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Screening for social anxiety disorder in students of Jordan universities after COVID-19 pandemic: a cross-sectional survey study

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ABSTRACT

Objective To examine the prevalence rate of social anxiety disorder (SAD) among university students in Jordan after the COVID-19 pandemic and its associated predictors.

Design A cross-sectional online survey study that was conducted in Jordan between January and December 2023.

Setting: Universities in Jordan.

Participants Healthy university students from any specialty currently enrolled at a Jordanian university.

Primary outcome measure The prevalence rate of SAD, which was assessed using the Social Phobia Inventory.

Results A total of 851 university students participated in this study. More than half of them (65%) were women. The mean age of the study participants was 21.9 (2.7) years. The majority of them (70.6%) were studying medical fields. The median number of times the study participants got infected with COVID-19 was 1.0 (IQR: 0.0–2.0). The median number of viewing hours spent on social networking sites was 4.0 (IQR: 3.0–6.0). The median SAD score was 19 (IQR: 10–32) out of 68, which represents 27.9% of the maximum attainable score. Up to 45.4% of the study participants were susceptible to SAD, with 12.5% of the study participants reporting severe to very severe SAD symptoms. Students older than 21.9 years were 32% less likely to report SAD symptoms compared with younger students ($p<0.01$).

Conclusion Jordanian universities students are increasingly likely to report SAD symptoms. The data show how important it is for universities to recognise and deal with this mental health issue. Focused treatments and support networks could help students with social anxiety problems to deal with them.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The use of an online survey study design is a cost-effective approach to reach wide and diverse demographic groups of university students.
⇒ The cross-sectional study design limited our capacity to track patients over time and investigate causality among the study variables.
⇒ Reporting bias frequently occurs in self-administered questionnaire surveys.

INTRODUCTION

Mental health constitutes a cornerstone of satisfaction and quality of life, yet among university undergraduate students worldwide, it remains a complex and prevalent concern.[1] Extensive psychiatric and psychological research in various developed and developing nations over the past decades has consistently highlighted the heightened prevalence of anxiety, depression and stress within this demographic group.[2–4] In 2019, anxiety disorders affected an estimated 301 million individuals globally, establishing them as the most prevalent mental health condition worldwide.[5] Notably, social anxiety disorder (SAD), formerly known as social phobia, emerges as a prominent subtype within the spectrum of anxiety disorders.[6]

SAD is a debilitating condition characterised by a profound apprehension towards social interactions or observation, often resulting in hindrance in daily functioning and significant distress.[7 8] The prevalence of SAD has been established through epidemiological studies, with a lifetime prevalence ranging from 8.4% to 15% and a present-day prevalence ranging from 5% to 10%.[9–15] Moreover, its impact extends beyond personal well-being, significantly affecting university life and academic persistence and performance.[16] Previous research indicates that SAD is associated with distorted body image and diminished self-esteem, ultimately leading to adverse effects on the scholarly performance of students.[17 18]

The emergence of the coronavirus disease in the form of the 2019 (COVID-19) pandemic in early 2020 has significantly altered global

educational systems and mental health landscapes.[19 20] Studies have reported a substantial increase in anxiety disorder cases worldwide by 25.6%, attributed, in part, to the effects of the pandemic,[21] suggesting a prolonged course for mental health recovery.[22] Specifically, on 2 March 2020, Jordan recorded its initial case of COVID-19.[23] The COVID-19 pandemic significantly impacted university students' psychological well-being, with previous studies reporting the high prevalence of a wide range of psychological disorders among university students, including anxiety and depression.[24–30] A previous study of 4301 individuals in Jordan found that the COVID-19 pandemic affected social relationships markedly, with 30.3% of the participants reporting that the pandemic negatively impacted their social relationships and communication with others.[31] During the lockdown period, the probability of social anxiety and communication difficulties increased.[32] A study by Liang *et al* has reported that online teaching during the pandemic increased the likelihood of social anxiety.[33]

