Cureus
Part of SPRINGER NATURE

Open Access Original Article

Prevalence and Sociodemographic Correlates of Social Anxiety Among Medical Students in Jeddah, Saudi Arabia: A Cross-Sectional Study

Mohamed Seifalyazal [1, 2], Amin O. Kotobe [3], Ziad K. Alhazmi [3], Abdulmalik N. Jambi [3], Albraa A. Essa [3], Faris S. Ashbair [3], Sameh S. Mohammed [1, 2]

1. Surgery, Ibn Sina National College for Medical Studies, Jeddah, SAU 2. Surgery, Faculty of Medicine, Ain Shams University, Cairo, EGY 3. College of Medicine, Ibn Sina National College for Medical Studies, Jeddah, SAU

Corresponding author: Mohamed Seifalyazal, seifalyazl1976@ibnsina.edu.sa

Review began 09/25/2026
Review ended 10/16/2026
Published 10/27/2026

© **Copyright** 2026
Seifalyazal et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI: 10.7759/cureus.118670

Abstract

Background: Social anxiety disorder (SAD) is a prevalent and often disabling condition, and medical students may be especially vulnerable because of intense academic pressure and frequent performance evaluation. Data from Jeddah, Saudi Arabia, are limited.

Objectives: To estimate the prevalence of probable SAD (Social Phobia Inventory (SPIN) score ⩾19) and the distribution of symptom severity among medical students in Jeddah; to examine associations with sociodemographic factors; and to describe an exploratory eight-item social anxiety impact scale and its relationship with SPIN scores.

Methods: This cross-sectional online survey was conducted among medical students in Jeddah between February and May 2025. Participants completed sociodemographic questions, the 17-item SPIN, and an eight-item social anxiety impact scale. Probable SAD was defined as a SPIN score ⩾19, with ⩾21 used as a sensitivity threshold. Prevalence is reported as n (%) with 95% confidence intervals (CIs). Sociodemographic differences in scores were tested with independent-samples t-tests and one-way analysis of variance (ANOVA), and differences in prevalence with chi-square tests.

Results: Among 220 participants, the mean SPIN score was 21.8 ± 12.7. In total, 126 (57.3%; 95% CI 50.7-63.6) scored ⩾19 and 117 (53.2%; 95% CI 46.6-59.7) scored ⩾21; 49 (22.3%) had moderate or more severe symptoms (SPIN ⩾31). Cronbach's alpha was 0.92 for the SPIN and 0.87 for the impact scale, and the two scores were strongly correlated (r = 0.79). SPIN scores and probable SAD did not differ significantly by sex, socioeconomic status, academic year, marital status, or living arrangement, although several subgroups were small. Impact-scale scores differed by living arrangement (p = 0.041; exploratory).

Conclusions: More than half of the medical students surveyed screened positive for probable SAD, indicating a substantial burden that warrants routine screening and accessible mental health support. Interpretation is limited by convenience sampling, the use of a screening instrument rather than a diagnostic interview, and an impact scale that has not been formally validated.

Categories: Psychiatry, Psychology
Keywords: academic performance, coping strategies, jeddah, medical students, mental health, prevalence, social anxiety disorder, social phobia, social phobia inventory, sociodemographic factors

Introduction

Social anxiety, often referred to as social phobia, is the most common anxiety disorder worldwide and ranks behind only major depression and alcohol dependence in overall psychiatric incidence; lifetime prevalence has been estimated at 13.3%, with a 12-month frequency of 7.9% [1,2]. It is characterized by a persistent fear of one or more social or performance situations in which the person may be exposed to unfamiliar people or to possible scrutiny by others [1]. Central to this fear is concern about acting in a way that will be embarrassing or humiliating, and these symptoms can markedly affect daily functioning [3].

Social anxiety exerts a substantial negative impact on quality of life and social relationships, and it can compromise educational and occupational achievement as well as earning potential [4,5]. In a Swedish register-based cohort of more than 2.2 million people, individuals diagnosed with social anxiety disorder (SAD) were significantly less likely to complete upper secondary education, to start university, and to complete university, even when compared with their unaffected siblings [1]. To our knowledge, comparable data on completion of medical training or success in residency matching are lacking. Affected individuals also often experience lower self-esteem, which can progress to substance misuse and depressive disorders [4-6].

How to cite this article
Seifalyazal M, Kotobe A O, Alhazmi Z K, et al. (October 27, 2026) Prevalence and Sociodemographic Correlates of Social Anxiety Among Medical Students in Jeddah, Saudi Arabia: A Cross-Sectional Study. Cureus 18(10): e118670. DOI 10.7759/cureus.118670

Social phobia is frequently accompanied by somatic symptoms of sympathetic overactivity, including excessive sweating, slurred speech, palpitations, blushing, tremors, and nausea [7]. It has also been linked to mood disorders [8] and bipolar disorder [9] as well as social isolation, which in turn raises the risk of major depressive disorder [10]. Given these associations, early identification of anxiety disorders is essential to limit symptom burden, reduce suffering for patients and families, and prevent long-term complications [7].

The global occurrence of SAD is estimated at 8.3% among adolescents and 17% among young adults [2]. Frequency among medical students varies considerably across countries and cultures [7]: reported rates include 7-13% in the United Kingdom [11], 31% in India [12], and 56% in Malaysian medical schools [13]. In Saudi Arabia, a multicenter study of 196 residents and interns found significant social anxiety in 32.1% using the Social Interaction Anxiety Scale; the report does not state which cities or institutions participated, so it is unclear whether Jeddah was included [14]. Regional data from the Arab world and the Middle East also show a high prevalence; in Oman, 37% of college students reported social anxiety, and 8% experienced severe symptoms [15]. Saudi medical schools mirror this global and regional pattern, with a reported incidence of phobia as high as 60% among students [16,17].

