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# The effect of social media addiction on psychological distress, sleep quality and loneliness among health care professional in Saudi Arabia

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## ABSTRACT

With the rapid evolution of technology and social media, there has been a growing trend of social media addiction among health care professionals and this could have negative consequences on their mental health. This study was done to assess the relationship between social media addiction and; (i) psychological distress; (ii) sleep quality; and (iii) loneliness among health care professional in Saudi Arabia. This cross sectional study used an electronic questionnaire that was distributed through social media. The questionnaire included questions related to the measurement of demographics in terms of social media addiction, sleep quality, psychological distress, and loneliness. A total of 773 health care students or practitioners from different cities in Saudi Arabia completed the questionnaires. The participants score of psychological distress was directly associated with social media addiction ($p<0.001$), with R-squared of 0.189. There was an inverse relationship between social media addiction and sleep quality ($p<0.001$). There was strong positive association between social media addiction and emotional loneliness ($p=0.006$, R-squared=0.01). Our study suggests social media addiction is strongly associated with psychological distress, sleep quality and loneliness.

**Keywords:** Addiction; social media; psychological distress; loneliness; sleep quality.

## 1. INTRODUCTION

The rise of the media industry has resulted in various technological advancements that have changed how people communicate. Social media

networks allow users to connect with their family, relatives, and friends regardless of their location. Therefore, Facebook, Twitter and Instagram are all examples of social media platforms that have become a prevalent form of communication worldwide (Michikyan & Saurez-Orozco, 2016). Due to the nature of social media, it has been viewed as one of the most innovative and destructive forces in the marketplace. In fact, over 40% of healthcare consumers rely on social media for their information needs (Surani et al., 2017). A study conducted by James Brown and colleagues revealed that over 75% of healthcare workers use social media while they are at work (Brown et al., 2014). Another study showed that over 90% of the healthcare professionals use social media (Surani et al., 2017). Previous studies found that health care professionals mainly use social media for actualization, networking, and knowledge sharing (Surani et al., 2017). Although it is beneficial for networking, searching for information, and disseminating knowledge to patients, it can also lead to the development of addictive behaviors and negatively impact a person's physical, psychological, and social well-being (Shettar et al., 2017).

A type of technology addiction known as social media addiction is a condition that affects users' excessive attention and motivation to use social media. It can also affect their mental health, physical health, interpersonal relationship, work efficiency, and life happiness. Individuals addicted to social media cannot control their attention and the use of it (Andreassen et al., 2016). Recent years have seen an increase in the negative effects of social media addiction. This could contribute to depression, anxiety, and loneliness (Demirci, 2019). Previous study carried in different country reported addiction symptoms among different study population such as adults (Najafi et al., 2020; Youssef et al., 2020). A study conducted by Kelly et al., (2018) revealed that regardless of the intended use of social media, it can be detrimental to the users' mental health and was associated with anxiety, stress, and depression (Kelly et al., 2018).

Loneliness is a type of psychological condition that affects people when they feel that they have no connection with others. It can be triggered by various factors such as lack of social interaction (Peplau & Perlman, 1982). Although the concept of emotional and social loneliness has been established by the late psychologist Arnold Weiss, different authors have distinguished between these two types of loneliness. A person who is socially lonely lacks social interactions with other people (Dykstra & Fokkema, 2007). On the other hand, emotional loneliness is a type of psychological condition that focuses on the feelings of attachment and intimacy. According to recent studies, modern life is characterized by growing feelings of isolation and loneliness (O'Day & Heimberg, 2021). Although the link between social media and loneliness has not been fully understood, some researchers believe that loneliness could be caused by social media addiction (Twenge et al., 2018).

In a study conducted by Shettar et al., (2017) and colleagues found that about 33% of post graduate students had a chance of suffering from Facebook addiction and the results indicated that the severity of the addiction was associated with an increased risk of loneliness. In addition to psychological distress and loneliness, social media addiction can affect sleep quality. Excessive use of social media and electronic devices has been demonstrated in numerous studies that it can negatively affect a person's sleep quality (Cain & Gradisar, 2010). Cain and Gradisar (2010) conducted a review to analyze the effects of media on sleep. Sleep disturbances and shorter sleep duration were found to be associated with social media use and electronic devices.

