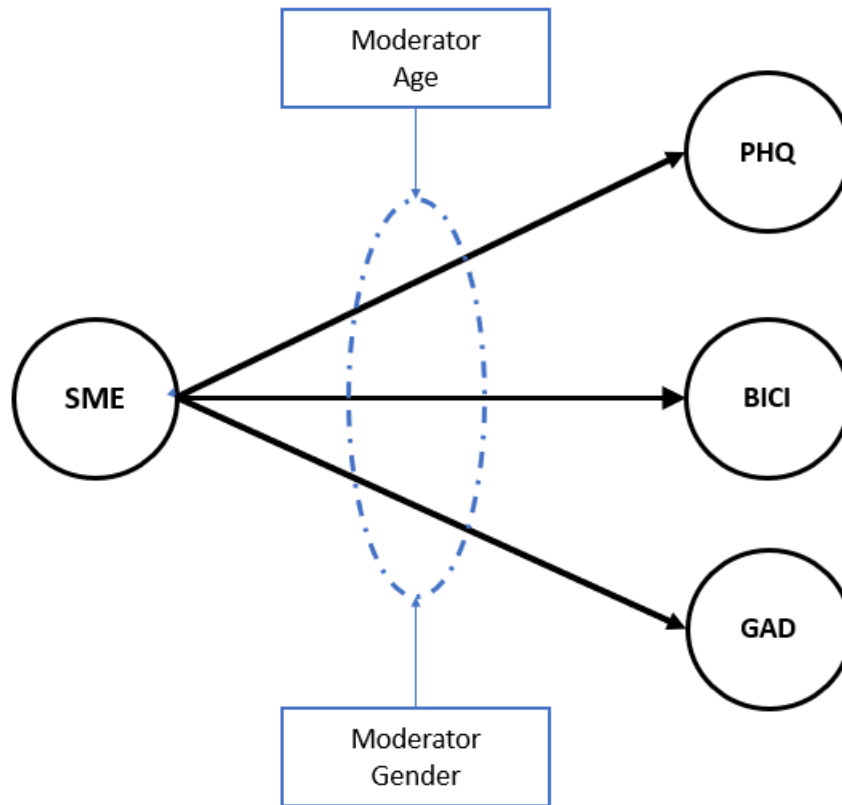


Figure 1. Research Model

Results

Prevalence of Depression, Anxiety and Body Image Concerns

The mean PHQ-9 score among the study participants was 7.81, with a standard deviation of 5.50, indicating a moderate level of depressive symptoms within the cohort. Notably, a significant majority of participants (69.4%) reported minimal to mild depressive symptoms, as determined by their PHQ-9 scores (See Figure. 2). Conversely, Table 2 reveals that a noteworthy portion of the sample (30.6%) exhibited moderate-to-severe depressive symptoms. Moreover, this study revealed a considerable prevalence of moderate-to-severe symptoms among the young adult population aged 18 to 24 years, with 39.79% experiencing such symptoms. A substantial prevalence rate of 35.0% was observed among females. In terms of educational attainment, individuals with a high school diploma or lower exhibited 38.3% prevalence of moderate to severe symptoms; however, it should be noted that the statistical analysis revealed this difference to be statistically insignificant ($p = 0.108$).