Jeddah is a major port city on the Red Sea coast of the Makkah Province and the second most populous city in Saudi Arabia. According to the 2022 Saudi census, it has approximately 3.7 million residents [18], and it is home to several medical colleges that train students for the Saudi healthcare workforce.

Although social anxiety has been studied in several regions of Saudi Arabia, other regions, including Jeddah, remain understudied. This study therefore had three aims: to estimate the prevalence of probable SAD (Social Phobia Inventory (SPIN) score ⩾19) and the distribution of symptom severity among medical students in Jeddah; to examine the association of SPIN scores and probable SAD with sociodemographic factors; and to describe an exploratory eight-item social anxiety impact scale and its relationship with SPIN scores.

Materials And Methods

Setting and design

The study was conducted at Ibn Sina National College for Medical Studies, Jeddah, Saudi Arabia. This cross-sectional online survey was conducted among medical students in Jeddah, Saudi Arabia, between February and May 2025, after institutional ethical approval had been obtained. The study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline [19].

Study population and recruitment

Eligible participants were second- through sixth-year medical students, both male and female, enrolled full-time at medical colleges in Jeddah. Participants were recruited by convenience sampling through an anonymous Google Forms (Google LLC, Mountain View, CA, USA) link. The link was shared electronically with medical students, and participation was voluntary. Students who self-reported a pre-existing psychiatric disorder (no clinical assessment was performed) and those who submitted incomplete or invalid responses were excluded.

A total of 220 students met the eligibility criteria and were included in the analysis. Because the survey link was circulated electronically, the number of students who received it was not recorded; the response rate therefore could not be calculated.

Sample size

The sample size was calculated a priori with G*Power for a chi-square goodness-of-fit test of the item-level response distributions (effect size w = 0.3, alpha = 0.05, power = 0.95, 5 degrees of freedom), yielding a target of 220 participants. The study was not powered for subgroup comparisons.

Data collection and instruments

The questionnaire was piloted with 20 students to assess clarity and was available in English and Arabic. It comprised three sections. Section 1 collected sociodemographic data: age (entered as a number), sex, marital status, academic year, living arrangement (with family, alone, or in a dormitory), and socioeconomic status (low, middle, or high) based on a standardized scale (Appendices).

Section 2 was the 17-item SPIN [20], which assesses the three domains of fear, avoidance, and physiological symptoms, each rated from 0 (not at all) to 4 (extremely), giving a total score of 0-68. In its original validation, the SPIN showed good test-retest reliability, internal consistency, and convergent and divergent validity against established measures of social anxiety, was responsive to change over time, and yielded five factors on factor analysis. Probable SAD was defined as a total score ⩾19, the cut-off that best distinguished individuals with social phobia from non-anxious controls in the original validation [21]; a threshold of ⩾21 (the lower limit of the mild band) was used as a sensitivity analysis. Severity was categorized as none (0-20),

mild (21-30), moderate (31-40), severe (41-50), or extremely severe (51-68) [22].

Section 3 was an eight-item social anxiety impact scale. Items 5-7 were adapted from the Social Anxiety Scale for Adolescents [23]. The remaining five items were developed by the authors to address avoidance, anticipatory worry, and academic functioning among medical students, rated on a five-point frequency scale from 0 (never) to 4 (always; total score 0-32). It has no published psychometric evaluation in this population; its internal consistency (Cronbach's alpha) and its correlation with SPIN scores were therefore examined in the present sample. Items 1, 2, and 4 were administered with imperfect wording and response formats (Limitations); the corrected wording is shown in the Results and the Appendices, and the administered wording is given in the legend of the impact-scale table in the Results.

Statistical analysis

Data were entered in Microsoft Excel (Microsoft Corporation, Redmond, WA, United States) and analyzed using IBM SPSS Statistics for Windows, Version 26 (Released 2018; IBM Corp., Armonk, NY, USA), with the same results verified independently in Python (Python Software Foundation, Fredericksburg, VA). Categorical variables are reported as n (%). Prevalence is reported with Wilson 95% CIs. A chi-square goodness-of-fit test assessed whether item responses were evenly distributed across categories. Internal consistency was assessed with Cronbach's alpha, and the association between SPIN and impact scores was assessed with Pearson's correlation coefficient. Mean scores were compared between two groups with an independent-samples t-test and across three or more groups with one-way ANOVA; prevalence was compared across groups with chi-square tests. A p-value <0.05 was considered statistically significant. No adjustment was made for multiple comparisons, and the subgroup analyses should be considered exploratory.

Ethical considerations

The Institutional Research Review Board (IRRB) of Ibn Sina National College, Jeddah, Saudi Arabia, approved this study (reference number IRRB-16-10022025) on February 10, 2025. No data were collected before approval. Electronic informed consent was obtained from all respondents via a statement at the start of the questionnaire describing the study's aim; students proceeded only if they agreed to participate. Data were used solely for research purposes, and anonymity and confidentiality were maintained throughout the study. Participants were free to withdraw at any time without consequence.

Results

Participant characteristics

A total of 220 students were included in the analysis. The mean age was 23.1 ± 2.8 years; 160 (72.73%) were aged 18-24 years, 57 (25.91%) were aged 25-30 years, and three (1.36%) were older than 30 years. Male and female students were represented in nearly equal numbers, at 124 (56.36%) and 96 (43.64%), respectively.

Regarding marital status, most participants were single (188, 85.45%), followed by married (26, 11.82%) and other status (6, 2.73%). All academic years were represented: second year, 46 (20.91%); third year, 40 (18.18%); fourth year, 82 (37.27%); fifth year, 20 (9.09%); and sixth year, 32 (14.55%). Most students lived with their families (161, 73.18%), while 55 (25.00%) lived alone and four (1.82%) lived in a dormitory (Table *1*).

