ECRONICON OPEN ACCESS

EC PSYCHOLOGY AND PSYCHIATRY
Research Article

Social Media and its Problematic Use Among Patients Diagnosed with Depression and Anxiety Disorders

Reema Dahham Alfandi[1]*, Maan ABari Qasem Saleh[1] and Amen Bawazir[2]

[1]Department of Psychiatry, Faculty of Medicine, Imam Abdulrahman Bin Fisal University, Alkhobar, Saudi Arabia

[2]College of Public Health and Health Informatics, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia

***Corresponding Author:** Reema Dahham Alfandi, Department of Psychiatry, Faculty of Medicine, Imam Abdulrahman Bin Fisal University, Alkhobar, Saudi Arabia.

Received: January 26, 2021; **Published:** February 27, 2021

Abstract

Background: The past decade has seen a worldwide increase in the use of the Internet and social media. Social media use (SMU) has radically changed the way people interact and communicate, and has produced what may become problematic behavior in its users. The scope of this current study was to analyse the quantity and pattern of social media usage among a number of depressed and anxious patients and evaluate the associated problems.

Subjects and Methods: We surveyed a convenience sample of 80 adult Saudi patients of either gender, aged between 18-70 years with a diagnosis of depression and anxiety. SM use and SM platforms were assessed through self-reporting of total amount of time spent, number of times and reasons for using SM. Depression and anxiety symptoms were measured using the Patient-Reported Outcomes Measurement Information System (PROMIS). Problematic Social Media Use (PSMU) was also measured using an adapted version of the Bergen Facebook Addiction Scale to encompass broader SM use. Descriptive statistics and Chi-squared tests were also performed.

Results: 80 patients participated in the survey, of whom 95% were social media users. 55.2% of female participants spent more time on social media than males. Additionally, anxious participants spent more time engaging with SM compared to depressed participants. 30.8% of anxious participants displayed significant PSMU, and 51.4% of depressed participants exhibited moderate PSMU. The results show a significant association between time spent on social media and diagnosis ($p = 0.31$). Also, time spent on SM were significantly associated with PSMU ($P= 0.001$). The SM platforms most often used by the participants are WhatsApp®, Instagram® and Snapchat®. More than half of the sample use SM for purposes of entertainment, followed by searching for information (82.10%), and connecting with friends and family (69.20%). However, 76.90% do not use social media to seek psychological counselling or psychological treatment information.

Conclusions: Most of the participants were social media users who exhibited severe to moderate PSMU. Anxious and depressed patients commonly use SM for purposes of entertainment. More research is needed to generalize and replicate these preliminary results to further understand the relationship between SMU and mental health, as well as the temporal relationships between psychiatric disorders and PSMU, mechanisms of comorbidity, and the subtler psychological changes that occur through SMU.

Keywords: *Social Media; Problematic; Depression Disorder; Anxiety Disorder; Kingdom of Saudi Arabia*

Abbreviations

SM: Social Media; SMU: Social Media Use; PSMU: Problematic Social Media Use; PROMIS: Patient-Reported Outcomes Measurement Information System; KSA: Kingdom of Saudi Arabia; SMH: Saudi Ministry of Health; FOMO: Fear of Missing Out; CITC: Saudi Communications and Information Technology Commission; KFUH: Department of King Fahad University Hospital; ECMHD: Eradah Complex Mental Health Hospital.

Introduction

Throughout the past decade, the way people communicate and interact has changed due to online social networking. It is as yet ambiguous whether these changes affect certain aspects of human behaviour and cause psychiatric disorders [31]. In recent years, the number of Internet users in the Kingdom of Saudi Arabia (KSA) has increased rapidly, reaching approximately 24 million at the end of 2016 reported by Saudi Communications and Information Technology Commission (CITC). In addition, the Internet penetration rate increased from 47% in 2011, to 74.9% at the end of 2016. Furthermore, it is expected that the demand for Internet services will continue to increase significantly over the next few years as a result of the availability of high-speed fiber-optic networks [8]. Undoubtedly, Social Media (SM) use is increasing among the Saudi population, and how SM is being used, particularly among mental health patients, remains unclear.

The Internet and social media are of great importance to today's health sector, as most users utilize online functions for many purposes such as searching for information, sharing interests or photos, and connecting with family and friends. Concerning the mental health sector, little data exist regarding the Internet and social media use of psychiatric patients. Therefore, this research topic concerns social media use and the potential problems it poses for depressed and anxious patients. The topic was selected for the following three reasons. Firstly, to survey the quantity and pattern of SM usage through multiple SM platforms. Secondly, to identify the emergence of a maladaptive use pattern known as problematic social media use (PSMU). Finally, to understand the patients' goals and purposes of using SM.