Level of depression severity

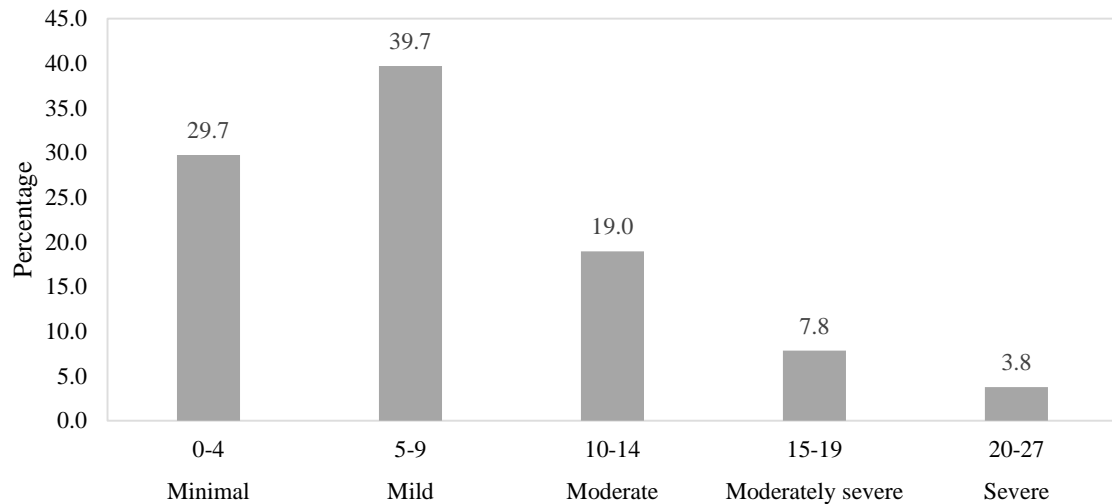


Figure 2. Categorization of depression severity based on PHQ-9 scores.

In terms of anxiety, the mean GAD-7 score was 7.01, with a standard deviation of 5.12. Anxiety, as defined by a GAD-7 score of 5 or higher, was prevalent in 66% of the study participants (See Figure. 3). Notably, moderate anxiety (GAD-7 score of 10 or higher) was observed in 14.9% of the sample population, while severe anxiety symptoms (GAD-7 score of 15 or higher) were present in 10.6%. Mild anxiety was reported by 40.5% of the respondents. This investigation revealed a noteworthy prevalence of moderate-to-severe anxiety among young adults (aged 18–24), with 37.7% experiencing these symptoms (Table 2). Interestingly, anxiety was more prevalent among single individuals 30.9% than among those who were married. Additionally, an analysis of gender differences indicated that females 29.7% with moderate-to-severe anxiety reported higher levels of anxiety than males 17.9% (See Table 2). Furthermore, the study showed that differences in anxiety prevalence across education levels were not statistically insignificant ($p = 0.088$).

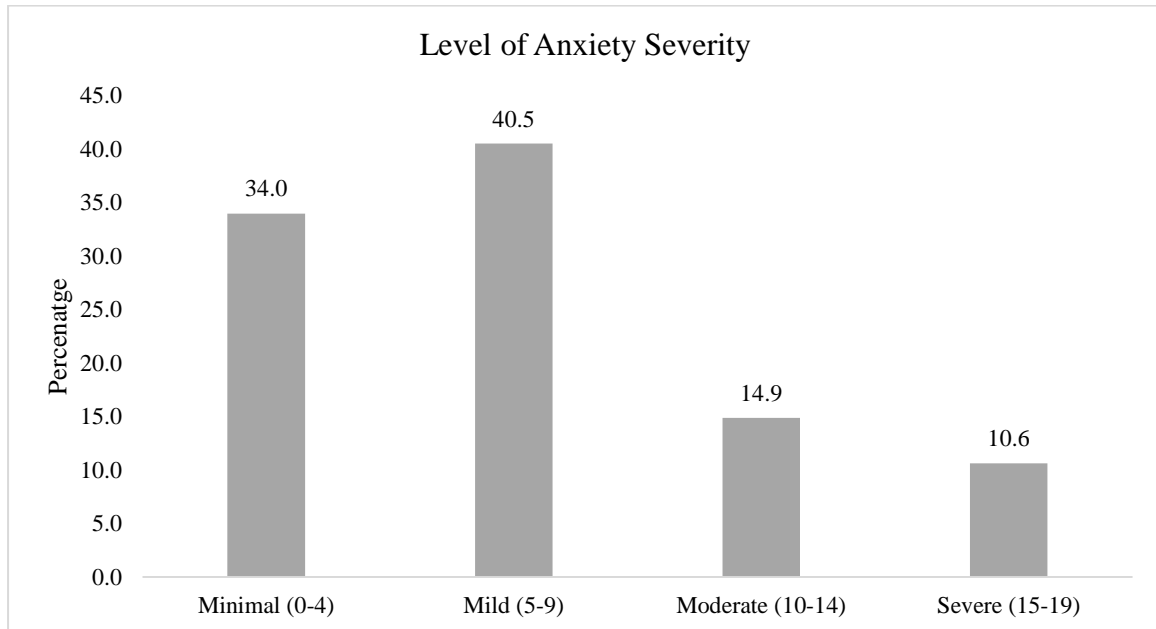


Figure 3. Levels of anxiety severity obtained by categorizing participants according to the GAD-7 score.