Variables	Frequency (n)	Percent (%)
Age		
Mean ± SD (years)	23.1 ± 2.8	-
18-24 years	160	72.73%
25-30 years	57	25.91%
Above 30 years	3	1.36%
Gender		
Male	124	56.36%
Female	96	43.64%
Socioeconomic status		
Low	48	21.82%
Middle	140	63.64%
High	32	14.55%
Marital status		
Single	188	85.45%
Married	26	11.82%
Other	6	2.73%
Academic year		
Second year	46	20.91%
Third year	40	18.18%
Fourth year	82	37.27%
Fifth year	20	9.09%
Sixth year	32	14.55%
At present, participants live		
Alone	55	25.00%
With family	161	73.18%
In a dormitory	4	1.82%
Total	220	100.00%

TABLE 1: Distribution of participants according to sociodemographic and academic data, Jeddah, KSA, 2025 (n = 220)

Data are presented as frequency (n) and percentage (%) unless otherwise stated. Descriptive statistics only; no inferential statistical test was applied.

Social anxiety symptoms (SPIN) and prevalence of probable SAD

The mean total SPIN score was 21.8 ± 12.7 (median 21.0, interquartile range 11.8-28.3; observed range 0-56), which lies at the threshold between the none and mild severity bands. Using the SPIN cut-off of ⩾19, 126 of 220 participants (57.3%; 95% CI 50.7-63.6) screened positive for probable SAD; using the more conservative threshold of ⩾21, 117 participants (53.2%; 95% CI 46.6-59.7) screened positive. The distribution of symptom severity is shown in Table *2*: 103 (46.82%) had no or minimal symptoms, 68 (30.91%) mild, 26 (11.82%) moderate, 20 (9.09%) severe, and three (1.36%) extremely severe symptoms. Moderate or more severe symptoms (SPIN ⩾31) were present in 49 participants (22.3%; 95% CI 17.3-28.2). Cronbach's alpha for the SPIN in this sample was 0.92.

Category	SPIN score	n (%)	95% CI (%)
Probable SAD (screen-positive)			
SPIN ≥19 (primary threshold)	≥19	126 (57.27%)	50.7-63.6
SPIN ≥21 (sensitivity threshold)	≥21	117 (53.18%)	46.6-59.7
Severity category			
None	0-20	103 (46.82%)	40.3-53.4
Mild	21-30	68 (30.91%)	25.2-37.3
Moderate	31-40	26 (11.82%)	8.2-16.8
Severe	41-50	20 (9.09%)	6.0-13.6
Extremely severe	51-68	3 (1.36%)	0.5-3.9
Cumulative			
Moderate or more severe	≥31	49 (22.27%)	17.3-28.2
Severe or extremely severe	≥41	23 (10.45%)	7.1-15.2

TABLE 2: Prevalence of probable social anxiety disorder (SAD) and distribution of symptom severity (SPIN) among medical students, Jeddah, KSA, 2025 (n = 220)

Data are presented as n (%) for the 220 respondents with Wilson 95% confidence intervals. SPIN: Social Phobia Inventory (total score 0-68). Severity bands follow the categories described in Materials and Methods. Descriptive statistics only.

Item-level SPIN responses

Item-level responses are presented as n (%) in Table *3*. Responses to items 2, 3, 7, 8, 10, 13, 14, 16, and 17 were most frequently in the "Not at all" category; responses to items 1, 4, 6, 9, 11, 12, and 15 were most frequently in the "A little bit" category; and responses to item 5 were most frequently in the "Somewhat" category. For every item, responses were unevenly distributed across the five categories (all $p < 0.01$, chi-square goodness-of-fit test; Table *3*). Item means ranged from 1.03 to 1.53 on the 0-4 scale.

No.	Question	Frequency, n (%)					Mean ± SD (0-4)	Chi-square value	Sig.
		Not at all	A little bit	Somewhat	Very much	Extremely			
1	I am afraid of people in authority.	62 (28.18%)	74 (33.64%)	64 (29.09%)	20 (9.09%)	0 (0.00%)	1.19 ± 0.95	94.00	<0.001**
2	I am bothered by blushing in front of people.	79 (35.91%)	62 (28.18%)	54 (24.55%)	18 (8.18%)	7 (3.18%)	1.15 ± 1.10	83.95	<0.001**
3	Parties and social events scare me.	85 (38.64%)	71 (32.27%)	43 (19.55%)	15 (6.82%)	6 (2.73%)	1.03 ± 1.05	106.73	<0.001**
4	I avoid talking to people I don't know.	57 (25.91%)	72 (32.73%)	59 (26.82%)	24 (10.91%)	8 (3.64%)	1.34 ± 1.09	65.32	<0.001**
5	Being criticized scares me a lot.	55 (25.00%)	67 (30.45%)	68 (30.91%)	19 (8.64%)	11 (5.00%)	1.38 ± 1.10	66.82	<0.001**
6	I avoid doing things or speaking to people for fear of embarrassment.	62 (28.18%)	67 (30.45%)	55 (25.00%)	25 (11.36%)	11 (5.00%)	1.35 ± 1.15	55.09	<0.001**
7	Sweating in front of people causes me distress.	71 (32.27%)	57 (25.91%)	50 (22.73%)	28 (12.73%)	14 (6.36%)	1.35 ± 1.23	47.50	<0.001**
8	I avoid going to parties.	67 (30.45%)	65 (29.55%)	55 (25.00%)	22 (10.00%)	11 (5.00%)	1.30 ± 1.15	60.55	<0.001**
9	I avoid activities in which I am the center of attention.	64 (29.09%)	65 (29.55%)	53 (24.09%)	26 (11.82%)	12 (5.45%)	1.35 ± 1.17	51.59	<0.001**
10	Talking to strangers scares me.	78 (35.45%)	72 (32.73%)	47 (21.36%)	18 (8.18%)	5 (2.27%)	1.09 ± 1.05	94.23	<0.001**
11	I avoid having to give speeches.	58 (26.36%)	64 (29.09%)	48 (21.82%)	31 (14.09%)	19 (8.64%)	1.50 ± 1.26	31.95	<0.001**
12	I would do anything to avoid being criticized.	62 (28.18%)	77 (35.00%)	51 (23.18%)	21 (9.55%)	9 (4.09%)	1.26 ± 1.10	73.09	<0.001**
13	Heart palpitations bother me when I am around people.	87 (39.55%)	58 (26.36%)	51 (23.18%)	17 (7.73%)	7 (3.18%)	1.09 ± 1.10	95.27	<0.001**
14	I am afraid of doing things when people might be watching.	66 (30.00%)	59 (26.82%)	61 (27.73%)	25 (11.36%)	9 (4.09%)	1.33 ± 1.14	58.73	<0.001**
15	Being embarrassed or looking stupid are among my worst fears.	46 (20.91%)	72 (32.73%)	61 (27.73%)	22 (10.00%)	19 (8.64%)	1.53 ± 1.18	49.68	<0.001**
16	I avoid speaking to anyone in authority.	77 (35.00%)	59 (26.82%)	59 (26.82%)	16 (7.27%)	9 (4.09%)	1.19 ± 1.12	80.64	<0.001**
17	Trembling or shaking in front of others is distressing to me.	67 (30.45%)	65 (29.55%)	45 (20.45%)	27 (12.27%)	16 (7.27%)	1.36 ± 1.24	46.45	<0.001**
Total score							21.76 ± 12.73		