In Jordan, higher education is offered by universities and community colleges.[34] Tertiary education in Jordan commenced in 1951. Jordan has 29 universities, comprising 10 public and 19 private institutions. In Jordan, higher education institutions are classified into two categories: colleges and universities.[34] The prerequisite for university admission is the possession of a general secondary education certificate. The duration of study varies from four to 6 years, depending on the field of study.[34]

In Jordan, as elsewhere, SAD is considered a significant concern among university students.[35 36] Risk factors, such as heightened avoidance of social situations[37] and reduced social support,[38 39] have become worse during the COVID-19 pandemic. Nevertheless, research exploring SAD among Jordanian university students, particularly in the post-pandemic context, is limited. Therefore, comprehending the pandemic's impact on the mental well-being of Jordanian university students, especially concerning SAD, is a critical imperative. Hence, the objective of this study is to examine the SAD profile among universities students after the COVID-19 pandemic in Jordan, and its associated predictors.

METHODS

Study design

This is an online cross-sectional study that was conducted in Jordan between January and December 2023.

Participant recruitment

Convenience sampling was used to recruit the participants using an electronic questionnaire linked to a Google form. The study participants were invited through social media platforms such as Facebook, WhatsApp, Snapchat and Instagram. The inclusion criterion of the study population was that the participants should be university students from any specialty currently enrolled at a Jordanian university. There were no limitations regarding the year or field of study. The cover letter sent to the participants outlined the inclusion criterion. Eligible participants were invited to take part in the study. The cover letter also included the study's goals and objectives. The participants were requested to engage in the study after providing their consent.

Data collection and measures

The Jordanian university students completed the questionnaire after it was distributed through online media. The questionnaire included an English version of the Social Phobia Inventory (SPIN) screening instrument and questions regarding demographic information, including age, gender, student specialty, frequency of COVID-19 infections and time spent on social media (see online supplemental material). The SPIN scale consisted of 17 questions on various anxiety-inducing circumstances, to be rated on a range of 0 (not at all) to 4 (very). Scoring below 20 indicated the normal level, 21–30 indicated mild SAD, 31–40 indicated moderate SAD, 41–50 indicated severe SAD and scores above 51 indicated very severe SAD. The SPIN scale has proven validity, test–retest reliability and internal consistency. This scale can be used for screening for SAD in languages other than English.[40] The SPIN's psychological characteristics demonstrated strong test–retest reliability over 2weeks (Spearman's rank correlation coefficient, 0.78–0.89) and internal consistency (Cronbach's alpha coefficient, 0.82–0.94) in an adult community.[41] Convergent validity has been demonstrated through significant correlations between the SPIN and other adult assessment tools for social phobia or anxiety (eg, Liebowitz Social Anxiety Scale and the Brief Social Phobia Scale), while lower correlations with measures less pertinent to social phobia (eg, Medical Outcomes Study Short Form-36, Sheehan Disability Scale, Marks Fear Questionnaire) have evidenced the scale's discriminant validity.[40]

Pilot study

We ran a pilot study with 20 participants who satisfied our criteria for inclusion but were not part of the final study population. The pilot study assessed the participants' comprehension of the questionnaire and inquired about any challenges they had while completing it. The participants in the pilot study confirmed that the questionnaire was easy to understand and no clarification was needed for them to complete it.

Questionnaire validity

Cronbach's alpha was employed to assess the reliability of the questions. The minimum permissible factor loading was set at 0.70.[42] We computed Cronbach's alpha coefficients to measure the internal consistency of the SAD scale. The Cronbach's alpha coefficient for SAD was calculated to be 0.932, indicating an excellent internal consistency.