This research was delimited to a study of the extent of social media use and how it may prove problematic for anxious and depressed patients in the eastern region of KSA. The outcomes of the study can provide a better understanding of the pattern of social media usage and any consequences its use may have for depressed and anxious patients. Also, the study would offer the necessary base recommendations to develop further research topics in this field.

Hypotheses

The study hypothesized as follows:

1. Anxious patients would spend more time on social media than depressed patients.
2. Females would spend more time on social media than males.
3. Anxious patients use social media platforms more than depressed patients.
4. WhatsApp was the most commonly used social media platforms in depressed and anxious patients.
5. There will be a significant difference between depressed and anxious patients in relation to the purpose of social media use.
6. There will be a significant difference between depressed and anxious patients in the degree of problematic social media use.

Materials and Methods

Study design

A cross-sectional research design used to identify Social media and its problematic use among patients diagnosed with depression and anxiety disorders.

Sitting

The study was carried out in two places, the out-patient clinic of Psychiatric Department of King Fahad University Hospital (KFUH) in Khobar city and Eradah Complex Mental Health Hospital (ECMHD) in Dammam city. The data of this study were collected between August 2017 and May 2018.

Participants

A convenience sample of 80 participants was gathered from outpatient clinics in KFUH and ECMHD. The sample was composed of male and female patients diagnosed with depression and anxiety disorders, aged between 18-80 years old. The sociodemographic and clinical data of the participants were taken (e.g., age, gender and marital status, level of education, occupation and diagnosis) as well as identify whether they engage in social media.

Instruments and material

In this study, necessary information was collected by Four instruments; Level 2 of PROMIS Emotional Distress – Depression, Level 2 of PROMIS Emotional Distress – Anxiety [3,14]. Also, Social Media Use (SMU) is a survey taken from previous studies [10,20,21,24,32,34] and Problematic social media use (PSMU) [5,11,34]. The brevity of the scales and their reliability and validity made them a reasonable choice for seeking brief self-report measures. Table 1 shows the corresponding reliability estimates.

Translation procedures

All the questionnaires were translated into Arabic after permission was obtained from the authors by email. The translation process underwent three stages. Firstly, the questionnaires were translated into Arabic by first author then reviewed by second author. Secondly, the Arabic version was assessed by Doctors (psychologists and psychiatrists) fluent in both Arabic and English. Finally, the translated versions were again reviewed after the second phase.

Instruments	No. items	Cronbach's Alpha
PROMIS Depression	8	.919
PROMIS Anxiety	7	.892
PSMU	6	.701

Table 1: *Reliability of tools.*

Procedures

In order to test the hypotheses proposed in this study, the principal investigator utilized self-report inventories to gather information about amount of time patients' report engaging with SMU and their PMSU. Participants' consent was taken before they were asked to take part in the questionnaires. All participants gave their informed consent. Prior permission was granted to carry out the study from both the hospital and university authorities.

Selection criteria

The research included patients diagnosed with depression or anxiety disorders by psychiatrists using DSM-5 criteria at the outpatient clinics. The exclusion criteria included patients with depression or anxiety disorders who reported that they don't have social media accounts due to preferring not to spend time engaging with social media.

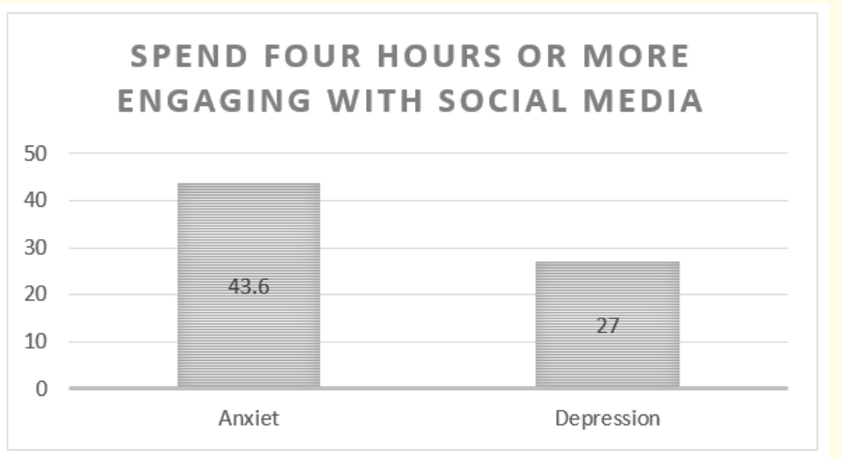
Results

The table 2 shows a total of 80 participants and the mean age of the study population was 36.8 ± 9.9 years. Also, it was comprised of approximately 55% females and 45 % males. Most of the participants were either married 60% or single/divorce/widow 40%. In addition, 48.8% participants had a university degree and above, 28.7% had a secondary degree and 22.5% participants had an intermediate degree and below. The gender percentage in diagnosis was 57.10% of males with anxiety is higher than the proportion of females 42.90%. The opposite is true in the case of depression, indicating that females are twice as likely to suffer depression than males. A chi-square test was performed and revealed a significant association between gender and diagnosis, X^2 (1, N = 80) = .022, p =5.268; Fisher's Exact Test, Sig= .026. Surprisingly, there is an association between education and diagnosis (= 0.04). That means depression is higher in rates among secondary school holders while university degree holders were more anxious (see table 2).

