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Original Article

Social Anxiety Disorder in medical students

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Abstract:

Background: Social anxiety disorder is a common psychiatric disorder that affects the social, occupational functioning and quality of life of affected patients.We aim in this study to determine the prevalence of social anxiety disorder in medical students and its associated factors. Data was collected through Self-Administered questionnaire that was distributed to the medical students after informed consent from participants. The questionnaire was divided into two sections; the first section included socio-demographic factors (age, sex, residence, marital status, residence, academic year, etc) and the second section included the Social Phobia Inventory (SPIN) questionnaire. Prevalence of social anxiety disorder was calculated and its associated factors were assessed.

Results: The prevalence of social anxiety disorder among medical students is more than half of the students (56.7%). Statistically significant correlation was found between social anxiety and female gender (P value=0.04), rural residence (P=0.001), staying with family (P=0.002). Family conflict and low family income were associated with higher prevalence of social anxiety (P value was 0.029, 0.01 respectively). Past psychiatric history and face and body dissatisfaction were also associated with social anxiety (P value 0.003, 0.002 respectively).

Conclusion: Social anxiety disorder is prevalent in medical students. Identification and management of high risk students can be an important measure to help them relieving their suffering and improving their quality of life.

Key words: **social anxiety, medical students, faculty of medicine.**

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Introduction

Social anxiety disorder (SAD) is characterized by excessive fear and anxiety in social situations that significantly disrupts normal daily life activities and causes avoidance. These anxieties can be brought on by perceived or real scrutiny from others, which can make one dread receiving unfavorable judgments from others, humiliation, rejection, or seem foolish, weak, or inadequate when participating in social interactions or public performances. Also, accompanied by certain physical signs as blushing, trembling, or difficulty speaking, tantrums, freezing, clinging to caregivers, failing to communicate in social contexts restlessness, increased heart rate, chest pain, abdominal pain.(1) SAD is the third most prevalent mental condition after depression and drug use disorder. (2)

SAD is known to often show symptoms in early life. By the time they are 20 years old, 80% of those suffering from this disorder have it, compared to 50% at the age of eleven. The typical age at which SAD first appears is between 10 and 13. An early onset of SAD may lead to drug misuse, mental health issues, and other psychological issues. It is estimated that comorbid anxiety, mood, and substance-related issues affect 70–80% of those with SAD. SAD affects women more than males. Individuals who experience widespread social anxiety are more likely to have a lower likelihood of completing high school. (3)

University students who want to excel academically need to be skilled public speakers. Using the Brief Social Phobia Scale (BSPS), 2919 Egyptian students from the Faculty of Medicine at Ain Shams University in Cairo, Egypt, participated in the study and had their SAD levels assessed. It was calculated that 44% of the study sample had SAD symptoms. (4)

SAD rates among patients receiving outpatient psychiatric services were 1.5%, according to a prior study conducted in Egypt. (4)

Ragheb et al. 2009 found that the prevalence of SAD was 45.5% among Egyptian college students and 78% for generalized SAD. (5)

In Western nations, the prevalence of SAD was reported to be 16.1% among Swedish university students and 18.3% among Australian first-year students. 28.6% of 717 university students in Italy who took the Social Anxiety Spectrum Self-Report questionnaire met the requirements for high scorers. (6)

Our aim in this study was to determine the prevalence of SAD in medical students and to assess its associated risk factors.

Subjects and Methods

This is a cross-sectional study that was conducted in the Faculty of Medicine. The study was conducted from May 2022 to June 2023. The inclusion criteria were medical undergraduate students studying for M.B.B.Ch. and the exclusion criteria were students who refused to participate in this study.

Sample size: we calculated the sample size according to the equation: $N = z^2 p (1- p) / d^2$. Where: N = the desired sample size, Z = the standard normal deviation (1.96), P = the prevalence of the problem. (0.44), and d = precision (d is considered 0.05 to produce good precision and smaller error of estimate). Confidence level = 95 %, Margin of error = 5 %, Population size = 3021

The total number of students in faculty of medicine in our university was 3021 students in August 2022. The sample size by the equation above included 337 students and was increased to 360 students to overcome the expected drop out.

P = prevalence of SAD is based on a previous study conducted in Egyptian university which was 44 % in students. (4)

Sampling technique:

This cross-sectional study was conducted among 360 medical students. There were 6 grades in 2022. Classes were chosen randomly from each grade of undergraduate students equally till completed the required number that was 60 from each grade.