TABLE 3: Frequency of responses to the Social Phobia Inventory (SPIN) items among participants, Jeddah, KSA, 2025 (n = 220)

Data are presented as frequency, n (%), for each response category (% of the 220 respondents). Item scores range from 0 (not at all) to 4 (extremely); the total SPIN score ranges from 0 to 68. Statistical test: a chi-square goodness-of-fit test was used to assess whether responses to each item were evenly distributed across the five response categories. *Significant at $p < 0.05$; **Significant at $p < 0.01$. Items are listed in the standard SPIN order; counts were recomputed from the raw response file.

Social anxiety impact scale

The eight-item social anxiety impact scale had a mean total score of 11.2 ± 6.6 (range 0-32) and showed good internal consistency (Cronbach's alpha = 0.87). Item-level responses are shown as n (%) in Table 4. Responses to items 1, 2, 3, 4, 7, and 8 were most frequently in the "Occasionally" category, and responses to items 5 and 6 were most frequently in the "Sometimes" category (all $p < 0.01$, chi-square goodness-of-fit test). The impact score correlated strongly with the total SPIN score (Pearson $r = 0.79$, $p < 0.001$), providing preliminary support for convergent validity.

No.	Question	Frequency, n (%)					Mean ± SD (0-4)	Chi-square value	Sig.
		Never	Occasionally	Sometimes	Often	Always			
1	I leave social situations in which I would have to eat, drink, or write in front of other people.	70 (31.82%)	71 (32.27%)	44 (20.00%)	26 (11.82%)	9 (4.09%)	1.24 ± 1.14	67.14	<0.001**
2	I avoid participating in academic activities because of fear of embarrassment or judgment.	62 (28.18%)	68 (30.91%)	59 (26.82%)	21 (9.55%)	10 (4.55%)	1.31 ± 1.12	63.86	<0.001**
3	I feel anxious when having to interact for longer than a few minutes with people of the opposite sex.	52 (23.64%)	67 (30.45%)	66 (30.00%)	18 (8.18%)	17 (7.73%)	1.46 ± 1.16	56.41	<0.001**
4	Feelings of anxiety about social interactions affect my academic performance (e.g., during group discussions or presentations).	65 (29.55%)	75 (34.09%)	46 (20.91%)	24 (10.91%)	10 (4.55%)	1.27 ± 1.13	67.32	<0.001**
5	I worry about doing something new in front of others.	45 (20.45%)	66 (30.00%)	69 (31.36%)	30 (13.64%)	10 (4.55%)	1.52 ± 1.10	55.95	<0.001**
6	I'm quiet when I'm with a group of people.	45 (20.45%)	64 (29.09%)	66 (30.00%)	27 (12.27%)	18 (8.18%)	1.59 ± 1.18	42.05	<0.001**
7	I feel that others make fun of me.	62 (28.18%)	64 (29.09%)	58 (26.36%)	28 (12.73%)	8 (3.64%)	1.35 ± 1.13	56.18	<0.001**
8	Before entering a social situation, I think about all the things that can go wrong.	46 (20.91%)	75 (34.09%)	59 (26.82%)	24 (10.91%)	16 (7.27%)	1.50 ± 1.15	53.95	<0.001**
Total score							11.23 ± 6.60		

TABLE 4: Frequency of responses to the social anxiety impact scale items among participants, Jeddah, KSA, 2025 (n = 220)

Data are presented as frequency, n (%), for each response category (% of the 220 respondents). Item scores range from 0 (never) to 4 (always); the total impact score ranges from 0 to 32. Statistical test: a chi-square goodness-of-fit test was used to assess whether responses to each item were evenly distributed across the five response categories. *Significant at $p < 0.05$; **Significant at $p < 0.01$. Items 1, 2, and 4 are shown with corrected wording; as administered, they read: item 1, "I leave social situations where there are people drinking/writing in front of other people"; item 2, "How much do you avoid participating in academic activities due to fear of embarrassment or judgement?"; item 4, "To what extent do feelings of anxiety about social interactions affect your academic performance (e.g., during group discussions or presentations)?" Items 2 and 4 were posed as intensity questions but answered on a frequency scale (see Limitations).