Characteristics		Depression		Anxiety	
		N.	%	N.	%
Gender	Male	12	31.6	24	57.1
	Female	26	68.4	18	42.9
Age range	<30 years	10	26.3	9	21.4
	30-39 years	9	23.7	17	40.5
	40-49 years	17	44.7	10	23.8
	≥50 years	2	5.3	6	14.3
Education	Intermediate and below	10	26.3	8	19.0
	secondary	15	39.5	8	19.0
	University and above	13	34.2	26	61.9
Occupation	employee	21	55.3	25	59.5
	Unemployed	8	21.1	8	19.0
	housewife	9	23.7	9	21.4
Marital Status	Married	19	50.0	29	69.0
	single/divorce/widow	19	50.0	13	31.0

Table 2: *Socio-demographic Characteristics of participants and association. between their diagnosis (N = 80).*

Moving on, 95% of participants who reported that they engage in social media use, while 5 % participants reported that they don't have social media accounts due to preferring not to spend time engaging with social media. Most of participants use only one device to access social media and they prefer to use smartphones such as an iPhone or Galaxy (see shape 1). However, there is no significant association between the type/number of devices and diagnosis because the Sig. value is .865 (which is greater than .05).



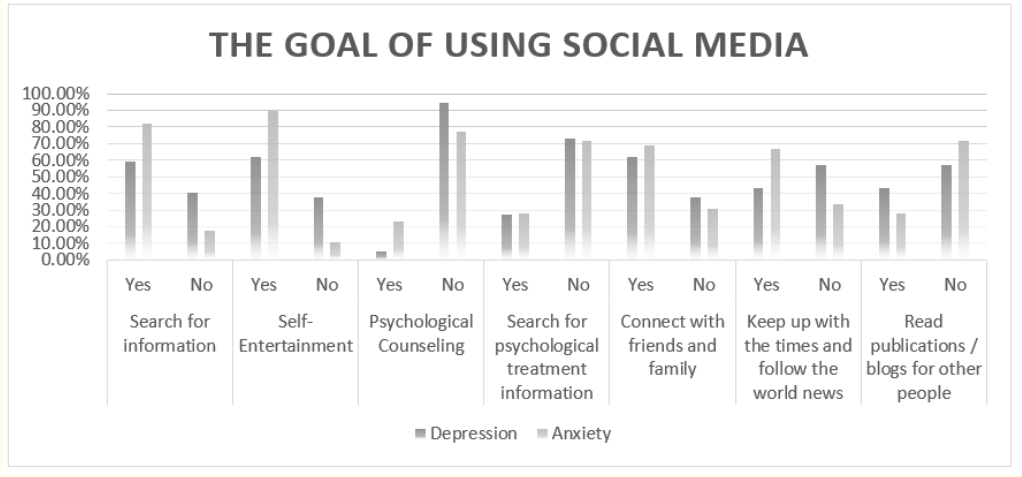
Shape 1: *Time spend on social media.*

The amount of time spent engaging in social media was analyzed and a comparison was made of differences in gender and diagnosis. However, we found that females spend more time on social media than males. Also, we analyzed and compared the time participants with a diagnosis of depression or anxiety spent on social media. It was found that 39.4% of participants spend two to three hours a day using social media, whereas 35.5% spend four hours or more per day. The remaining sample participants spend one hour or less each day. To be precise, 43.6% of participants diagnosed with anxiety issues spend four hours or more engaging with social media, compared to 27% of those diagnosed with depression; in contrast 37.8% of depressed patients spent one hour or less on social media. The "Linear-by-Linear Association" chi-square test X2 (1, N = 76) = .31, = 4.657 indicated that there is a significant association between time spent on social media and diagnosis.

