

A Study of State and Trait Anxiety in Medical College Students

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ABSTRACT

Back ground and Aim: Comparing to general population medical college students are showing higher levels of anxiety. So, this study was conducted to evaluate State and Trait anxiety in medical college students and its association with sociodemographic variables and institutional factors like year of education.

Materials and Methods: A cross-sectional study with a random sample of (n=210) medical college students at government medical college, Nizamabad was performed. State Trait Anxiety Inventory (STAI) was used to measure anxiety symptoms and its association with sociodemographic and institutional factors. Modified Kuppaswamy Scale was used to measure socioeconomic status.

Results: Medical students having anxiety symptoms on STAI- State anxiety 10% low severity, 64.3% medium and 25.7% high severity. STAI- Trait anxiety scores were 9% low, 58.6% medium and 32.4% high scores. 60% of the sample belongs to sub urban area which is statistically significant (P value <0.0001) and majority were first year medical students (42.9%) which is also statistically significant (P value <0.0001). Year of education showing significant levels of trait anxiety symptoms among medical college students (p value 0.020*).

Conclusion: Medical college students are having medium levels of anxiety symptoms, male gender having increased levels of anxiety symptoms comparing to females. First year medical students having increase in State anxiety symptoms and Second year medical students having high Trait anxiety symptoms.

Keywords: Medical student, state anxiety, trait anxiety

INTRODUCTION

Everyone experiences anxiety. It is characterized most commonly as a diffuse, unpleasant, vague sense of apprehension. The experience of anxiety has two components: the awareness of the physiological sensations (e.g., palpitations and sweating) and the awareness of being nervous or frightened.

Anxiety affects thinking, perception, and learning. It tends to produce confusion and distortions of perception, not only of time and space but also of persons and the meanings of events. These distortions can interfere with

learning by lowering concentration, reducing recall, and impairing the ability to relate one item to another- that is, to make associations.

It effects on the selectivity of attention. Anxious persons likely select certain things in their environment and overlook others in their effort to prove that they are justified in considering the situation frightening. Once they falsely justify their fear, they augment their anxieties by the selective response and set up a vicious circle of anxiety, distorted perception, and increased anxiety. If, alternatively, they falsely reassure themselves by selective thinking, appropriate anxiety may be reduced, and they

may fail to take necessary precautions.^[1]

The disadvantage of anxiety affects students both professionally and personally. Personal consequences include termination of relationships, substance abuse, health deterioration and decline in physical vigour. Professional consequences include academic performance decay, decline in empathy and ethics, academic dishonesty, negative influence on their choice of speciality and high incidence of medical errors.^[2]

Prevalence rate of anxiety in Indian students study is between 24.1% and 25.1%.^[3] Many cross sectional studies explored medical student anxiety.^[4,5]

State-anxiety refers to a transitory emotional state which intensity may vary according to the context and over-time. This scale assesses how the person is feeling at a specific time. The higher the score the greater feeling of apprehension, tension, nervousness and annoyance. Trait-anxiety refers to individual tendency to react to perceived situations as threatening with anxiety.^[6]

Medical students are at high risk of developing anxiety which can reach levels of severity sufficient enough to bring important consequences to emotional mental and physical well-being. Its early diagnosis and management is very crucial. For this reason this study was undertaken with the following aim to estimate the severity and associated factors of anxiety among medical college students.

Aims and Objectives:

- 1) To study State and Trait anxiety in medical college under graduate students.
- 2) To study the year of education and State and Trait anxiety in medical college under graduate students.
- 3) To Study the correlation between socio-demographic variable and anxiety in medical college under graduate students.

Study Setting :

Study sample was collected from Government medical college, Nizamabad.

Size of Sample:

210 Medical college undergraduate students.

Study Period:

Month of November and December 2016.

Study Design:

Cross sectional study.

Inclusion Criteria :

- 1) Under graduate medical students studying in

Government medical college, Nizamabad.

- 2) Students who gave consent and were cooperative.

Exclusion Criteria:

- 1) Students who did not give consent.
- 2) Students with chronic medical illness.

MATERIALS AND METHODS

Undergraduate medical Students were randomly selected; those who met inclusion criteria were explained about the study. Informed consent was obtained. Institutional ethical committee was taken and study was conducted in Government medical college, which is attached to Government hospital Nizamabad. It is a tertiary care hospital, having 500 beds strength.