Probable SAD by sociodemographic characteristics

Probable SAD (SPIN ⩾19) was numerically more frequent among female students (60 of 96, 62.5%) than male students (66 of 124, 53.2%), and among students of low socioeconomic status (33 of 48, 68.8%) than those of high status (15 of 32, 46.9%), but none of the differences across sex, socioeconomic status, academic year, marital status, or living arrangement was statistically significant (Table 5). Several subgroups were small, and these comparisons had limited power.

Characteristic	Total (N)	SPIN ≥19, n (%)	p-value
Sex			0.168
Male	124	66 (53.2%)	
Female	96	60 (62.5%)	
Socioeconomic status			0.126
Low	48	33 (68.8%)	
Middle	140	78 (55.7%)	
High	32	15 (46.9%)	
Academic year			0.502
Second year	46	25 (54.3%)	
Third year	40	27 (67.5%)	
Fourth year	82	47 (57.3%)	
Fifth year	20	12 (60.0%)	
Sixth year	32	15 (46.9%)	
Marital status			0.892
Single	188	107 (56.9%)	
Married	26	15 (57.7%)	
Other	6	4 (66.7%)	
Living arrangement			0.445
Alone	55	28 (50.9%)	
With family	161	95 (59.0%)	
In a dormitory	4	3 (75.0%)	

TABLE 5: Probable social anxiety disorder (SPIN ≥19) by sociodemographic characteristics, Jeddah, KSA, 2025 (n = 220)

Statistical test: Pearson chi-square test for each characteristic (p-value shown on the characteristic's heading row). Some cells have expected counts below 5 (marital status, living arrangement); these p-values should be interpreted cautiously.

SPIN: Social Phobia Inventory

Relationship between sociodemographic variables and SPIN and impact scores

Mean SPIN and impact scores did not differ significantly between male and female students ($p = 0.230$ and $p = 0.470$, respectively, in the independent-samples t-test; Table *6*).

Variables	Male (Mean ± SD)	Female (Mean ± SD)	t-value	P-value
SPIN total score	20.85 ± 12.62	22.94 ± 12.85	-1.20	0.230
Impact scale total score	10.94 ± 6.57	11.59 ± 6.66	-0.72	0.470

TABLE 6: Significance of differences by sex (male/female) in SPIN and impact scores among medical students, Jeddah, KSA, 2025 (n = 220)

Statistical test: Independent-samples t-test (t = male minus female). Data are presented as mean ± SD.

SPIN: Social Phobia Inventory

Likewise, socioeconomic status was not significantly associated with SPIN or impact scores (p = 0.112 and p = 0.052, respectively, using one-way ANOVA; Table 7).

Variables		Sum of Squares	df	Mean Square	F-value	P-value
SPIN total score	Between groups	709.29	2	354.65	2.21	0.112
	Within groups	34798.42	217	160.36		
Impact scale total score	Between groups	257.20	2	128.60	3.00	0.052
	Within groups	9289.44	217	42.81		

TABLE 7: Significance of differences by socioeconomic status (low/middle/high) in SPIN and impact scores among medical students, Jeddah, KSA, 2025 (n = 220)

Statistical test: One-way analysis of variance (ANOVA). Group sizes: low n = 48, middle n = 140, high n = 32.

SPIN: Social Phobia Inventory

Academic year (second through sixth) was also not significantly associated with SPIN or impact scores (p = 0.251 for both, after one-way ANOVA; Table 8).

Variables		Sum of Squares	df	Mean Square	F-value	P-value
SPIN total score	Between groups	871.93	4	217.98	1.35	0.251
	Within groups	34635.78	215	161.10		
Impact scale total score	Between groups	234.37	4	58.59	1.35	0.251
	Within groups	9312.26	215	43.31		

TABLE 8: Significance of differences by academic year (year 2-6) in SPIN and impact scores among medical students, Jeddah, KSA, 2025 (n = 220)

Statistical test: One-way analysis of variance (ANOVA). Group sizes: 46, 40, 82, 20, and 32 for years 2 to 6, respectively.

SPIN: Social Phobia Inventory

Marital status (single, married, or other) showed no significant association with SPIN or impact scores (p = 0.278 and p = 0.802, respectively, using one-way ANOVA; Table 9). The 'other' group contained only six participants.

Variables		Sum of Squares	df	Mean Square	F-value	P-value
SPIN total score	Between groups	416.80	2	208.40	1.29	0.278
	Within groups	35090.91	217	161.71		
Impact scale total score	Between groups	19.39	2	9.70	0.22	0.802
	Within groups	9527.25	217	43.90		

TABLE 9: Significance of differences by marital status (single/married/other) in SPIN and impact scores among medical students, Jeddah, KSA, 2025 (n = 220)

Statistical test: One-way analysis of variance (ANOVA). Group sizes: single n = 188, married n = 26, other n = 6.

SPIN: Social Phobia Inventory

Finally, living arrangement (with family, alone, or in a dormitory) was not significantly associated with SPIN scores (p = 0.391) but was associated with impact-scale scores (p = 0.041; Table *10*): mean impact scores were 9.31 ± 5.29 for students living alone, 11.83 ± 6.82 for those living with family, and 13.25 ± 10.18 for the four students in dormitories. In an unadjusted post hoc comparison, students living with family scored higher than those living alone (p = 0.013). Given the very small dormitory group, the absence of correction for multiple comparisons, and the exploratory nature of the impact scale, this finding should be interpreted with caution.

Variables		Sum of Squares	df	Mean Square	F-value	P-value
SPIN total score	Between groups	305.99	2	152.99	0.94	0.391
	Within groups	35201.72	217	162.22		
Impact scale total score	Between groups	277.67	2	138.83	3.25	0.041
	Within groups	9268.97	217	42.71		

TABLE 10: Significance of differences by living arrangement (alone/family/dormitory) in SPIN and impact scores among medical students, Jeddah, KSA, 2025 (n = 220)

Statistical test: One-way analysis of variance (ANOVA). Group sizes: alone n = 55, with family n = 161, dormitory n = 4.