Use of the following		Overall use		Depressive		Anxiety	
		N.	%	N.	%	N.	%
Facebook®	Yes	32	40.0	11	28.9	21	50.0
	No	48	60.0	27	71.1	21	50.0
Snapchat®	Yes	59	73.8	24	63.2	35	83.3
	No	21	26.3	14	36.8	7	16.7
WhatsApp®	Yes	75	93.8	35	92.1	40	95.2
	No	5	6.3	3	7.9	2	4.8
Instagram®	Yes	58	72.5	25	65.8	33	78.6
	No	22	27.5	13	34.2	9	21.4
Google_plus®	Yes	42	52.5	20	52.6	22	52.4
	No	38	47.5	18	47.4	20	47.6
LinkedIn®	Yes	14	17.5	5	13.2	9	21.4
	No	66	82.5	33	86.8	33	78.6
Youtube®	Yes	64	80.0	26	68.4	38	90.5
	No	16	20.0	12	31.6	4	9.5
Pinterest®	Yes	12	15.0	7	18.4	5	11.9
	No	68	85.0	31	81.6	37	88.1
Twitter®	Yes	50	62.5	15	39.5	35	83.3
	No	30	37.5	23	60.5	7	16.7
Tumblr®	Yes	9	11.3	4	10.5	5	11.9
	No	71	88.8	34	89.5	37	88.1
Keek®	Yes	6	7.5	2	5.3	4	9.5
	No	74	92.5	36	94.7	38	90.5

Table 3: *Association between the rate of usage of social media applications. and the diagnostic characteristics (N = 76).*

The table 3 presented the association between the rate of usage of social media applications and the diagnostic characteristics. The result showed the most commonly social media platforms used by participants which were WhatsApp®, Instagram® and Snapchat®. However, YouTube® was not included in the most used category because 32.40% of the participants diagnosed with depression stated "I don't use this platform", with 10.30% of the participants diagnosed with anxiety revealing the same. On one hand, 79.50% of participants diagnosed with anxiety used WhatsApp® more than five times per day, with 48.60% of participants diagnosed with depression doing the same. Participants diagnosed with anxiety used Snapchat® four times or more per day 61,5%, and 38.5 reported that they use Instagram® 4 to 5+ times each day.



Shape 2: *The goal of using social media.*

The shape 2 showed the outcomes exploring the goals of social media use from the point of view of the participants. More than half of the sample reported that they engage in social media for purposes of entertainment. The participants diagnosed with anxiety stated that they use social media to search for information, connect with friends and family, and follow world news. However, most of this group reported that they don't use social media to seek psychological counselling or psychological treatment information. In contrast, participants diagnosed with depression state that they use social media to search for information, connect with friends and family, and read publications/blogs. Also, most of this group revealed that they do not use social media to share photos or music or seek psychological counseling.

Degree of Problematic social media use		Overall use		Depressive		Anxiety	
		N.	%	N.	%	N.	%
	Slightly use	24	31.6	13	35.1	11	28.2
	Moderately use	35	46.1	19	51.4	16	41.0
	Heavy use	17	22.4	5	13.5	12	30.8

Table 4: *The Association between Problematic Social Media Use and diagnosis (N = 76).*

After Analyzing the data, it can be seen that 46.1% of participants have moderately problematic social media use (PSMU), while 31.6% have zero to slight PSMU. 30.8% of participants diagnosed with anxiety have significant PSMU, compared to participants diagnose with depression (13.5%). 51.4% of participants diagnosed with depression exhibit moderate PSMU, compared to 41% of participants diagnosed with anxiety. A third of participants diagnosed with depression show zero to slight PSMU, compared to participants diagnosed with anxiety (28.2%). A "Linear-by-Linear Association" chi-square test was performed, and revealed there to be no significant association between PSMU and diagnosis, X2 (1, N = 76) = .151, p = 2.064 (see table 4).

The degree of PSMU		One hour or less		About two hours		Three hours		Four hour or more		
		N.	%	N.	%	N.	%	N.	%	P-value
	None to slight	11	57.9	27	71.1	27	64.3	4	14.8	.001
	Moderate	7	36.8	8	21.1	10	23.8	12	44.4	
	Heavy	1	5.3	3	7.9	5	11.9	11	40.7	

Table 5: *The Association between Problematic Social Media Use and Time Spent (N = 76).*

The outcome of study presented the degree of Problematic Social Media Use (PSMU) among females and males. The data indicates that 71.4 of females have moderate to heavy PSMU compared to 57.8 male. Due to that females spend too much time on social media. However, chi-square test was performed, and revealed there to be no significant association between PSMU and gender, X2 (1, N = 76) = 0.816, p = .406. Also, there was no significant association between the level of depression/anxiety and PSMU. Surprisingly, results indicated a significant association between time spent on social media and problematic social media use since the value of to be 16.5 0.01 (Linear-by-Linear Association, = 12.981, 1) (see table 5).

Discussion

The study clearly showed the extent of social media use among depressed and anxious patients and the problems associated with it. Most of participants reported that they engage in social media to varying degrees [12,21,22]. Previous researches suggest several reasons for the widespread use of social media, including the influence of a psycho-physiological pattern. According to Mauri., *et al*. (2011) there is a core outflow state present when individual's browse Facebook®, during which it is observed that individuals exhibit signs of relaxation which are not based on somatic activity. Furthermore, Kramer and Colleagues (2014) found evidence for emotional contagion amongst SM users, for instance, when users see expressions of emotion on Facebook®, either positive or negative, they are more likely to express a similar emotion in their own updates. Another significant reasoning is the effect of Metcalfe's law, which stipulates that the value of a telecommunications network is proportional to the square of the number of its connected users. In simple terms, this means people are more likely to participate in a certain SM if their friends or family do so already [17].