Sleep disturbances have also been associated with the use of social media at night (Whipps et al., 2018). It has also been known that the overuse of specific platforms such as Instagram and Twitter can negatively affect a person's sleep quality. For instance, Xu et al., (2016) noted that the high usage rates of these platforms could lead to poor sleep quality. In 2018, researchers reported that social media addiction had reduced sleep quality (Bowler & Bourke, 2018). Most of the available studies were conducted on general population or college students. Currently, no studies have examined the impact of social media addiction on health care professionals. Healthcare professionals in Saudi Arabia are increasingly using social media, which prompted this study to examine the effects of social media addiction on psychological distress, sleep quality, and loneliness.

## 2. METHODS

This study used a cross sectional design. Invitation to the target population was used using personal communication methods and social media (Snapchat, Twitter, WhatsApp, and others). Eligibility criteria were 1) being in Saudi Arabia; 2) agree on the study consent form; and 3) being a student/ worker in dentistry, medicine, applied medical sciences, nursing, public health or pharmacy. The sampling method used in this study was a convenience sampling method. The data collection started in April 2022 and ended in June 2022.

Agreeing to the consent form was mandatory to participate in this study. The consent explained that participating is voluntary and anonymous with no incentives. Data was stored and protected by a password device. Declaration of Helsinki was followed in this study. This study was approved from IRB committee by the number of (HAPO-02-K-012-2022-04-1048) from Umm Al-Qura University.

A self-administrated questionnaire was used in this study and sent as soft copy (online format). The questionnaire included 33 questions, which were distributed in five parts to measure demographics in terms of social media addiction, sleep quality, psychological distress, and loneliness, as explained below. Part one investigated demographic variables which are (Yes/No) simple questions about chronic disease, walking regularly and eating healthy foods, then questions about age, gender, qualification, specialty, region, city, and nationality. Part two investigated social media addiction which was measured by The Bergen Social Media Addiction Scale (BSMAS) (Andreassen et al., 2012).

BSMAS is composed of 6 statements with 5-point Likert scale starting from 1 (very rarely) to 5 (very often). Each participant answers were summed into BSMAS total score ranging from 5 to 30 (highest level of social media addiction). BSMAS has good psychometric properties as Cronbach's alpha is 0.88 (Andreassen et al., 2012). The third part assessed sleep quality by Sleep Quality Scale (SQS) which is a one item discretizing visual analog self-reported scale (Snyder et al., 2018). The scale asks, "During the past 7 days, how would you rate your sleep quality overall?" with a possible answer from 0 to 10. The score 0= terrible, 1 to 3= poor, 4 to 6 = fair, 7 to 9= good and 10 = excellent. A study showed that SQS had a good concurrent criterion validity with different sleep quality scales such as morning questionnaire-insomnia (MQI) and Pittsburgh Sleep Quality Index (PSQI) (Snyder et al., 2018). The SQS was also validated using test-retest validity (Snyder et al., 2018). The fourth part investigated loneliness, measured by 6-item DeJong Gierveld Loneliness Scale (Gierveld & Tillburg, 2006). This scale includes 3-item emotional loneliness subscale (EL) and 3-item social loneliness subscale (SL). Each question can be answered by "Yes", "More or Less", and "No". Each answer has a different score based on the subscale. Each subscale score ranges from 0 to 3 (Most lonely).