SPIN: Social Phobia Inventory

Discussion

SAD is a common mental health condition characterized by acute, persistent fear of social or performance situations in which the individual may be scrutinized by others. Medical school is widely regarded as a high-stress environment because of its heavy academic workloads, competitive culture, and frequent public performance demands, all of which predispose students to anxiety, depression, and stress at rates exceeding those of the general population. To our knowledge, this is the first assessment of social anxiety symptoms and their correlates among medical students, specifically in Jeddah, Saudi Arabia.

Using the SPIN cut-off of ⩾19, 57.3% (95% CI 50.7-63.6) of participants screened positive for probable SAD, and 53.2% (95% CI 46.6-59.7) did so at the more conservative threshold of ⩾21. Moderate or more severe symptoms were present in 22.3% of students, and severe or extremely severe symptoms in 10.5%. The mean SPIN score (21.8) lies at the boundary between the none and mild severity bands, so a large share of the sample sits at or above the screening threshold; we therefore do not describe social anxiety in this sample as uncommon. These estimates are higher than the 29.4% reported by Alhujaili et al. among medical students at King Abdulaziz University in Rabigh [24] and the 31.2% reported by Desalegn et al. among health science students in Ethiopia [25]. They are similar to the approximately 51% reported in a large cross-sectional study of more than 5,800 Saudi medical students [26], and the proportion with severe or extremely severe symptoms (10.5%) is of a similar magnitude to the 13.5% of 504 students at Taibah University classified as severe-to-very-severe [27]. Direct comparison is limited by differences in instruments, cut-offs, and severity

definitions between studies.

Because the SPIN is a screening instrument, a score ⩾19 identifies probable rather than confirmed SAD; in the original validation, this cut-off distinguished individuals with social phobia from non-anxious controls with an accuracy of roughly 79% [20,21]. Our prevalence figures may therefore over- or underestimate the true proportion with clinical SAD. In addition, the exclusion of students with other psychiatric disorders, which frequently co-occur with SAD, may have biased the prevalence estimate downward.

We found no significant difference in SPIN scores or in the proportion with probable SAD between male and female students, although the proportion was numerically higher among female students (62.5% vs. 53.2%). Findings on gender differences in the literature are mixed: several studies reported higher risk or symptom severity among females [26,28], whereas others recorded higher scores among males or no significant difference [17]. Our study had limited power to detect small differences.

Socioeconomic status was not significantly associated with SPIN scores or probable SAD in our sample, which differs from a 2020 study that linked lower family income to higher social anxiety [27]; the numerically higher proportion screening positive among students of low socioeconomic status (68.8% vs. 46.9% in the high group) is consistent with that report but did not reach significance, and the high-status group was small (n = 32).

We found no association between academic year and SPIN scores or probable SAD. This contrasts with a previous study reporting higher SAD scores among students in the earlier, preclinical years, likely reflecting the challenges of the initial academic transition [27], and with another study that observed elevated risk among students who had previously failed a course [26]. Marital status was likewise not significantly associated with SPIN scores, whereas Al-Hazmi et al. found that being single was associated with higher SAD scores than being married [27]; only 32 of our participants were not single, and the null findings for these unbalanced subgroups should be interpreted cautiously.

Living arrangement was not associated with SPIN scores. Ratnani et al. found that students living at home with family were less likely to experience social anxiety, particularly avoidant behavior and physical symptoms, than their peers [29]. In contrast, in our exploratory analysis of the impact scale, students living with family reported higher impact scores than those living alone; this isolated, unadjusted finding, which also involves a dormitory group of only four students, requires confirmation before any conclusion is drawn.

The eight-item impact scale showed good internal consistency (alpha = 0.87) and correlated strongly with SPIN scores (r = 0.79), which provides preliminary evidence of reliability and convergent validity. However, this is not a substitute for formal development and content validation, and the strong correlation may partly reflect overlap of item content with social anxiety symptoms. The scale captures self-perceived impact only; no objective academic outcome was measured.

Limitations

This study has several limitations. First, it used a cross-sectional design and a convenience sample, which precludes causal inference and limits generalizability; because recruitment was through an online link, some institutions may be over-represented, which limits generalizability to all medical colleges in Jeddah. Second, the number of students invited and the response rate could not be determined, so selection and non-response bias cannot be excluded. Third, social anxiety was assessed with a self-administered screening instrument rather than a structured clinical interview, so figures represent probable SAD. Fourth, students with pre-existing psychiatric disorders were excluded, which may have biased prevalence downward, and self-report bias is possible; stigma surrounding mental health among medical students may also have led to under-reporting of symptoms. Fifth, the eight-item impact scale is not a validated instrument; its items 1, 2, and 4 were imperfectly worded (item 1 combines several situations, and items 2 and 4 were phrased as intensity questions but answered on a frequency scale), and these issues could not be corrected after data collection. Sixth, several subgroups were very small (dormitory residents, n = 4; 'other' marital status, n = 6), the study was powered for item-level distributions rather than subgroup comparisons, and no correction was made for multiple testing. Finally, although academic performance was a stated focus of the impact scale, no objective measure (such as grade point average) was collected, so the impact on academic performance could not be assessed.

Conclusions

More than half of the medical students surveyed in Jeddah (57.3%) screened positive for probable SAD on the SPIN, and more than one in five had moderate or more severe symptoms. No sociodemographic factor was significantly associated with SPIN scores or probable SAD, although the study had limited power for subgroup comparisons. These findings support routine early screening for SAD at admission and throughout medical school, together with accessible, stigma-free counseling and the integration of communication-skills and stress-management training into the curriculum. Confirmation in larger, multi-institution samples using clinical interviews and a validated impact measure is needed.