The popularity of social media stems from the fundamental principle of conformity [9]. For instance, it is very difficult to avoid the normative social influence if everyone we know is on a specific site. This phenomenon is known as the fear of missing out (FOMO), which in this case would mean separating oneself from a website having psychological side-effects. To understand the psychology behind the popularity of social media sites, it is beneficial to reference the concept of the technologies of the self. This idea proposes that people manipulate their bodies, minds and behavior in order to reach an ideal of psychological perfection [15].

The current study shows the amount of time participants spent engaging with social media. The data indicated that 43.6% of anxious patients spend four hours or more engaging with social media, compared to 27% of depressed patients. As claimed by Hart and Colleagues

(2015), anxious people are more active on social media sites because they are motivated to seek positive feedback from others, supporting H1. In addition, the findings show that females spend more time on social media than males. Similar findings were reported by other researchers [4,16,27] that support the second hypothesis that females spend more time on social media than males. This fact is likely due to males having more time to meet their friends outside the home, as in accordance with the Saudi context, females spend more of their time at home. Conversely, in a recent study by Vannucci., *et al*. (2017) male participants were revealed to exhibit greater daily social media use than females. Consistent with our present findings, Lin., *et al*. and Primack., *et al*. (2016) reported a significant association between time spent on social media and diagnosis of depression and anxiety.

Interestingly, 53.8 % of participants diagnosed with anxiety use 5 to 6 SM sites, with 40.5% of depressed participants using the same number. Thus, the results confirm H3, that anxious patients use more social media platforms than depressed patients. Primack., *et al*. (2016) suggested that the use of multiple SM platforms is independently associated with symptoms of depression and anxiety. This is line with the point made above, that anxious patients are motivated to seek positive feedback from others. People suffering from anxiety disorders often experience recurring intrusive thoughts or concerns about the future [7] hence they keep abreast of current events, whereas depressed patients pay little attention to the latter; they are already resigned to a negative outlook. Moving on, there are no previous studies that support the hypothesis that anxious patients use social media platforms more than depressed patients, except for one study on psychiatric patients conducted by Kalckreuth, Trefflich & Rummel-Kluge (2014). This study suggested that social media was utilized by less than half of the participants (social networks -47.8%, forums -19.4%, chats -18.7%, blogs -12.3%). Liu., *et al*. (2017) claimed that there are two primary rewards of using social media platforms, (1) user flow out feelings, and (2) connecting with people. Also, social media multitasking, i.e., the use of multiple SM platforms simultaneously, has cognitive costs which provide emotional gratification that users do not actively seek [39].

The results support parts of the fourth hypothesis, which suggests that anxious patients are more likely to use WhatsApp®, Instagram® and Snapchat®. To expand on this, it has been shown that personality differences play a part in what social media sites users prefer. For example, users who preferred Twitter® displayed a higher need for cognition, and those who preferred Facebook® presented higher sociability, extraversion and neuroticism [19]. In our current study, the most popular platform with the participants was WhatsApp. Consistent with our present findings, CITC Annual Report, (2016) reported WhatsApp® to be the most popular SM in Saudi Arabia (supporting H4), followed by Facebook® and Twitter®, Instagram®, Snapchat®, Google Plus®, YouTube®, Pinterest®, LinkedIn®, Tumblr®, and Keek®. Surprisingly, in the sample, YouTube® was not reported to be used as much as expected.

Conspicuously, 35.90% of anxious participants reported that they use Twitter® more than 5 times per day. Compelling evidence suggests that breaking political, entertainment and sports news, as well as everyday interests, are announced on Twitter® before they reach elsewhere [35]. On the other hand, depressive patients generally use YouTube® followed by Instagram® and Snapchat®, which does not support the second part of the fourth hypothesis, that depressive patients more often use Twitter®, Pinterest® and Tumblr®. To explain this, Hughes., *et al*. (2012) suggested that there exist personality differences in the users of different social media sites. On the other hand, depressive patients use YouTube® followed by Instagram® and Snapchat®, so this didn't support the second part of the fourth hypothesis that depressive patients use more Twitter®, Pinterest® and Tumblr®. To explain that, Hughes., *et al*. (2012) indicated that there a personality differences in the social media sites preferred by users.