The Cronbach's alpha of the scale was reported to be from 0.69 to 0.76 (Gierveld & Tillburg, 2006). The fifth part is about psychological distress which was measured by Kessler scale (K10) (Andrews and Slade, 2001). The questionnaire is made of 10 statements, with 5-point Likert scale answers ranging from 5 (All of the time) to 1 (None of the time). Each participant's answers were added to calculate K10 total score that can vary from 5 to 50 (highest level of psychological distress) (Department of Human Services, 2001). Good psychometric properties are found in the scale as Cronbach's Alpha = 0.88 (Sampasa-Kanyinga et al., 2018). The scale has Arabic version which is validated with high Cronbach's Alpha (0.88) (Easton et al., 2017). The scale is a well-known to measure psychological disorders. Five to ten minutes were enough to answer the study questionnaire. Eight members of the team from different health specialties translated BSMAS, SL, ML and SQS from English to Arabic. The translated version was validated in the pilot phase of this study which included thirteen participants. The grammar, understanding, syntax, language, and organization of the questionnaire were validated during this phase.

Descriptive analysis involved frequency and percentage, and mean and standard deviation (±SD). Analytical analysis included t-test, ANOVA, linear regression, Mann-Whitney Test and Kruskal Wallis Test. Significance level was set at $p < 0.05$. Microsoft Excel (Microsoft, Redmond, WA, USA) and SPSS software v.27 (Armonk, NY: IBM Corp) were used for data cleaning and analysis. The data used in this study is a part of a large research project to evaluate the psychological health and lifestyles habits among healthcare professional in Saudi Arabia. The methods used for the large research project can be detected.

## 3. RESULTS

The total number of participants in this study was 773 health care student and/or practitioners from 14 cities in Saudi Arabia which are Buraidah, Abha, Jazan, Umluj, Khobar, Riyadh, Jeddah, Najran, Qatif, Baha, Taif, Madinah, Makkah, and Dammam. Participants mean age is 25.73(±8.29) years. Of the participants, 108 (13.97%) have chronic disease, 283 (36.61%) walk regularly, and 315 (40.75%) reported consuming healthy food. Table 1 summarizes participants' demographic data.

**Table 1** Study Participants' demographic Characteristics

| Characteristics | | Frequency (N) | Column percent (%) |
|---|---|---|---|
| Gender | Male | 308 | 39.84 |
| | Female | 465 | 60.16 |
| Specialty | Dentistry | 174 | 22.51 |
| | Public Health | 253 | 32.73 |
| | Pharmacy | 102 | 13.20 |
| | Medicine | 159 | 20.57 |
| | Applied Medical Science | 58 | 7.50 |
| | Nursing | 27 | 3.49 |

| | | | |
|---|---|---|---|
| Qualification | Student | 450 | 58.21 |
| | Intern/ resident | 182 | 23.54 |
| | Specialist or consultant | 141 | 18.24 |
| Region | Western | 489 | 63.26 |
| | Central | 197 | 25.49 |
| | Southern | 66 | 8.54 |
| | Eastern | 17 | 2.20 |
| | Northern | 4 | 0.52 |
| Nationality | Saudi | 746 | 96.51 |
| | Non-Saudi | 27 | 3.49 |

When participants were asked about social media addiction using the Bergen Social Media Addiction Scale, they answered differently as shown in Table 2. When the total scored of Bergen Social Media Addiction Scale was summed into a continuous format and tested against participants score of psychological distress (Kessler scale), there was a significant direct relationship ($F(1,771) = 175.806$, $p<0.001$), with R-squared of 0.189. This is shown in Figure 1. Bergen Social Media Addiction Scale has an inverse relationship with sleep quality ($F(1,771) = 11.554$, $p<0.001$), as displayed in Figure 2. Bergen Social Media Addiction Scale has a direct relationship with emotional loneliness ($F(1,771) = 7.591$, $p=0.006$, R-squared=0.01), as displayed in Figure 3, but not significantly with social loneliness ($F(1,771)=7.591$, $p=0.118$).