Students from Telangana and Andhra Pradesh states will enter through EAMCET medical entrance test. MBBS is a 5 year course period including one year internship. In this study first to third year students were taken as study subjects. Intake proforma includes socio demographic details including age, sex, region, religion, type of family, year of education and students having family history of mental illness or not. The following rating scales were applied.

Modified Kuppaswamy scale^[7]

It is a composite scale of education, occupation of head of the family, along with monthly income of family which yields a score of 3-29. This scale classifies the study population into high, middle and low socioeconomic status.

The State - Trait Anxiety Inventory (STAI) (C.H. Spielberger, 1968, 1977)

This self-report measure indicates the intensity of feelings of anxiety; it distinguishes between state anxiety (a temporary condition experienced in specific situations) and trait anxiety (a general tendency to perceive situations as threatening). It was originally developed as a research instrument to study anxiety in normal adult population samples, but it can also be used to screen for anxiety disorders and can be used with patient samples.^[8]

It is a two-component scale with 20 items each evaluating the intensity of state-anxiety and frequency of trait-anxiety.^[9]

Items 1-20 measure situational or state anxiety (STAI-S), and items 21-40 measure underlying or trait anxiety (STAI-T). Both scales were intended to form unidimensional measures. For the state items, respondents are asked to indicate "How you feel right now, that is, at this moment." Responses indicate intensity of feeling on a 1 to 4 scale, from "not at all" through

“somewhat”, moderately so” to “very much so.” For the trait items the question concerns “how you generally feel” and the response scale indicates frequency: “almost never”, “sometimes”, “often” and “almost always.” After reversing scores for positively-worded items, total scores for state and trait are calculated, ranging from 20 – 80.^[10, 11]

Intensity of feeling of anxiety according to STAI scores were defined as: low (<33), medium (33–49) and high (> 49)(12). The Brazilian Portuguese version of this inventory demonstrates adequate reliability and validity.^[13,14]

STATISTICAL ANALYSIS

Data has been analyzed using SPSS version 22 of windows. Demographic descriptive analysis was done for the sample. Chi Square test was done for categorical variables. Means were calculated for the scale scores and compared with different variables. Comparison of means was done by one way ANOVA analysis. Pearson correlation test was done to analyse relations of variables to scale scores. Statistical significance was set at <0.05.

RESULTS

Table 1 shows out of 210 medical students, 79 were males (37.6%), and 131 were females (62.4%). 83.4% were Hindus, 53.4 % of the sample belongs to lower middle socioeconomic status and 60% of the sample belongs to sub urban area which is statistically significant (p value <0.0001). 80.5% belongs to nuclear family. Majority were first year medical students (42.9%) which is statistically significant (p value <0.0001).

STAI - State anxiety scores- low scores 10%, medium scores 64.3% and 25.7% high scores. STAI -Trait anxiety scores-low scores 9%, medium scores 58.6% and 32.4% high scores. Majority of the sample are having medium levels of anxiety scores on STAI scale which is not statistically significant (STAI-S P value=0.994, STAI-T P value=0.296)

Table 2 shows first, second and third year medical students having mean state anxiety 44.48, 44.28 and 41.59 with standard deviation 8.659, 7.774 and 7.901 respectively. Trait anxiety Mean 43.99, 47.09 and 42.68 with Standard deviation of 9.771, 8.092 and 9.370 respectively.

Table 3 showing year of education showing significant levels of Trait anxiety among medical college students (p value 0.020*). Other variables like Category of socio economic status, religion, habitant and type of family not showing significance with State and Trait anxiety scores.

DISCUSSION

The aim of this study is to know the level of anxiety symptoms and to analyze factors with this anxiety among medical students. In the sample of 210 medical students, 79 were males (37.6%), and 131 were females (62.4%) this is due to majority of the females prefer to become doctors. 83.4% were Hindus this is due to Indian population majority were Hindus. 53.4 % of the sample belongs to lower middle socio economic status and 80.5% belongs to nuclear family.

60% of the sample belongs to sub urban area which is statistically significant (p-value <0.0001). This majority of the students from sub urban region which is distant from location of medical college and students also from lower middle socio economic status and nuclear family indicate financial stress among medical students of our study group and lack emotional support because of nuclear family.

Similar study by Dyrbye et al^[15] showing there is a great difficulty in adapting to the environment of medical schools due to the distance from family and friends, amount of content to be studied and financial difficulties.