One of the principal challenges to understanding user motivations is the rapid change that is taking place in both technological developments and user preferences. Yet, some of the major preferences or motivations may remain stable over time in view of the fact that they connect to certain basic human needs, for instance, the need for social interaction. Nevertheless, how these needs are satisfied, and through what types of channels or communication methods, may change over time and generations [13]. In this study, entertainment was found to be the primary reason that people engage with social media, followed by connecting with friends and family, then searching

for information. Similar findings were reported by several researchers [6,12,20,21]. The above thus supports H5. However, our findings did not correspond with the notion that online social networks are principally used to connect with relations such as family and friends.

An important aspect of this study is that, in contrast with the results of previous studies, it indicated that depressed and anxious patients do not use social media to seek psychological counselling or psychological treatment information. Thus, H5 is not fully supported. The Saudi Ministry of Health (SMH) encourages healthcare providers, health professionals, and health organizations to accept and actively engage in the use of technology to improve healthcare education and resources [2]

Interestingly, our findings showed that anxious patients use social media to follow traditional mainstream news outlets, whereas depressed patients tend to use social media to read publications/blogs. Symptoms of depression such as loss of interest or pleasure in previously enjoyed activities [3] , which could provide a reason for depressed patients being less likely to share their interests, music, photos etc.

In support of H6, 46 % of participants exhibited moderate PSMU. Furthermore, the findings revealed females exhibit greater PSMU than males. This is in line with recent research that has also reported that PSMU has a higher prevalence among female users [4,16,27] Regrettably, in some studies which assessed PSMU, the gender distribution was frequently imbalanced in that women were typically overrepresented. This incidence may be explained by the greater willingness of females to engage in such studies [1,11,30,37,40,41]. 30.8% of anxious participants exhibited heavy PSMU, whereas 51.4% of depressed patients exhibited moderate PSMU. However, there is no significant association between PSMU and the degree of depression and anxiety. To our knowledge there are no previous studies among psychiatric patients on this issue. Thus, the hypothesis that patients with severe depression/anxiety have heavy PSMU is not supported. However, our findings are consistent with one study that did not find any positive associations between PSMU and depression [5].

Regardless of the lack of association between PSMU and diagnosis, our results extend these findings by suggesting that PSMU is independently associated with the overall time spent on social media, and that frequency of SM use may present a further behavioral risk factor. Previous studies such as Shensa., *et al*. (2017) have suggested that it may be how individuals use social media that poses a risk, but not how much. Moreover, intervention efforts aimed at reducing depressive and anxiety symptoms, such as screenings for maladaptive SM use, may be most successful if they address addictive components and frequency rather than the timing of SM use. It is possible that individuals that exhibit higher PSMU may neglect other constructive aspects of their lives, which could contribute to a depressive or anxious symptomatology. For example, engagement in internet activity may lead to fewer face-to-face social interactions, decreased physical activity, interrupted sleep, and activation of the physiological stress response [28,29,33,36].

To conclude, the research objectives were achieved and most hypotheses were supported. The results indicate that patients that are frequent Internet and social media users are likely to exhibit moderate to severe problematic social media use (PSMU). This research has highlighted which social media (SM) platform is most frequently used by the participant groups (sufferers of depressive and anxiety disorders) (WhatsApp®). The study has also identified the main purpose of social media use by these groups as being for entertainment purposes, followed by seeking information, and connecting with family and friends. Hypotheses that were not supported may have been affected by time and sample size limitations.

Limitations and strengths

One of the limitations of this study is the limited number of participants due to time constraints. In addition, the findings cannot be generalized to other mental illness populations because the study includes only anxious and depressed patients. The second limitation of this study is the use of self-report measurements such as SMU, PEDD, PEDA and PSMU scales. Despite being quick, cheap, and easy to administer, these scales are subject to the problem of over-estimating adherence and errors in self-observation; inaccurate self-reporting

can be caused by recall bias, and social desirability bias can be caused by dishonest responses. Finally, one of the most significant limitations of this study is the lack of existing relevant research, particular on the Arabic mental health community.

This research also exhibits several strengths. Firstly, the study deals with an important topic for the mental health field, therefore it could contribute to and highlight such subjects related to social media. Secondly, the study has obtained information and statistics on the use of the Internet from the Ministry of Communications in KSA. Thirdly, this study specifically focuses on SM use by psychiatric patients, and also the use of the PMSU tool which can identify whether professional intervention is necessary in individual cases.

Conclusion

On the whole, the study results suggest that social media sites are very popular with anxious and depressed patients. The excessive usage of social media revealed by the research indicates that half of participants exhibit medium-problematic social media use. This study also finds that the social media platforms most popular with anxious and depressed patients are WhatsApp®, followed by Snapchat®, Instagram®, and YouTube®. Further, the study also reveals that the main motivations behind this group engaging in social media are entertainment, connecting with friends and family, and searching for information.