Figure 4 provides a visual representation of the prevalence of body image concerns among social media users, as assessed through an analysis of body image concern inventory (BICI) data. The criterion for identifying individuals with body dysmorphic disorder (BDD) was a cutoff score higher than 42. Notably, a substantial 40.4% of the participants surpassed this threshold, highlighting a significant prevalence of BDD-related concerns within this specific segment of the sample. Conversely, approximately 59.6% of the participants demonstrated positive body image concerns, as an indicator of a healthier self-perception.

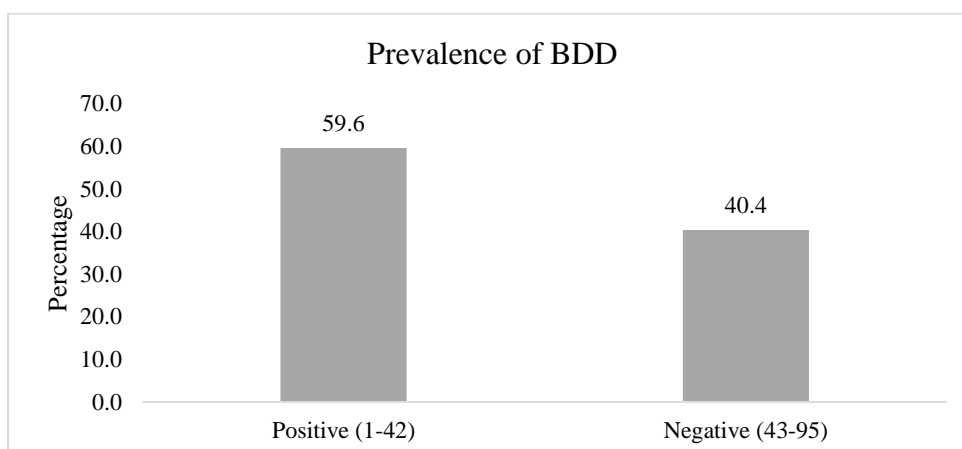


Figure 4. Prevalence of body dysmorphic disorder (BDD) according to BICI score.

**Table 1**

Prevalence of Moderate to Severe Symptoms According to Demographic Factors

Factors	Levels	Prevalence of Depression		Prevalence of Anxiety		Prevalence of BIC		P
		Moderate to severe n (%)	P	Moderate to severe n (%)	P	Positive n (%)	Negative n (%)	
Among All participants		187 (30.6)		156 (25.5)		365 (59.6)	247(40.4)	
Age	18-24	99 (39.7)	<.001	84 (37.7)	<.001	154 (61.8)	95 (38.2)	0.56
	25-34	36 (29.7)		33 (27.3)		67 (55.4)	54 (44.6)	
	35-44	37 (26.2)		31 (21.9)		81 (57.4)	60 (42.6)	
	≥45	15 (14.8)		8 (7.9)		63 (62.4)	38 (37.6)	
Gender	Male	49 (22.5)	<.001	39 (17.9)	0.002	138 (63.3)	80 (36.7)	0.17
	Female	138 (35.0)		117 (29.7)		227 (57.6)	167 (42.4)	
Marital Status	single	110 (37.9)	0.005	89 (30.9)	0.025	170 (58.6)	120 (41.4)	0.64
	married	67 (23.3)		59 (20.5)		176 (61.3)	111 (38.6)	
	divorce	9 (29.0)		8 (25.8)		16 (51.6)	15 (48.4)	
	widow	1 (25.0)		0 (0)		3 (75.0)	1 (25.0)	
Educational Level	Elementary school	0 (0)	0.108	0 (0)	0.088	2 (66.7)	1 (33.3)	0.95
	High school or less	44 (38.3)		38 (33.0)		70 (60.8)	45 (39.1)	
	diploma	6 (16.2)		7 (18.9)		23 (62.2)	14 (37.8)	