Collection of data:

Data was collected through Self-Administered questionnaire that was distributed to the medical students after informed consent from participants, The questionnaire was divided into two sections:

1) The first section: including socio-demographic factors (age, sex, residence, marital status, residence, academic year, etc.…)

2) **The second section:** Social Phobia Inventory (SPIN) questionnaire which consisted of 17 items. The items were headed by the following question: "Please indicate how much the following problems had bothered subject during the past week". The answers for each item ranged from 0 (Not at all) to 4 (Extremely).

The total score was calculated to determine the severity of the problem as following: less than or equally 20 points means no disease, 21-30 means mild, 31-40 means moderate, 41-50 means severe, 51 or more means very severe.

The SPIN had good test–retest reliability (r = 0.81), and internal consistency (alpha = 0.89). [7]

Data analysis

The collected data were tabulated and analyzed by using the Statistical Package for Social Science (SPSS) version 25. The data were tested for normality using the Kolmogorov-Smirnov test and for homogeneity of variances prior to further statistical analysis.

Quantitative data was expressed as means ± standard deviation, median and range. Qualitative data was expressed as number and percentage.

P value greater than 0.05 was considered statistically non-significant. P value less than 0.05 was considered statistically significant and a P value less than 0.01 was considered statistically highly significant. Binary logistic regression was done to determine factors associated with anxiety disorders.

Ethical consideration: Approval of the Ethical Committee of our facility was secured. An informed written consent was obtained from students after assuring confidentiality. The objectives and steps of the study were explained to the participants, before taking any information. A written approval was obtained from the responsible administrative authorities.

Results

As shown in **table 1**, the total number of participants was 360 students, with a mean age was 21.49 ± 1.746 years old, 43.1% (n=155) of the students were males and 56.9% (n = 205) were females. Most of the students 93.9% (n=338) were single, 94.4% (n=340) weren't occupied and 53.9% (n=194) of students inhabited urban areas

Table 1: Socio-demographic characteristics of students

Parameters		No	Percentage %
Gender	Males	155	43.1
	Females	205	56.9
Age (years)	Mean + SD	21.49 ± 1.746	
Birthplace	Urban	194	53.9
	Rural	166	46.1
Academic year	First Year	60	16.7
	Second Year	60	16.7
	Third Year	60	16.7
	Fourth Year	60	16.7
	Fifth Year	60	16.7
	Six Year	60	16.7
Residence	Alone	15	4.2
	with family	297	82.5
	with partner	1	0.3
	Students' residency	47	13.1
Religion	Muslims	275	76.4
	Christians	85	23.6
Occupation	Yes	20	5.6
	No	340	94.4
Marital Status	Single	338	93.9
	Engaged	17	4.7
	Married	4	1.1
	Separated	1	0.3
Parent Education	Illiterate	33	9.2
	Read & write	19	5.3
	Primary	4	1.1
	Preparatory	32	8.9
	Secondary	67	18.6
	College	205	56.9
Grades	Excellent	178	49.4
	Very good	129	35.8
	Good	46	12.8
	Accepted	5	1.4
	Fail	2	0.6

As shown in **table 2**, the prevalence of SAD among medical students is more than half of the students (56.7%) and (43.3%) of students did not have any type of SAD.

Table 2: Prevalence of SAD among medical students

Groups	Frequency	percentage
SAD	204	56.7%
No SAD	156	43.3%

Table 3: Degrees of SAD among the studied population

No SAD /very mild	156	43.3%
Mild SAD	111	30.8%
Moderate SAD	49	13.6%
Severe SAD	31	8.6%
very severe SAD	13	3.6%

Table 4 shows association between socio-demographic characters of the studied population and SAD. Regarding gender; only 38.2% males (n=78) were having SAD and 61.8% of female students (n=126) were having SAD and this difference was found to be statistically significant (P=0.04).

Out of 166 students residing in rural areas, 52% (n=106) were having SAD and out of 194 students residing in urban areas, 48.0% (n=98) were having SAD and this difference was statistically significant (p=0.01).

Regarding academic year, there was statistically significant association between academic year and SAD. Participants staying with their family are likely to experience more social anxiety in comparison to those live at Students' residency (83.8% vs. 15.7%) (P < 0.002).