**Table 2** Bergen Social Media Addiction Scale answer among health professionals in Saudi Arabia

| | Very Rarely | Rarely | Sometimes | Often | Very often |
|---|---|---|---|---|---|
| During the last year, I …. | n (%) | n (%) | n (%) | n (%) | n (%) |
| spent a lot of time thinking about social media or planned use of social media | 34 (4.40) | 80 (10.35) | 222 (28.72) | 258 (33.38) | 179 (23.16) |
| felt an urge to use social media more and more | 75 (9.70) | 171 (22.12) | 231 (29.88) | 192 (24.84) | 104 (13.45) |
| used social media to forget about personal problems | 103 (13.32) | 110 (14.23) | 200 (25.87) | 189 (24.45) | 171 (22.12) |
| tried to cut down on the use of social media without success | 183 (23.67) | 169 (21.86) | 229 (29.62) | 129 (16.69) | 63 (8.15) |
| become restless or troubled if you have been prohibited from using social media | 190 (24.58) | 195 (25.23) | 203 (26.26) | 105 (13.58) | 80 (10.35) |
| used social media so much that it has had a negative impact on your job/studies | 200 (25.87) | 179 (23.16) | 182 (23.54) | 122 (15.78) | 90 (11.64) |

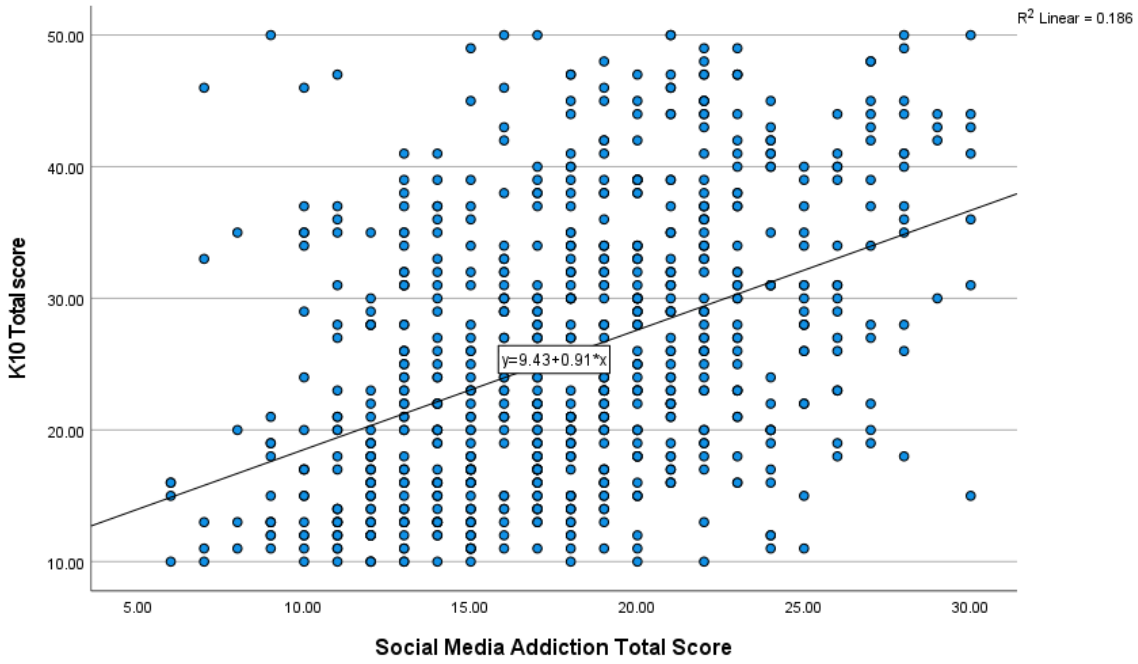


**Figure 1** The relationship between Bergen Social Media Addiction Scale score and psychological distress K10.

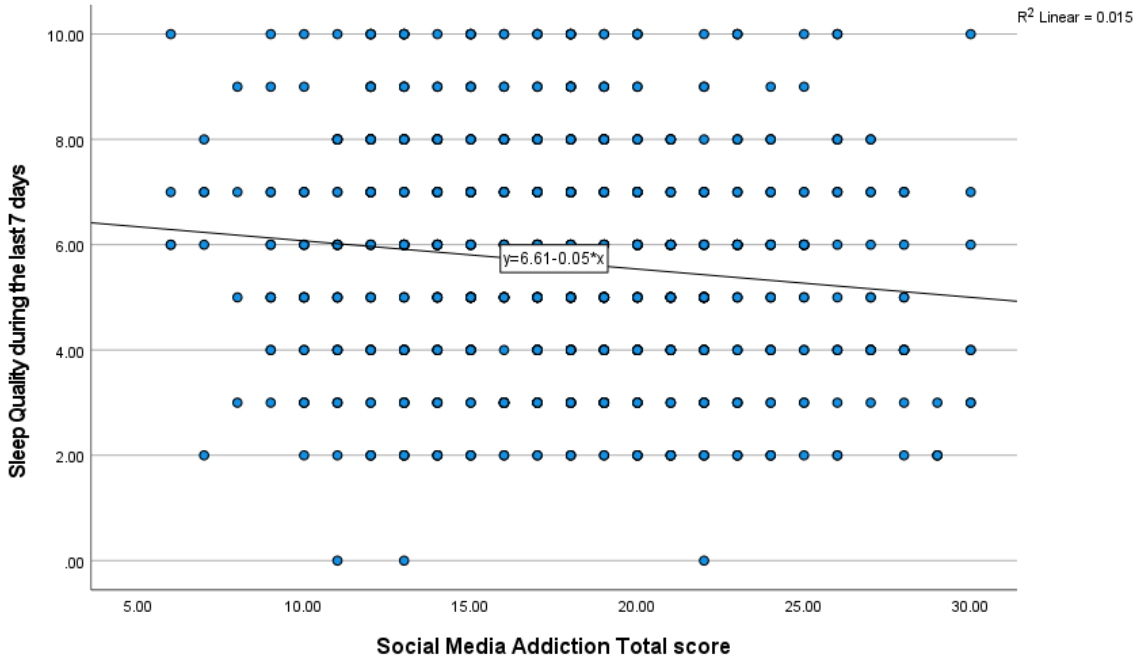


**Figure 2** The relationship between Bergen Social Media Addiction Scale score and sleep quality.

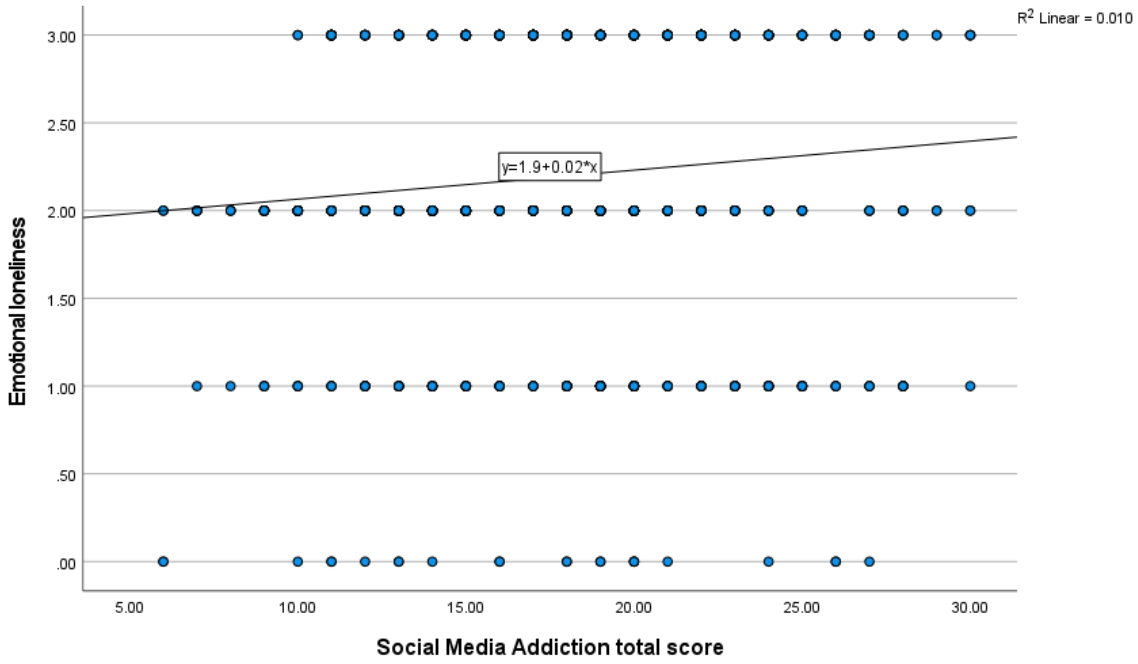