	Bachelor	122 (33.60)		99 (27.3)		213 (56.7)	150 (41.3)
	Master	9 (14.1)		7 (10.9)		37 (57.8)	27 (42.2)
	PhD	6 (20.0)		5 (16.7)		20 (66.7)	10 (33.3)

Correlations between Social Media Use and Mental Health Outcomes

The correlation matrix in Table 3 provides valuable insights into the interrelationships between the amount of time spent and regularity of social media engagement and various psychological attributes. A significant positive relationship ($r = 0.214^{**}$) was observed between depression and the amount of daily time invested in social media, indicating that an increase in social media interaction time is linked to elevated levels of depression. Similarly, the correlation analysis revealed a noteworthy positive link between daily amount of time spent on social media and levels of anxiety ($r = 0.188^{**}$), signifying that extended engagement with social media platforms is associated with heightened anxiety. Moreover, a statistically significant correlation ($r = 0.158^{**}$) was identified between body image concerns and the amount of time allocated to social media usage per day. These results indicated that individuals who spend greater time on social media platforms tend to report increased levels of body dysmorphic disorder (BDD) concerns. Notably, statistically insignificant correlation emerged between how often daily social media engagement occurred and the assessed psychological parameters.

Table 2

Correlation Analysis Results

Variable	Spearman's rho	PHQ-9	GAD-7	BICI
Frequency	Correlation Coefficient	-0.048	0.006	-0.015
	Sig. (2-tailed)	0.236	0.88	0.713
	N	612	612	612
Duration	Correlation Coefficient	.214 ^{**}	.188 ^{**}	.158 ^{**}
	Sig. (2-tailed)	0	0	0
	N	612	612	612

^{**}. Correlation is significant at the 0.01 level (2-tailed).

Frequency: How many times do you use social media

Duration: How much time on average do you use social media per day

Influence of Social Media Engagement on Mental Health Outcomes

An examination of the associations between social media engagement and mental health outcomes revealed noteworthy findings (Table 4). The AGFI was 0.93, which



was above the minimum threshold of 0.90 and represents model fit. The RMSEA was 0.063, which was below the maximum value threshold of 0.08. Specifically, the relationship between social media engagement and PHQ-9 scores ($\beta = 0.181$) had a T statistic of 3.293 and a p value of 0.001. This statistical analysis demonstrated a robust and significant connection between heightened social media engagement and elevated PHQ-9 scores, suggesting potential mental health concerns. Furthermore, our investigation indicated that social media engagement was a significant predictor of body image concerns, with an estimated coefficient of $\beta = 0.149$ ($p = 0.046$). These results underscore the relevance of social media engagement in understanding and potentially mitigating mental health challenges, particularly concerning body image concerns.

Moderating Effect of Age and Gender on the Relationship between Social Media Engagement and Mental Health Measures

The study employed Smart PLS to examine the possible moderating influence of age and gender on the relationship between social media usage and various mental health measures. To discern the significance of these moderating effects, we assessed the T statistics and p values associated with the interaction terms. For instance, the moderating impact of age on the path from social media usage to anxiety ($\beta = 0.238$) yielded a T statistic of 2.095 and a p value of 0.036. These statistical results suggest that the interaction between age and social media usage may hold significance in predicting GAD-7 scores, implying that age influences the association between social media engagement and anxiety levels. To gain a deeper understanding of this moderating effect, we conducted a slope analysis, as depicted in Figure 5. In our categorization, 'younger' individuals had ages below the mean age, while 'older' individuals had ages above the mean. The graphical representation reveals a steeper and more positive gradient for older individuals than for their younger counterparts. Consequently, the moderating effect of age on the development of anxiety, a mental health condition, has a more pronounced influence on older individuals than on their younger counterparts. In contrast, the moderating influence of age on the association between social media usage and depression ($p=0.726$), and body image concerns ($p=0.957$), as well as between gender and all mental health measures such as depression ($p=0.563$), anxiety ($p=0.252$), and body image concerns ($p=0.253$), was determined to be statistically insignificant. This finding suggests that gender does not exert a moderating influence on the association between social media engagement and mental health outcomes within the scope of this study.