Data analysis

The collected data were analysed using the statistical analysis software SPSS V.29. Descriptive analysis was used to consider the data in this study. Categorical variables were presented as percentages and frequencies. Continuous variables were presented as mean and SD or as the median and IQR based on the normality of the variable distribution. The normality of the SAD score was assessed using skewness, kurtosis measurements and a histogram. The predictors of SAD were determined by binary logistic regression analysis, with the dummy variable being the average SAD score of the participants in the study. We used the average SAD score for the study participants as the cut-off to define the dummy variable (the dependent variable) in the regression model, where any individual who had an SAD score above the average for the sample was assigned the number '1 and anyone who had an SAD score below the average score for the sample was assigned the number '0'. The independent variables for the logistic regression analysis were 'participants' demographic characteristics' which were gender, age, field of study, number of viewing hours spent on social networking sites and number of times infected with COVID-19. A 95% CI was used to demonstrate the statistical significance of the results, with a significance threshold set at 5%.

Sample size

Using a CI of 95%, an SD of 0.5 and a 5% error margin, the targeted minimum sample size was 385 students.

Patient and public involvement

Patients and/or the public were not involved in this study.

RESULTS

Participants' demographic characteristics

Table 1 below presents the participants' demographic characteristics. A total of 851 university students participated in this study. More than half of them (65%) were women. The mean age of the study participants was 21.9 (2.7) years. The majority of them (70.6%) were studying medical fields. The median number of times the study participants got infected with COVID-19 was 1.0 (IQR: 0.0–2.0). The median number of viewing hours spent on social networking sites was 4.0 (IQR: 3.0–6.0).

Table 1 Participants' demographic characteristics (n=851)

Variable	Frequency	Percentage
Gender		
Females	553	65
Mean age (years) (SD)	21.9 (2.7)	
Field of study		
Medical field	601	70.6
Non-medical field	250	29.4
Median number of viewing hours spent on social networking sites (IQR)	4.0 (3.0–6.0)	

Table 2 SAD profile

SAD level	SAD score	Percentage of participants (frequency)
Normal	0–20	54.6 (n=465)
Mild	21–30	18.8 (n=160)
Moderate	31–40	14.1 (n=120)
Severe	41–50	7.4 (n=63)
Very severe	51 and higher	5.1 (n=43)

SAD, social anxiety disorder.

Social anxiety disorder profile

The median SAD score was 19.0 (IQR: 10–32) out of 68, which represents 27.9% of the maximum attainable score. Around 45.4% of the study participants were susceptible to SAD and reported its symptoms. Around 12.5% of the study participants reported severe to very severe SAD symptoms (table 2).

Predictors of social anxiety disorder

Table 3 below presents the findings of a binary logistic regression analysis. Younger students were more likely to report severe SAD symptoms compared with older

Table 3 Predictors of reporting SAD symptoms

Variable	OR of reporting SAD symptoms (95% CI)	P value
Gender		
Female (reference category)	1.00	
Male	0.83 (0.62 to 1.01)	0.186
Mean age (category)		
21.9 years or lower	1.00	
Older than 21.9 years	0.68 (0.52 to 0.89)	0.005*
Field of study		
Medical field (reference category)	1.00	
Non-medical field	0.93 (0.69 to 1.25)	0.608
Median number of times infected with COVID-19 (category)		
Once (reference category)	1.00	
More than once	1.14 (0.84 to 1.55)	0.392
Median number of viewing hours you spend on social networking sites (category)		
4 hours or fewer (reference category)	1.00	
More than 4 hours	1.10 (0.82 to 1.47)	0.518

*p<0.01.
SAD, social anxiety disorder.

students (p value<0.01). Other demographic characteristics did not significantly influence the likelihood of reporting SAD symptoms among university students (p value>0.05).

DISCUSSION

The objective of this study was to examine the SAD profile and its associated predictors among university students after the COVID-19 pandemic in Jordan. This was an online cross-sectional study that was conducted among Jordanian university students who completed the SPIN questionnaire, which was distributed through online social media. Up to 45.4% of the study participants reported SAD symptoms, with 12.5% of them reporting severe to very severe symptoms. Younger students showed a higher likelihood of reporting more severe SAD symptoms compared with older students.