Table 4: Association between socio-demographic characters of the studied population and SAD

Parameters		SAD (204) No. (%)		No SAD (156) No. (%)		*p-value
Gender	Males	78	38.2%	77	49.4%	0.04*
	Females	126	61.8%	79	50.6%	
Age (years)	Mean + SD	22 +2		21 +2		0.7
	Median (range)	22(18-24)		21(17-26)		
Birthplace	Urban	98	48.0%	96	61.5%	0.01*
	Rural	106	52.0%	60	38.5%	
Academic year	First Year	27	13.2%	33	21.1%	<0.005*
	Second Year	33	16.2%	27	17.3%	
	Third Year	32	15.7%	28	17.9%	
	Fourth Year	50	24.5%	10	6.4%	
	Fifth Year	35	17.2%	25	16.2%	
	Six Year	27	13.2%	33	21.1%	
Residence	Alone	1	0.5%	14	9.0%	<0.002*
	with family	171	83.8%	126	80.8%	
	with partner	0	0.0%	1	0.6%	
	Students' residency	32	15.7%	15	9.6%	
Occupation	Yes	12	5.9%	8	5.1%	0.8
	No	192	94.1%	148	94.9%	

(*) statistically significant . P-value was calculated by Pearson Chi-Square test, Fisher's Exact Test, or Independent Samples Test wherever suitable

As shown in **table 5**, there was a statistically significant association between family income and family conflict and SAD**.**

Table 5: The association between familial characteristics and SADs among the studied group

		No anxiety disorder		Anxiety disorder		P value
		Count	%	Count	%	
Parent Status	Both Alive	141	90.4%	181	88.7%	0.8
	one Dead	14	9.0%	22	10.8%	
	Both Dead	1	0.6%	1	0.5%	
Family income	Enough	140	89.7%	163	79.9%	0.01*
	Not enough	16	10.3%	41	20.1%	
Family history of Mental .;illness	Yes	9	5.8%	14	6.9%	0.8
	No	147	94.2%	190	93.1%	
Family conflicts	Yes	20	12.8%	47	23.0%	0.029*
	No	136	87.2%	157	77.0%	
Father Education	Illiterate	4	2.6%	10	4.9%	0.1
	Read & Write	6	3.8%	11	5.4%	
	Primary	6	3.8%	2	1.0%	
	Preparatory	4	2.6%	10	4.9%	
	Secondary	23	14.7%	41	20.1%	
	College	113	72.4%	130	63.7%	
Mother Education	Illiterate	14	9.0%	19	9.3%	0.3
	Read & Write	8	5.1%	11	5.4%	
	Primary	0	0.0%	4	2.0%	
	Preparatory	10	6.4%	22	10.8%	
	Secondary	28	17.9%	39	19.1%	
	College	96	61.5%	109	53.4%	

(*) statistically significant. P-value was calculated by Pearson Chi-Square test, Fisher's Exact Test wherever suitable.

There was no statistically significant association between academic grades of students and SAD as shown in table 6.

Table (6): Association between SADs and student grades

	Anxiety disorder (204) No. (%)		No anxiety disorder (156) No. (%)		p-value
Excellent	76	48.7%	102	50.0%	0.5
Very good	60	38.5%	69	33.8%	
Good	19	12.2%	27	13.2%	
Accepted	1	0.6%	4	2.0%	
Fail	0	0.0%	2	1.0%	

P-value was calculated by Pearson Chi-Square test

Regarding the Association between SAD and personal/psychological characteristics among the studied group. There was a statistically significant association between past psychiatric history and SAD. There was a statistically significant association between face/body satisfaction and SAD.

Table 7: Association between SADs and personal/psychological characteristics among the studied group

		No SAD		SAD		P Value
		Count	%	Count	%	
Past Medical History	Yes	21	13.5%	30	14.7%	0.7
	No	135	86.5%	174	85.3%	
Past Psychiatric History	Yes	6	3.8%	27	13.2%	0.003*
	No	150	96.2%	177	86.8%	
Drug abuse	Yes	3	1.9%	11	5.4%	0.09
	No	153	98.1%	193	94.6%	
Smoking	Yes	3	1.9%	4	2.0%	0.9
	No	153	98.1%	200	98.0%	
Congenital Anomaly	Yes	2	1.3%	3	1.5%	0.8
	No	154	98.7%	201	98.5%	
Face/Body Dysmorphia	Yes	2	1.3%	3	1.5%	0.8
	No	154	98.7%	201	98.5%	
Face/Body Satisfaction	Satisfied	145	92.9%	167	81.9%	0.002*
	Not Satisfied	11	7.1%	37	18.1%	

(*) statistically significant. P-value was calculated by Pearson Chi-Square test, Fisher's Exact Test wherever suitable.

Table 8 is showing binary logistic regression to determine significant factors of SAD by taking dependent Variable (SAD) & independent variables selected by univariate method (Chi square test) & having ($p<0.05$) result.