Recommendations

The findings of the current study illustrate that Internet access and social media are readily available to the majority of mental health patients. This should be taken into account when providing information related to health or applied Internet-based therapy and self-management programs for patients suffering from psychiatric disorders. It would be beneficial for future research to utilize both longitudinal designs and qualitative methods. For example, utilizing a longitudinal or empirical design that follows participants over a longer period of time and with multiple time-points would provide strong evidence of directionality that cross-sectional or survey studies lack.

Moreover, future studies may benefit from the use of a more granular measure of SMU frequency in tandem with a more rigorously validated measure of SMU time to elucidate the distinct associations between SMU frequency, time spending and depressive symptoms. The current study highlights the influence of social media use on mental health patients; thus, we recommend empirical research to investigate the negative and positive effects of SM on patient health. Finally, we recommend that a conceptual model is developed that incorporates the growing body of research on SMU, PSMU, and general psychiatric symptoms, as this would be highly beneficial to future studies in these areas.

Acknowledgements

We are grateful to the authorities Psychiatric Department of King Fahad University Hospital (KFUH) in Khobar city and Eradah Complex of Mental Health Hospital (ACMHD) in Dammam city for their valuable assistance in consenting to and facilitating of data collection. We also thank the participants and their families for their valuable cooperation and contributions to our study. Also, we appreciate the efforts of arbitrators for translated materials Dr. Mohamed S. Khalil, Dr. Abdelwahid Awadalla, *Dr. Mahmoud Rashad,* Dr. Abdullah Al-Mulhim, Dr. Faten Ghawzi and Dr. Mohammad Jamal Holdar.

Declaration of Authorship

The first and second authors (Reema Dahham Alfandi, Dr. Maan A Bari Qasem) designed and directed the study. Dr. Amen Bawazir contributed to the interpretation of the results and analyzed the data. All authors contributed to writing and revision of the manuscript.

Conflict of Interest

The authors declare that they have no competing interests.

Bibliography

1. Alabi Oluwole Folaranmi. "A Survey of Facebook Addiction Level among Selected Nigerian University Undergraduates". *New Media and Mass Communication* 10.2012 (2013).

2. Alhashem Anwar M. "Social Media Use and Acceptance among Health Educators in Saudi Arabia". ProQuest Dissertations and Theses (2015).

3. American Psychiatric Association. "American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders Fifth Edition". Arlington (2013).

4. Andreassen, Cecilie Schou. "Online Social Network Site Addiction: A Comprehensive Review". *Current Addiction Reports* 2.2 (2015): 175-184.

5. Andreassen Cecilie Schou., *et al*. "The Relationship between Addictive Use of Social Media and Video Games and Symptoms of Psychiatric Disorders: A Large-Scale Cross-Sectional Study". *Psychology of Addictive Behaviors* 30.2 (2016): 252-262.

6. Antheunis Marjolijn L., *et al*. "Patients' and Health Professionals' Use of Social Media in Health Care: Motives, Barriers and Expectations". *Patient Education and Counseling* 92.3 (2013): 426-431.

7. "Anxiety". American Psychological Association (2018). www.apa.org/topics/anxiety.

8. Annual Report CITC. "Communications and Information Technology Commission". Citc.gov.sa (2016).

9. Asch S E. "Effects of group pressure upon the modification and distortion of judgment". In H. Guetzkow (ed.) Groups, leadership and men. Pittsburgh, PA: Carnegie Press (1951).

10. Baker David A and Guillermo Perez Algorta. "The Relationship between Online Social Networking and Depression: A Systematic Review of Quantitative Studies". *Cyberpsychology, Behavior, and Social Networking* 19.11 (2016).

11. Bányai Fanni., *et al*. "Problematic Social Media Use: Results from a Large-Scale Nationally Representative Adolescent Sample". *PLoS ONE* 12.1 (2017).

12. Borzekowski Dina., *et al*. "Use of the Internet and Other Media for Health Information Among Clinic Outpatients With Serious Mental Illness". *Psychiatric Services* 60.9 (2009).

13. Brandtzæg Petter Bae and Jan Heim. "Why People Use Social Networking Sites". Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 5621 LNCS. July 2009 (2009): 143-152.

14. Cella David., *et al*. "The Patient-Reported Outcomes Measurement Information System (PROMIS) Developed and Tested Its First Wave of Adult Self-Reported Health Outcome Item Banks: 2005-2008". *Journal of Clinical Epidemiology* 63.11 (2010): 1179-1194.

15. Deutsch Morton and Harold B Gerard. "A Study of Normative and Informational Social Influences upon Individual Judgment". *Journal of Abnormal and Social Psychology* 51.3 (1955): 629-636.

16. Griffiths Mark D., *et al*. "Social Networking Addiction: An Overview of Preliminary Findings". *Behavioral Addictions: Criteria, Evidence, and Treatment* (2014): 119-141.