Our study highlights the prevalent susceptibility to report SAD symptoms among university students in Jordan after the COVID-19 pandemic, a finding supported by the observation that 45.4% of the participants exhibited susceptibility to report SAD symptoms. A previous study in Jordan examined the prevalence of SAD before the COVID-19 pandemic using the same assessment tool (SPIN) and found that the prevalence rate of SAD among university students was 27.9%.[36] The emergence of the COVID-19 pandemic has exacerbated mental health challenges among university students worldwide, including those in Jordan. This study found that over half of Jordanian students reported moderate to severe SAD symptoms during the COVID-19 pandemic. This proportion was significantly higher than the 9% to 16.1% prevalence rate of SAD reported in normal times before the pandemic.[36 43–46] It has been globally confirmed that COVID-19 increases the risk of various mental disorders.[27 31 47 48] Although this study used the SPIN to assess the severity of social anxiety and thus lacks clinical or expert diagnosis, it appears that social anxiety among Jordanian students has been significantly exacerbated by the COVID-19 pandemic and associated social isolation.

Consistent with our findings, after the onset of the COVID-19 pandemic, the prevalence of SAD among university students in India was reported to be 42.5%.[49] Additionally, a study conducted earlier by McLeish *et al*[50] observed an upsurge in social interaction anxiety among university students following a duration of social isolation when resuming more recurring social meetings. Like numerous other countries, the Jordanian Ministry of Defence implemented stringent public health measures to curb the spread of COVID-19, which might have increased the possibility of developing SAD symptoms. These measures encompassed mandatory mask-wearing in public areas, implementation of lockdowns, enforcement of a nationwide curfew, adherence to social distancing guidelines and the adoption of remote learning.[51 52] While imperative for public health, these measures had profound implications on individuals' mental well-being, notably impacting university students[47] who faced disruptions to their academic, social and personal lives.[48 53 54]

The prevalence of severe to very severe SAD in a previous study in Jordan that examined the prevalence of SAD before the COVID-19 pandemic was reported to be 2.3%, lower compared with our study findings.[36] Another study that was conducted in Jordan after the pandemic reported that the prevalence rate of SAD among university students was 25.8%.[55] Besides, their study reported that the prevalence of severe to very severe SAD was 14.5%.[55] The percentage of reporting severe SAD symptoms in this study may align with, surpass, or fall below rates observed in other regions and populations. For instance, the percentage of severe to very severe SAD in Jordan aligns with that found among university students in Saudi Arabia, where 12.4% of students exhibited such levels.[56] However, the percentage of severe or extremely severe SAD reported in Iran, Nigeria and Malaysia exceeds that in Jordan, ranging from 13.2% to 20%.[57–59] Conversely, the percentage of reporting severe to very severe SAD symptoms in Jordan is higher than that found among university students in Ethiopia, where 5.2% of students displayed severe to very severe SAD.[60] These findings are particularly alarming as they indicate a considerable proportion of university students experiencing severe SAD, which can significantly impair their daily functioning and overall well-being.[7]

Our research demonstrates a significant association between age and susceptibility to report SAD symptoms within the university student population in Jordan. Notably, among students aged over 21.9 years, there was a 32% lower likelihood of reporting SAD symptoms compared with their younger peers. This finding is consistent with numerous previous studies. A study on the global prevalence and impact of anxiety disorders during the COVID-19 pandemic in 2020 indicated a higher prevalence of anxiety disorders among younger age groups.[21] Additionally, existing literature consistently implies an association between age and the onset of SAD, often beginning in childhood or adolescence.[61] Previous studies conducted among undergraduate students at the Faculty of Science and Humanities of the Ekiti State University in Southwestern Nigeria and medical students at Taibah University in Saudi Arabia further support our findings. The Nigerian study revealed that a younger age significantly increased the risk of social anxiety among participants, with those under 21 years being twice as likely to experience SAD.[62] Likewise, the study among medical students in Saudi Arabia found that SAD is less common among older students.[63] These findings collectively support the notion of an inverse association between age and susceptibility to report SAD symptoms, as observed in our study. Accordingly, they emphasise the essentiality of implementing interventions to address the distinctive mental challenges among younger university students.