We found that SAD were 1.5-time increased risk in female than males (OR=1.574, 95% CI= 1.032-2.402).

Compared to **seniors, juniors** had a decreased chance of developing SAD (OR=0.618, 95% CI= 0.406 - 0.941).

The risk of SAD was 1.731 times greater in **rural students than in urban**
people (OR=1.731, 95% CI= 1.133 - 2.644).

Participants in the research who experienced **family conflict** had chances of social anxiety that were twice as high (95% CI= 1.150 - 3.605).

The odds of social anxiety were 2.9 times (95% CI=1.437-5.934) higher in the study participants who were not satisfied with their **facial and body appearance** and 3.8 times (95% CI=1.534 - 9.483) higher in participants who had Past psychiatric history.

SAD is significantly associated with students who **live alone or with their family**. The odds ratio of SAD in students living with their family was 29 times (95% CI = (3.587 - 248.6).

Low-income students had a significant association with SAD occurrence by 2 folds than high income students.

Briefly, independent risk factors for the development of SAD included being a female senior student, living in a rural region with their families, experiencing family conflict, low income, having a history of mental illness, and not satisfied with their body and face look. There was a statistically significant association between SAD, and these mentioned independent factors

Table 8: Binary logistic regression of factors that may affect occurrence of SAD

		B	P-value	Exp(B)	95% C.I.	
					Lower	Upper
Female gender		0.454	0.035*	1.574	1.032	2.402
Age		0.022	0.722	1.022	0.907	1.152
Academic year (junior)		-.481	0.025*	0.618	0.406	0.941
Grade (Excellent and very good)		-0.272	0.374	0.762	0.418	1.388
Birthplace (rural)		0.548	0.01*	1.731	1.133	2.644
Residence	Alone	-3.397	0.002*	0.033	0.004	0.279
	With Family	3.397	0.002*	29.867	3.587	248.6
Religion (Muslim)		0.887	0.001*	2.429	1.477	3.994
marital status (Single)		0.184	0.683	1.202	0.497	2.906
Presence of family conflicts		0.711	0.015*	2.036	1.150	3.605
Face/Body Dysmorphia		0.139	0.880	1.149	0.190	6.963
No satisfaction (Face / Body)		1.072	0.003*	2.921	1.437	5.934
Drug abuse		1.067	0.106	2.907	0.797	10.603
Past psychiatric history		1.339	0.004*	3.814	1.534	9.483
Family income (not enough)		0.789	0.013*	2.201	1.184	4.093

(*) statistically significant

Discussion

Academic medical study is a load that affects undergraduates' quality of life. So, it is important to know factors affecting SAD among medical students; to help them improve their academic performance and their quality of life as undergraduate university students are thought to be at a sensitive stage of life, there is a global interest in their mental health. This study aimed to assess the prevalence of SAD among medical students by using SPIN questionnaire and it also assessed the factors associated with it.

Prevalence of SAD:

The results of our study showed that medical students had a greater prevalence of SAD (56.7%) than Ain Shams University students in Cairo, where the estimated number of students with SAD was 44% .(4) Our results were similar with Saudi Arabia study, as **Alqarni** et al .(8) reported that the prevalence of SAD was 59.5%. Also, similar to Khartoum Study, as the prevalence was 61.3%. (9) Furthermore, Iranian study showed the prevalence of 58.5% between medical students .(10) In Malaysia, a study n medical students showed that 56% of medical students had symptoms of SAD .(11)

On the other hand, another study in Ethiopia revealed that SAD prevalence was found to be 31.2% .(12) Also, Lower prevalence was found at Jazan University, Saudi Arabia about 25.8% .(13) and 12.62% in Delhi .(14) Additionally, the prevalence was 11.6% in a Brazilian study. (15) and 19.5% in an Indian one. (16)

In Western countries, the prevalence was lower about 16.1% among Swedish university students, 18.3% among Australian students & 28.6% among Italian students .(6)

Several factors may contribute to this difference, including the population structure, ethnicity, socioeconomic status, culture, geographic locations, relations, differences in sampling technique and the different ages of participants or harder educational conditions in our universities.

Gender & SAD: Our study showed that being female was a significant risk factor for the occurrence of SAD according to SPIN scores. That is consistent with the meta-analysis done by **Grenie, et al**. (17) Additionally in line with Ain Shams study. (4) and an Ethiopian study by **Desalegn et al** (12) This could be due to Egyptian cultures & eastern traditions that limit females from dealing with men fear of being criticized. Moreover, men have more power and authority in social situations in our community that increase fear and anxiety in women.