17. Gilder George. "Metcalfe's Law and Legacy". Forbes ASAP (1993).

18. Hart Joshua., *et al*. "Attachment Theory as a Framework for Explaining Engagement with Facebook". *Personality and Individual Differences* 77 (2015): 33-40.

19. Hughes David John., *et al*. "A Tale of Two Sites: Twitter vs. Facebook and the Personality Predictors of Social Media Usage". *Computers in Human Behavior* 28.2 (2012): 561-569.

20. Jeannot Jean Gabriel., *et al*. "Patient Use of the Internet for Health Care Information in Switzerland". *Swiss Medical Weekly* 134 (2004): 21-22.

21. Kalckreuth Sophie., *et al*. "Mental Health Related Internet Use among Psychiatric Patients: A Cross-Sectional Analysis". *BMC Psychiatry* 14.1 (2014).

22. Khazaal Yasser., *et al*. "Internet Use by Patients with Psychiatric Disorders in Search for General and Medical Informations". *Psychiatric Quarterly* 79.4 (2008): 301-309.

23. Kramer Adam D I., *et al*. "Experimental Evidence of Massive-Scale Emotional Contagion through Social Networks". *Proceedings of the National Academy of Sciences of the United States of America* 111.24 (2014): 8788-8790.

24. Lin Liu Yi., *et al*. "ASSOCIATION between SOCIAL MEDIA USE and DEPRESSION among U.S. YOUNG ADULTS". *Depression and Anxiety* 33.4 (2016): 323-331.

25. Liu QQ., *et al*. "Upward social comparison on social network sites and depressive symptoms: A moderated mediation model of self-esteem and optimism". *Personality and Individual Differences* 113 (2017): 223-228.

26. Mauri Maurizio., *et al*. "Why Is Facebook so Successful? Psychophysiological Measures Describe a Core Flow State While Using Facebook". *Cyberpsychology, Behavior, and Social Networking* 14.12 (2011).

27. McAndrew Francis T and Hye Sun Jeong. "Who Does What on Facebook? Age, Sex, and Relationship Status as Predictors of Facebook Use". *Computers in Human Behavior* 28.6 (2012): 2359-2365.

28. Moreno Megan A., *et al*. "Associations between Internet Use and Fitness among College Students: An Experience Sampling Approach". *Journal of Interaction Science* 1.1 (2013).

29. Morrison Catriona M and Helen Gore. "The Relationship between Excessive Internet Use and Depression: A Questionnaire-Based Study of 1,319 Young People and Adults". *Psychopathology* 43.2 (2010).

30. Olowu Ajewole Olaniyi and SO Fasola. "A Study of Social Network Addiction among Youths in Nigeria". *Journal of Social Science and Policy Review* 4 (2012).

31. Pantic Igor. "Online Social Networking and Mental Health". *Cyberpsychology, Behavior and Social Networking* 17.10 (2014).

32. Primack Brian A., *et al*. "Social Media Use and Perceived Social Isolation Among Young Adults in the U.S". *American Journal of Preventive Medicine* 53.1 (2017): 1-8.

33. Rose Chad A and Brendesha M Tynes. "Longitudinal Associations between Cybervictimization and Mental Health among U.S. Adolescents". *Journal of Adolescent Health* 57.3 (2015): 305-312.

34. Shensa Ariel., *et al*. "Problematic Social Media Use and Depressive Symptoms among U.S. Young Adults: A Nationally-Representative Study". *Social Science and Medicine* 182 (2017): 150-157.

35. Twitter by the Numbers (2021): Stats, Demographics and Fun Facts (2021).

36. Valkenburg Patti M and Jochen Peter. "Social Consequences of the Internet for Adolescents: A Decade of Research". *Current Directions in Psychological Science* 18.1 (2009).

37. Van den Eijnden Regina J J M., *et al*. "The Social Media Disorder Scale: Validity and Psychometric Properties". *Computers in Human Behavior* 61 (2016): 478-487.

38. Vannucci Anna., *et al*. "Social Media Use and Anxiety in Emerging Adults". *Journal of Affective Disorders* 207 (2017): 163-166.

39. Wang Zheng., *et al*. "A Dynamic Longitudinal Examination of Social Media Use, Needs, and Gratifications among College Students". *Computers in Human Behavior* 28.5 (2012): 1829-1839.

40. Wilson Kathryn., *et al*. "Psychological Predictors of Young Adults' Use of Social Networking Sites". *Cyberpsychology, Behavior, and Social Networking* 13.2 (2010).

41. Wolniczak Isabella., *et al*. "Association between Facebook Dependence and Poor Sleep Quality: A Study in a Sample of Undergraduate Students in Peru". *PLoS ONE* 8.3 (2013).

Volume 10 Issue 3 March 2021