Table 3

Path Analysis: Social Media Engagement, Mental Health and Moderation by Age and Gender

Effect	Path	B	(STDEV)	T Statistics	P Values
Moderating age	SME -> BICI	-0.006	0.113	0.054	0.957
	SME -> GAD	0.238	0.114	2.095	0.036
	SME -> PHQ	-0.039	0.111	0.351	0.726



Moderating gender	Variable	SME -> BICI	0.258	0.226	1.143	0.253
		SME -> GAD	0.177	0.154	1.145	0.252
		SME -> PHQ	0.091	0.157	0.578	0.563
Direct Effect		SME -> BICI	0.149	0.075	1.993	0.046
		SME -> GAD	0.054	0.061	0.881	0.378
		SME -> PHQ	0.181	0.055	3.293	0.001

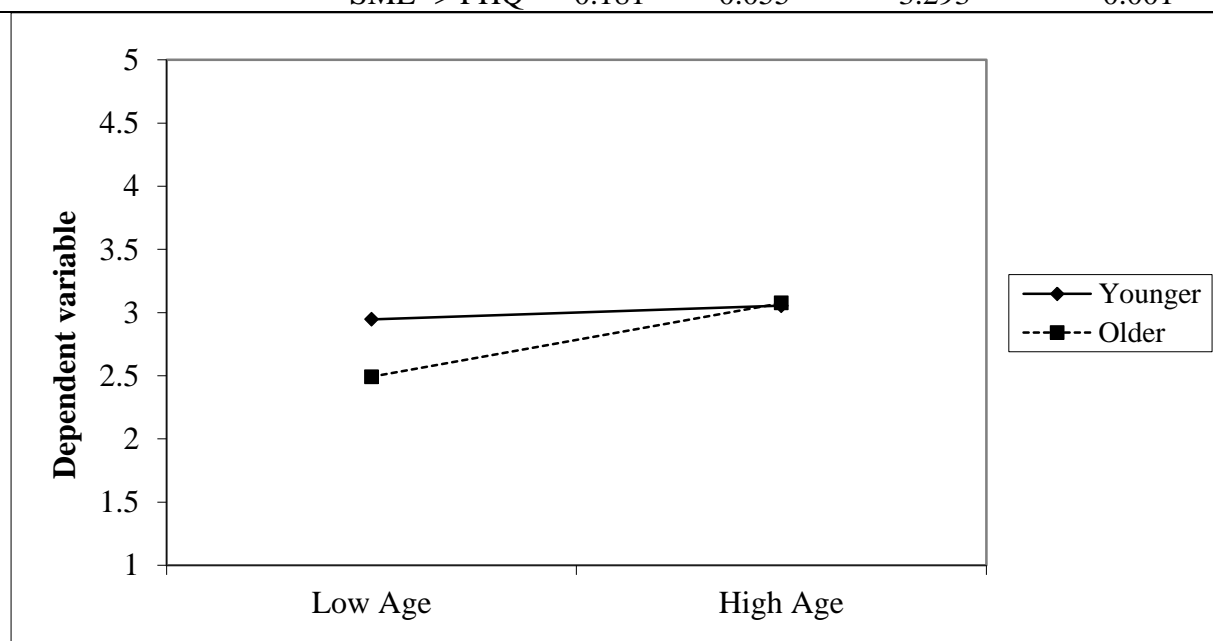


Figure 5. Moderating effect of age on the relationship between GAD-7 scores and social media engagement.

Discussion

The primary aim of the study was to investigate the relation of social media use on health with respect to depression, anxiety and body image concerns. Additionally, we explored how age and gender influence the association between social media use and mental well-being.

The study findings revealed that a significant number of participants experienced symptoms of depression, with approximately 30% reporting high levels. Interestingly, single individuals and females were disproportionately affected by symptoms, which is consistent with the findings of previous studies conducted by Biswas et al. (2022) and Saluja et al. (2004). In terms of age groups, young adults aged 18-24 years exhibited moderate depression. These findings align with studies conducted by the National Institute of Mental Health (2019) and Nihalani et al. (2009), which also reported rates of depression among young adults who are known to be highly active on social media platforms (Smith & Anderson, 2018).