Appendices

Study questionnaire

Prevalence and Sociodemographic Correlates of Social Anxiety Among Medical Students in Jeddah

We are a group of medical students from Ibn Sina National College for Medical Studies. The aim of this survey is to determine the prevalence and severity of social anxiety among medical students in Jeddah and to explore its association with sociodemographic factors. All responses are anonymous, and the information collected will remain confidential. By completing this questionnaire, participants consent to the use of their responses for research purposes.

No.	Section 1: Socio-Demographic Questions	Option 1	Option 2	Option 3	Option 4	Option 5
1	Age? (years)	Open numeric entry				
2	Sex?	Male	Female			
3	Socioeconomic status? (based on a standardized scale)	Low	Middle	High		
4	Academic year?	Second year	Third year	Fourth year	Fifth year	Sixth year
5	Marital status?	Single	Married	Other		
6	At present, whom do you live with?	Alone	Family	In a dormitory		
No.	Section 2: Social Phobia Inventory (SPIN)—Please indicate how much the following problems have bothered you during the past week.	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)
1	I am afraid of people in authority.	0	1	2	3	4
2	I am bothered by blushing in front of people.	0	1	2	3	4
3	Parties and social events scare me.	0	1	2	3	4
4	I avoid talking to people I don't know.	0	1	2	3	4
5	Being criticized scares me a lot.	0	1	2	3	4
6	I avoid doing things or speaking to people for fear of embarrassment.	0	1	2	3	4
7	Sweating in front of people causes me distress.	0	1	2	3	4
8	I avoid going to parties.	0	1	2	3	4
9	I avoid activities in which I am the center of attention.	0	1	2	3	4
10	Talking to strangers scares me.	0	1	2	3	4
11	I avoid having to give speeches.	0	1	2	3	4
12	I would do anything to avoid being criticized.	0	1	2	3	4
13	Heart palpitations bother me when I am around people.	0	1	2	3	4
14	I am afraid of doing things when people might be watching.	0	1	2	3	4
15	Being embarrassed or looking stupid are among my worst fears.	0	1	2	3	4
16	I avoid speaking to anyone in authority.	0	1	2	3	4
17	Trembling or shaking in front of others is distressing to me.	0	1	2	3	4
No.	Section 3: Social Anxiety Impact Scale (how often)	Never (0)	Occasionally (1)	Sometimes (2)	Often (3)	Always (4)
1	I leave social situations in which I would have to eat, drink, or write in front of other people.	0	1	2	3	4

2	I avoid participating in academic activities because of fear of embarrassment or judgment.	0	1	2	3	4
3	I feel anxious when having to interact for longer than a few minutes with people of the opposite sex.	0	1	2	3	4
4	Feelings of anxiety about social interactions affect my academic performance (e.g., during group discussions or presentations).	0	1	2	3	4
5	I worry about doing something new in front of others.	0	1	2	3	4
6	I'm quiet when I'm with a group of people.	0	1	2	3	4
7	I feel that others make fun of me.	0	1	2	3	4
8	Before entering a social situation, I think about all the things that can go wrong.	0	1	2	3	4

TABLE 11: Prevalence and sociodemographic correlates of social anxiety among medical students in Jeddah (study questionnaire)

Each questionnaire item is listed on its own row, with the serial number and the question text in separate columns; response options for each item are listed in separate columns to the right. Section 3 items 1, 2, and 4 are shown with corrected wording; the wording administered to participants is given in the legend of Table 4.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Mohamed Seifalyazal, Amin O. Kotobe , Ziad K. Alhazmi, Abdulmalik N. Jambi , Albraa A. Essa, Faris S. Ashbair , Sameh S. Mohammed

Acquisition, analysis, or interpretation of data: Mohamed Seifalyazal, Amin O. Kotobe , Ziad K. Alhazmi, Abdulmalik N. Jambi , Albraa A. Essa, Faris S. Ashbair , Sameh S. Mohammed

Drafting of the manuscript: Mohamed Seifalyazal, Amin O. Kotobe , Ziad K. Alhazmi, Abdulmalik N. Jambi , Albraa A. Essa, Faris S. Ashbair , Sameh S. Mohammed

Critical review of the manuscript for important intellectual content: Mohamed Seifalyazal, Amin O. Kotobe , Ziad K. Alhazmi, Abdulmalik N. Jambi , Albraa A. Essa, Faris S. Ashbair , Sameh S. Mohammed

Supervision: Mohamed Seifalyazal, Sameh S. Mohammed

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Ibn Sina National College (ISNC) Institutional Research Review Board issued approval IRRB-16-10022025 on February 10, 2025. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Vilaplana-Pérez A, Pérez-Vigil A, Sidorchuk A, et al.: Much more than just shyness: the impact of social anxiety disorder on educational performance across the lifespan. Psychol Med. 2021, 51:861-9. 10.1017/S0033291719003908
2. Neufeld CB, Palma PC, Caetano KA, Brust-Renck PG, Curtiss J, Hofmann SG: A randomized clinical trial of group and individual Cognitive-Behavioral Therapy approaches for Social Anxiety Disorder. Int J Clin Health Psychol. 2020, 20:29-37. 10.1016/j.ijchp.2019.11.004
3. Bitaraf S, Shaeeri MR, Hakim Javadi M: Social phobia, parenting styles, and perfectionism . J Dev Psychol