**Figure 3** The relationship between Bergen Social Media Addiction Scale score and emotional loneliness.

In term of loneliness, the mean for emotional loneliness was 2.19(±0.81), social loneliness was 2.23 (±0.68), and total loneliness score was 4.42(±1.03). Different demographic variables were tested against emotional and social loneliness; only males were found to have significantly more emotional loneliness than female as shown in Table 3.

**Table 3** Emotional and social loneliness across demographic variables among health professionals in Saudi Arabia.

| | | Emotional loneliness Mean (±SD) | p-value | Social loneliness Mean (±SD) | p-value |
|---|---|---|---|---|---|
| Gender | Male | 2.3 (0.77) | 0.003 | 2.23 (0.65) | 0.976 |
| | Female | 2.12 (0.83) | | 2.23 (0.7) | |
| Specialty | Dentistry | 2.28 (0.81) | 0.213 | 2.14 (0.68) | 0.167 |
| | Public Health | 2.16 (0.82) | | 2.24 (0.69) | |
| | Pharmacy | 2.12 (0.79) | | 2.3 (0.63) | |
| | Medicine | 2.14 (0.85) | | 2.25 (0.68) | |
| | Applied Medical Science | 2.38 (0.67) | | 2.36 (0.61) | |
| | Nursing | 2.19 (0.83) | | 2.07 (0.92) | |
| Qualification | student | 2.2 (0.82) | 0.584 | 2.19 (0.7) | 0.093 |
| | Intern/ resident | 2.24 (0.81) | | 2.25 (0.65) | |
| | specialist or consultant | 2.14 (0.77) | | 2.33 (0.64) | |