Regarding anxiety, 66% of the respondents stated that they experienced symptoms related to anxiety. Regarding the individuals included in the study, 14.9% experienced moderate anxiety, while 10.6% reported severe anxiety. Here again, females 382



showed a higher prevalence. Interestingly, research conducted by Steinsbekk et al. (2022) supports the notion that females tend to have a greater incidence of anxiety than males. Additionally, some studies have emphasized the connection between social media usage and depression & anxiety in females. For example, Hou et al. (2020) reported that women felt more stressed and anxious, and Azem et al. (2023) found that females who use social media show higher depression symptoms than their counterparts. While others have not consistently identified gender-based differences (Arias de la Torre et al., 2020; Keles et al., 2020; Sewall et al., 2022). With respect to the age groups, young adults aged 18 to 24 years had a moderate prevalence of anxiety, which could be linked to spending extensive time on screens, as suggested by Wu et al. (2015). Notably, using media for support during adolescence and young adulthood may unknowingly contribute to exacerbation, which in turn predicts an increase in anxiety symptoms over time according to Ohannessian et al. (2021). Additionally, our study highlighted that more than 40% of individuals who heavily use social media express concerns about body image. These results support the earlier work of Tiggemann and Miller (2010) and Fardouly et al. (2015). These concerns were often intensified by comparisons related to appearance among young females who actively engaged with social media platforms. These heightened body concerns stem from the inclination to compare one's appearance, especially with peers, within the realm of Facebook (Fardouly et al., 2015). To examine the relationship between time spent on media and mental health issues, correlation analysis was used. The findings showed correlations between the amount of time individuals spent on media and the presence of depression, anxiety, and concerns about body image. These findings suggest that excessive use of media can contribute to mental health problems. These findings align with research that has linked social media use to depression (Blomfield Neira & Barber 2014), combined depression and anxiety (Woods & Scott 2016) and anxiety alone (Yan et al., 2017). Similarly, Karim et al. (2020) reviewed related studies and reported significant risk factors for anxiety and depression associated with prolonged use of social media, which supports our findings. In terms of body image, a significant positive correlation was found between time spent on social media and body image concerns, confirming the findings of Nesi and Prinstein (2015). These patterns indicate a likelihood of experiencing body image problems, which could result in a decrease in mental well-being (Holland & Tiggemann 2016; Marengo et al., 2018). Interestingly, the influence of frequency of social media use on depression was found to be insignificant, aligning with the conclusions drawn by Banjanin et al. (2015) and Blomfield Neira and Barber (2014). This suggests that the amount of time spent on media may be more influential than the frequency of use, as frequent but short interactions could be common. This discrepancy suggests that the amount of time spent on social media platforms may have a more profound impact on mental health than the mere frequency of checking these platforms. Prolonged exposure to social media content can lead to more extended periods of social comparison and exposure to potentially harmful content, which could exacerbate feelings of depression and anxiety.



In terms of direct effect, the study revealed that engaging with media is a predictor of depression. This connection can be attributed to the nature of social media platforms, which often foster feelings of envy among users and contribute to emotions (Tandoc & Goh 2023). Excessive involvement with media can lead to media fatigue, which in turn leads to symptoms of depression (Dhir et al., 2018). Consistent with previous related research (De Vries et al., 2016; Tiggemann & Miller 2010; Tiggemann & Slater 2013), it was found that engagement with media significantly predicts concerns about body image. This connection can be attributed to the increase in the use of social media platforms, which leads individuals to receive evaluations about their appearance from their peers (De Vries et al., 2016).

In line with the findings of Hardy and Castonguay (2018), these results indicate that age plays a role in influencing the relationship between social media usage and anxiety. This highlights the importance of age in shaping this connection. These findings emphasize the strong link between social media use and anxiety among individuals outside of the average age group. The slope analysis (Figure 5) indicates that older individuals experience a more pronounced relationship between social media engagement and anxiety. This finding can be explained by socioemotional selectivity theory, which posits that as people age, they prioritize emotionally meaningful experiences and may be more affected by negative social interactions. Additionally, older individuals might have less familiarity and adaptability with social media, leading to higher anxiety levels when navigating these platforms. Previous research also suggests that older adults may experience higher levels of stress when engaging in online social interactions as a result of their technology use, making them more vulnerable to technostress (Lu et al., 2023; Tams, 2022).