Age & SAD: This study showed that there is no significant association between SAD & age in agreement with the study of **Hakami et al**. in Saudi Arabia. .(13)

Birthplace & SAD:

In the current study, it was evident that the residence was significantly related to rural areas as 52% of our students with SAD residing in rural

areas. This result was in line with Ain Shams, Lower Egypt study .[4] This was thought to be due to urbanization, social changes & different traditions.

Lifestyle & SAD: In our study, SAD is significantly associated with students who live alone or with their family in line with an Indian study by **Jogdande and Gupta** .[18] While those living in students residency house had less prevalence of SAD.

Academic year & SAD: Juniors had a decreased chance of developing SAD. The link might be explained by perceived stress as medical students face multiple academic challenges that render their life quality and make them more vulnerable to stress and anxiety than other colleges. Our results are in contrast with King Abdulaziz University in Rabigh, Saudi Arabia study that showed decreased percentage of SAD among older students .[19] Medical students are always under pressure, authoritarian and rigid system that encourages competition rather than cooperation between learners for at least 7 years before their postgraduate life. They have more clinical exams performance, oral presentations.

Academic performance & SAD: In this study, there was no significant association between SAD & academic performance in consistence with an Iranian Study by **Mazhari, et al.** .[20] However, it contrasts with another study conducted in Khartoum State in Sudan. [9]

This difference might be due to larger sample size in the Sudanese study. **Family conflicts & SAD:** Research participants with family conflict were twice as likely to report social anxiety. Our result was consistent with **Levine et al.** study .[21] The development of social theory symptoms can be attributed to stressful childhood events that have a significant social component, such as interpersonal conflict within the family. These situations magnify feelings of threat and exacerbate social anxiety symptoms. On the other hand, regular and close emotional relationships with grandparents, family members, and other relatives appear to be protective against SAD. [1]

Face or Body dissatisfaction & SAD: Our study revealed that SAD was significantly associated with face or body dissatisfaction. That was in line with a study done at King Abdulaziz University, Jeddah, Saudi Arabia by **Alfakeh et al.** .[22] and an Indian study done by **Solanki and Das**. [23] The most common concerns were not being attractive or slender enough, as well as feeling dissatisfied with one's face, hair, and body type. It was shown that this dissatisfaction prevents them from communicating with their coworkers and staff members. It was assumed that this was the result of their comparisons to models on social media and pursuit of perfectionism.

Past psychiatric history & SAD: In our study, the risk of developing SAD was increased by 3.8 times for those with a prior psychiatric history. Compared to those without SAD, those with SAD were more likely to be dissatisfied with their low quality of life, for example, sadness and psychological discomfort. However, this was against Saudi Arabia study that showed no significant association between students with previous psychological disorders. [19] This difference was thought due to lack of mental health facilities & awareness among students in Saudi Arabia .[19]

Family income & SAD: Our study revealed that low-income students had a significant association with SAD occurrence by 2 folds higher than high income students. In Saudi Arabia, low-income female students were more exposed to SAD .[24] In India, undergraduate low socioeconomic medical students had a high risk of SAD than others. [16] Low income causes parental stress either directly or indirectly, which in turn causes parent-adolescent conflict and unfavorable parenting techniques, which in turn causes a host of adverse mental health conditions in adulthood. Low income makes students avoid social activities and parties for saving money.

Conclusion

In conclusion, we have collectively found that the prevalence of SAD among medical students was relatively high (56.7%) out of 360 medical students by using self-reported SPIN questionnaire.

Our study had four SAD degrees among our medical students. Of the students with SAD, the mildest degree was the most prevalent, accounting for about 31% of cases. The moderate degree came next, accounting for around 14% of cases, while the severe degree accounted for 9% of cases. Less than 3% of those in the fourth degree had more severe SAD.

SAD was positively associated with females, seniors, living in a rural region with their families

or alone, experiencing family conflict, low income, having a history of mental illness, and not satisfied with her body and face look

Recommendations

Researchers proposed some policy recommendations based on the findings of the present study that could be useful in improving SAD among university students like formulating awareness programs about SAD, providing early counseling, especially for risk groups and their families. Encouraging students to get counseling on how to seek medical psychiatric advice. Encouraging practicing exercises, sports, enriching hobbies & social activities.

Limitations of the study

Our study was conducted on the medical students in faculty of medicine of Sohag university; so the results of this study cannot be generalized on the general population.

List of abbreviations

SAD	Social Anxiety Disorder
SPIN	Social Phobia Inventory

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