| Region | Western | 2.22 (0.8) | 0.637** | 2.22 (0.68) | 0.846** |
| | Central | 2.15 (0.86) | | 2.26 (0.73) | |
| | Southern | 2.17 (0.8) | | 2.24 (0.61) | |
| | Eastern | 2.18 (0.64) | | 2.29 (0.59) | |
| | Northern | 1.75 (0.96) | | 2.25 (0.5) | |
| Nationality | Saudi | 2.2 (0.81) | 0.255* | 2.23 (0.67) | 0.969* |
| | Non-Saudi | 2.04 (0.81) | | 2.19 (0.88) | |

* Mann-Whitney Test

** Kruskal Wallis Test

## 3. DISCUSSION

This study was conducted to examine addiction to social media and its relations to psychological distress and loneliness, and its effect on sleep quality among healthcare professionals in Saudi Arabia. The study results showed that our study sample was highly addicted to social media. Similar to the previous study, that found nurses, students and medical doctors were affected by social media addiction (Luo et al., 2022). In this study, the association between psychological distress and social media addiction was significant. Likewise, previous study showed that social media addiction had been associated with depression, anxiety, and stress (Marino et al., 2018). According to Dhir et al., (2018) social media addiction can trigger fatigue, depression, and anxiety. A recent meta-analysis found a positive relation between addiction to social media and symptoms of psychological distress such as depression and social anxiety (Marino et al., 2018).