In clinical settings, older students engage more frequently with patients and refine their interviewing

abilities, potentially leading to a lower prevalence of SAD among this demographic. Poor communication abilities are associated with a higher likelihood of reporting SAD symptoms. At the same time, SAD itself decreases the possibility of effective communication. Previous research indicates that students at advanced academic levels and older age groups typically demonstrate a more favourable perspective toward acquiring communication skills.[64] Likewise, another study suggests that final-year students exhibit superior communication abilities compared with their first-year peers, indicating a deeper understanding of effective communication.[65] Conversely, first and second-year students appear to encounter an increased susceptibility to SAD, potentially due to the challenges associated with adapting to university life.[46 66] The transition to university, especially for those in their initial years, involves newfound independence and exposure to unfamiliar social dynamics, which can contribute to heightened levels of SAD.[46 66] Research conducted in Turkey has revealed that first and second-year university students often demonstrate elevated anxiety stress scores in comparison to their counterparts.[67] The onset of SAD at an early stage among undergraduate students raises significant concerns regarding its potential long-term impacts on mental and social well-being.[3] Considering that many undergraduates start their university life at a young age, experiencing SAD during this critical period may lead to ongoing unfavourable outcomes.[3] Hence, implementing early intervention strategies and establishing healthy support systems are imperative to alleviate these consequences and promote the well-being of university students.

This study is limited. The cross-sectional study design limited our capacity to track patients over time and investigate causality among the study variables. Online survey studies using convenience sampling are criticised as a sample method because they can impact the generalisability of the study results. Therefore, our study sample might have missed other demographic groups. Furthermore, we did not inquire about the participants' specific areas of study; instead, we questioned whether they were pursuing a medical or non-medical field, which limits insights into their specific field of study. Reporting bias frequently occurs in self-administered questionnaire surveys. The diagnosis of SAD in this study is based on a self-administered questionnaire tool, not a clinical diagnosis. Besides, we did not collect information on the medical history of other coexisting disorders. Therefore, we were unable to examine its impact on the prevalence of SAD. Consequently, our study results should be regarded with caution.

Based on our study findings, we recommend that higher education institutions should provide multicultural training for clinicians and other healthcare professionals who provide mental health services and support for their students. Besides, mental health services should include proactive measures that promote the well-being of the students. Confidentiality should be prioritised to ensure student engagement in such important mental well-being programmes. Furthermore, academic and non-academic staff should be trained to identify and respond to the mental needs of students and provide the necessary support.

Based on the UNESCO recommendations,[68] policymakers in the higher education sector have a responsibility to support students' mental health, in alignment with the United Nation's sustainable development goal number 3. Governments have the responsibility to support mental well-being in higher education institutions through policies and funding.[68] Future research, using longitudinal studies, is recommended to examine SAD among university students from different levels of study and conduct follow-up action for the students across their years of study. Furthermore, future research should examine the influence of cultural background on the prevalence of SAD among university students. Moreover, the role of artificial intelligence and the wide use of social media platforms should be investigated.

CONCLUSION

SAD is becoming a common issue among university students in Jordan. The results here highlight the significance of acknowledging and dealing with this mental health problem in higher education institutions. Mental health support services should be implemented in such institutions to support students' mental health well-being and, ultimately, their academic performance.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Consent obtained directly from patient(s).

Ethics approval We obtained approval for our study from the Institutional Review Board of the Jordan University of Science and Technology (Reference number: 24/156/2023). Participants gave informed consent to participate in the study before taking part.

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Data availability statement Data are available upon reasonable request.

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