(Iran Psychol). 2010, 7:75-82.
4. Fathi S, Ahmadi M, Birashk B, Dehnad A: Development and use of a clinical decision support system for the diagnosis of social anxiety disorder. Comput Methods Programs Biomed. 2020, 190:105354. 10.1016/j.cmpb.2020.105354
5. Koyuncu A, İnce E, Ertekin E, Tükel R: Comorbidity in social anxiety disorder: diagnostic and therapeutic challenges. Drugs Context. 2019, 8:212573. 10.7573/dic.212573
6. Hakami RM, Mahfouz MS, Adawi AM, et al.: Social anxiety disorder and its impact in undergraduate students at Jazan University, Saudi Arabia. Ment Illn. 2018, 9:42-7. 10.1108/mi.2017.7274
7. Hasani AM, Mokhtaree MR, Asadollahi Z, Fereidoni MJ: The prevalence of social phobia among students of Rafsanjan University of Medical Sciences, Iran, and its relation with personality traits in 2013. J Occup Health Epidemiol. 2016, 5:72-82. 10.18869/acadpub.johe.5.2.72
8. Koyuncu A, Ertekin E, Binbay Z, Ozyıldırım I, Yüksel C, Tükel R: The clinical impact of mood disorder comorbidity on social anxiety disorder. Compr Psychiatry. 2014, 55:363-9. 10.1016/j.comppsych.2013.08.016
9. Berkol TD, Kırlı E, Islam S, Pınarbaşı R, Özyıldırım İ: Comparison of clinical and sociodemographic features of bipolar disorder patients with those of social anxiety disorder patients comorbid with bipolar disorder in Turkey. Saudi Med J. 2016, 37:309-14. 10.15537/smj.2016.3.13108
10. Kawaguchi A, Nemoto K, Nakaaki S, et al.: Insular volume reduction in patients with social anxiety disorder . Front Psychiatry. 2016, 7:3. 10.3389/fpsyt.2016.00003
11. Al Qarni AA, Zalaa MA, El-Hadad AA, et al.: Prevalence of social phobia among Saudi medical students . Med J Cairo Univ. 2017, 85:657-61.
12. Salari N, Heidarian P, Hassanabadi M, Babajani F, Abdoli N, Aminian M, Mohammadi M: Global prevalence of social anxiety disorder in children, adolescents and youth: a systematic review and meta-analysis. J Prev (2022). 2024, 45:795-813. 10.1007/s10935-024-00789-9
13. Furmark T: Social phobia: overview of community surveys . Acta Psychiatr Scand. 2002, 105:84-93. 10.1034/j.1600-0447.2002.1r103.x
14. Abudasser AM, Alshehri IS, Alasiri RY, Wakidah RY, Alqahtani RY: Effect of social anxiety disorder on specialty choice among residents and interns in Saudi Arabia: a multi-center cross-sectional study. Adv Med Educ Pract. 2025, 16:1187-96. 10.2147/AMEP.S522512
15. Gill J, Mohammad S: P01-139 - Social anxiety among medical undergraduate students in Malaysia . Eur Psychiatry. 2010, 25:347. 10.1016/S0924-9338(10)70344-8
16. Al-Hinai SS, Al-Saidy O, Dorvlo ASS, et al.: Culture and prevalence of social phobia in a college population in Oman. College students: Mental health and coping strategies. 2006, 115-32.
17. Elhadad AA, Alzaala MA, Alghamdi RS, Asiri SA, Algarni AA, Elthabet MM: Social phobia among Saudi medical students. Middle East Curr Psychiatry. 2017, 24:68-71. 10.1097/01.XME.0000513066.80386.b6
18. Saudipedia: Top five Saudi cities by population (2022 Saudi census) . (2026). Accessed: October 5, 2026: https://saudipedia.com/en/top-five-saudi-cities-by-population.
19. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP: The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Lancet. 2007, 370:1453-7. 10.1016/S0140-6736(07)61602-X
20. Connor KM, Davidson JR, Churchill LE, Sherwood A, Foa E, Weisler RH: Psychometric properties of the Social Phobia Inventory (SPIN): new self-rating scale. Br J Psychiatry. 2000, 176:379-86. 10.1192/bjp.176.4.379
21. Antony MM, Coons MJ, McCabe RE, Ashbaugh A, Swinson RP: Psychometric properties of the social phobia inventory: further evaluation. Behav Res Ther. 2006, 44:1177-85. 10.1016/j.brat.2005.08.013
22. Alhazmi R: The association between social anxiety disorder and parenting style among nursing students . BMC Nurs. 2024, 23:920. 10.1186/s12912-024-02584-7
23. La Greca AM, Lopez N: Social anxiety among adolescents: linkages with peer relations and friendships . J Abnorm Child Psychol. 1998, 26:83-94. 10.1023/a:1022684520514
24. Alhujaili NA, Alghamdi AA, Mohmad I, et al.: Social anxiety disorder among medical students at King Abdulaziz University in Rabigh, Saudi Arabia. Middle East J Fam Med. 2023, 21:59-69.
25. Desalegn GT, Getinet W, Tadie G: The prevalence and correlates of social phobia among undergraduate health science students in Gondar, Gondar Ethiopia. BMC Res Notes. 2019, 12:438. 10.1186/s13104-019-4482-y
26. Al-Johani WM, AlShamlan NA, AlAmer NA, et al.: Social anxiety disorder and its associated factors: a cross-sectional study among medical students, Saudi Arabia. BMC Psychiatry. 2022, 22:505. 10.1186/s12888-022-04147-z
27. Al-Hazmi BH, Sabur SS, Al-Hazmi RH: Social anxiety disorder in medical students at Taibah University, Saudi Arabia. J Family Med Prim Care. 2020, 9:4329-32. 10.4103/jfmpc.jfmpc_915_20
28. Xu Y, Schneier F, Heimberg RG, Princisvalle K, Liebowitz MR, Wang S, Blanco C: Gender differences in social anxiety disorder: results from the national epidemiologic sample on alcohol and related conditions. J Anxiety Disord. 2012, 26:12-9. 10.1016/j.janxdis.2011.08.006
29. Ratnani IJ, Vala AU, Panchal BN, Tiwari DS, Karambelkar SS, Sojitra MG, Nagori NN: Association of social anxiety disorder with depression and quality of life among medical undergraduate students. J Family Med Prim Care. 2017, 6:243-8. 10.4103/2249-4863.219992