Despite the significant moderating effect of age, the direct effect of social media engagement on anxiety was not significant. This may be due to the varying coping mechanisms and resilience factors across different age groups. Younger individuals might have more adaptive coping strategies or support systems in place, which could buffer the impact of social media on anxiety. The discrepancy in findings indicates that the impact of social networking sites on mental health outcomes may be influenced by age (Hardy & Castonguay, 2018). Existing research suggests that while social media can increase anxiety, its effects are mediated by individual differences in coping and social support (O'Day & Heimberg, 2021; Vannucci et al., 2017)." On the other hand, gender did not appear to influence the moderation of this relationship. This indicates that the impact of social media use on depression, anxiety, and body image concerns does not differ significantly between males and females. These findings suggest that interventions targeting social media's negative effects can be uniformly applied across genders.

This study presents certain limitations that need to be acknowledged. The information was gathered from a group of participants at a specific point in time, making it difficult to find the direct relationships between the use of social media use and the outcome of mental health over time. The study relied on individuals reporting their social media usage and mental health outcomes, which could be influenced by biases such as people wanting to present themselves in a way or having difficulty accurately



recalling information. Factors such as relationship status, family environment and offline social support were not taken into account when analyzing the data, and these factors could impact the results. Furthermore, due to the data collection, we could not explore how social media use and mental health outcomes change over time.

In research in this area, examining aspects of social media usage that might contribute to depression, anxiety and body image concerns would be beneficial. This could involve examining factors such as comparing oneself to others experiencing cyberbullying or feeling anxious about missing out on things happening on social media platforms and their impact on mental health outcomes. Furthermore, future studies could explore how individual differences, such as age and gender, impact the relationship between social media use and health. Understanding how these variables interact with media can provide an understanding of this complex connection. Additionally, upcoming research could focus on identifying factors that protect against or effective strategies to cope with the impacts of media on mental health. Discovering how individuals can promote well-being while using social media would benefit both researchers and the general public.

The implications arising from the research carry extensive ramifications and bear notable significance for the development of policies, clinical methodologies, and interventions in the domain of public health. Given the omnipresent nature of social media, this study issues a resounding call for action, underscoring the pressing necessity for efficacious strategies aimed at mitigating the deleterious consequences associated with its usage. One such imperative entails the initiation of educational campaigns tailored to address high-risk cohorts, specifically young adults and females, imparting knowledge regarding the perils entailed in unfavorable social comparisons and excessive utilization of social media platforms.

Furthermore, mental health professionals are encouraged to integrate these findings into diagnostic and therapeutic approaches, with a particular focus on young adults, for whom the implications are most pertinent. It is also incumbent upon the healthcare sector to recognize the dual nature of social media—a potential source of harm but also a conduit for fostering constructive communities and offering support. Within the ambit of public policy, these findings warrant the formulation of guidelines for social media platforms that advocate the adoption of features designed to diminish injurious social comparisons while concurrently promoting constructive interactions. There is an opportunity for heightened collaboration between technology enterprises and mental health organizations, facilitating the conceptualization of user interfaces and algorithms that prioritize the mental well-being of users above and beyond mere engagement metrics.

Conclusion

This research embarked on a rigorous exploration of the intricate associations between social media engagement and diverse facets of mental health, with a particular emphasis on depression, anxiety, and concerns pertaining to body image. The culmination of this extensive investigation unveils a multifaceted yet deeply disconcerting panorama of mental health concerns that are exacerbated by the



consumption of social media. The results shed light on the undeniable prevalence of depressive and anxious symptomatology, which is particularly prevalent among individuals who are single or female and within the age bracket of 18 to 24 years. These cohorts are disproportionately susceptible to mental health challenges fueled by social media, reinforcing the outcomes of antecedent inquiries.

The research provides compelling evidence that protracted engagement in social media is strongly correlated with adverse mental health outcomes. Intriguingly, the frequency of social media use did not emerge as a salient determinant of the genesis of depressive symptoms, introducing a layer of complexity to our comprehension of the interplay between social media and mental well-being. Additionally, the interrelationship between social media utilization and anxiety displayed an age-dependent moderation effect.

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