The authors explained that depressed users tend communicate through social media to keep themselves feeling better and compensate for their poor social communication skills (Marino et al., 2018). In addition, it has been known that social media can help people, with anxiety and shyness, to feel supported and understood by their peers (Marino et al., 2018). Indeed, it could also be argued that the increasein social media addiction can have detrimental effects on the general well-being of people (Luo et al., 2022). Some researchers argue that health care professionals use social media to relieve depression. They use it as a way to escape and ease anxiety from stressful and long work shifts because they have less time for entertainment. However, in China, a study conducted in 2021 revealed that restricting using mobiles among nurses could help reduce psychological distress (Hosgor et al., 2021). In addition to long and stressful working shifts, health care professionals do not get enough sleep which could impede their performance.

Our findings highlight that having a bad night's sleep is inversely related to addiction to social media. In line with our results, a study revealed that medical students who use Snapchat and WhatsApp a lot during the day are more prone to experiencing poor sleep quality in the weekend (Alabi, 2013; Algarni & Aljohani, 2021). Among adults, using social media is associated with an increased likelihood of experiencing sleep disturbance and depression and anxiety are more likely to occur (Dhir et al., 2018). As per current scientific evidence, using social media during the night is also strongly linked to poor sleep (Turan et al., 2020). Social media addiction can cause individuals to reduce their sleep hours by sending messages to their friends late at night or promoting emotional or physiological arousal by viewing videos online (Turan et al., 2020). Social media may also have harmful effects which include exposure to light that can interfere with the sleep cycle.

The sleep cycle is an essential part of health care professionals' mental health and helps them maintain a high level of alertness. It can also help them avoid experiencing a high level of restlessness due to their heavy workload (Hosgor et al., 2021). This suggests that a high proportion of them may be at risk of harmful effects of modern technology and their existing psychological distress. There was a significant positive correlation between addiction to social media and the extent of experience of emotional loneliness. Several studies reported similar results (Turan et al., 2020). The possible reason that healthcare professionals became addicted to social media is that it makes them feel better and forget about work hassle. Social media usage can isolate individuals from the real world, preventing them from having real-life relationships, and they tend to create social life in a virtual environment (Turan et al., 2020). Despite the varying methods used to measure loneliness, it has been known that it can negatively affect mental health. For instance, researchers have found that people feel lonely are more prone to experiencing suicidal behavior (Dykstra & Fokkema, 2007). They also noted that this type of psychological distress can additionally lead to moderate to severe depression. Due to the increasing number of people who are using social media, policies must be designed to safeguard its users' mental health. In the current study, males exhibited more emotional loneliness than their female counterparts, which is consistent with the results of other similar studies. According to researchers, males and females have different views on the Internet. They believe this is because men are more comfortable with the technology and less anxious about it. It has been assumed that the internet is a male-biased platform.

The current study has several limitations to be considered. To better understand the impact of social media on mental health, researchers must conduct studies on the various applications and platforms used by health care professionals and analyze the time spent on these platforms and the motives they are used for. Second, this was a cross-sectional study; causal inference cannot be determined and further causal and effect studies are needed. Moreover, we used convenience sampling, which affects the generalizability of the results to the total population of healthcare professionals. In addition, because of the nature of recruiting the participants, the study is susceptible to selection bias which could compromise the internal and external validity.

## 4. CONCLUSION

The present study demonstrated an association between addiction to social media and psychological distress, sleep quality and loneliness in our population. The study implied that increased use of social media increases the risk of psychological distress, poor

sleep quality, and loneliness. It also showed that male participants are more prone to emotional loneliness than females. As researchers begin to gain a deeper understanding of how social media can affect mental health, this will enable them to develop effective interventions for various conditions. In addition to studying the impacts of social media, multiple disciplines should be used to explore the association between sleep and mental health in this interconnected world.

**Authors' contributions**

All authors contributed to the research and/or preparation of the manuscript. MR: Study design, data collection, writing- original draft preparation, writing-review and editing. KA: Study design, data collection, statistical analysis, writing-review and editing MA, AB, AA, IA, HB, & BQ were contributed in study design, data collection and review and editing. All authors read and approved the final version of this manuscript.

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**Conflicts of interest**

The authors declare that there are no conflicts of interests.

**Data and materials availability**

All data associated with this study are present in the paper.

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