Majority of the sample are having medium levels of anxiety scores on STAI scale which is not statistically significant (STAI-S p value=0.994, STAI-T p value=0.296).

Majority of the sample for State anxiety 64.3% and Trait anxiety 58.6% are having medium levels of anxiety scores on STAI scale which is not statistically significant (STAI-S 0.994, STAI-T 0.296; Tudy Vontver et al^[16] in 1978 administered STAI to 349 second year students and found mean trait anxiety scores were higher than general population.

Similarly in the report by Lloyd et al^[4] medical students in all four years had mean anxiety scores more than the norms for the general population. This two studies show anxiety in medical students is higher than general population which is similar to our study results. Other similar studies by Cavestro et al^[17] showing 15-20% of medical students show some kind of psychological distress during their medical training.

Study conducted by Dyrbye et al^[15] in U.S on Canadian medical students also gives similar finding like anxiety morbidity characteristically occurs more frequently among medical students than in the general population.

Majority of the students in our study belong to 19 years. High level of anxiety in this age group is a predictor of future depression by Chaplin et al. this is because the disadvantage of anxiety affects students both professionally and personally reported by Dyrbye et al.^[2]

Table 1: Socio demographic data of medical college students

Variable	Sex		Chi-Square	P-Value
	Male (%)	Female(%)		
Yr of Education				
1st Year	38(18.1)	52(24.8)	17.595	<0.001
2nd Year	39(18.6)	47(22.4)		
3rd Year	2(1.0)	32(15.2)		
SES				
Lower	19(9.0)	32(15.2)	1.515	0.679
Middle Lower	39(18.6)	73(34.8)		
Middle Upper	14(6.7)	6(7.6)		
Upper	7(3.3)	10(4.8)		
Religion				
Hindu	69(32.9)	106(50.5)	1.477	0.478
Muslim	3(1.4)	8(3.8)		
Christian	7(3.3)	17(8.1)		
Family				
Nuclear	63(30.0)	117(55.7)	4.643	0.098
Joint	15(7.1)	14(6.7)		
Extended	1(0.5)	0(0.0)		
Habitant				
Rural	29(13.8)	15(7.1)	19.518	<0.0001
Sub-Urban	36(17.1)	90(42.9)		
Urban	14(6.7)	26(12.4)		
Family History				
Yes	9(4.3)	11(5.2)	0.513	0.474
No	70(33.3)	120(57.1)		
STAI-S				
Low	8(3.8)	13(6.2)	0.011	0.994
Medium	51(24.3)	84(40.0)		
High	20(9.5)	34(16.2)		
STAI-T				
Low	5(2.4)	14(6.7)	2.4327	0.296
Medium	44(21.0)	79(37.6)		
High	30(14.3)	38(18.1)		
	N=79(37.6)	N=131(62.4)		

High level of anxiety in adolescence is a predictor of depression in adulthood.^[18]

Total group state anxiety and Trait anxiety mean, standard deviation (43.93, 8.2 and 45.05, 9.180). In our study males students are having higher mean scores of state and trait anxiety symptoms than women. This might be because males will express their feelings openly than females in Indian culture.

In contrast to our study there is a consensus in the

psychiatric literature that women tend to have more anxiety symptoms than men. ^[19, 20] Some other similar results were reported by Vitaliano et al^[21] mean baseline anxiety scores among male medical students were one standard deviation higher than general population norms.

First, second and third year medical students having mean State anxiety 44.48, 44.28 and 41.59 with standard deviation 8.659, 7.774 and 7.901 respectively. Trait anxiety mean 43.99, 47.09 and 42.68 with standard deviation of

Table 2: Year of education

Year of education	Total A-State	Total T-Trait
1 Mean	44.48	43.99
N	90	90
Std. Deviation	8.659	9.771
2 Mean	44.28	47.09
N	86	86
Std. Deviation	7.744	8.092
3 Mean	41.59	42.68
N	34	34
Std. Deviation	7.901	9.370
Total Mean	43.93	45.05
N	210	210
Std. Deviation	8.200	9.180

9.771, 8.092 and 9.370 respectively.

In our study the mean State and Trait anxiety scores were different for year of education. First year students are having high State anxiety mean scores but the second year students are having high Trait anxiety mean scores. This is because state anxiety is a temporary condition experienced in adjustment in to the new medical college environment and trait anxiety is a general tendency to perceive situations as threatening like exams, clinical exposure and worrying about future, similarly Blanch et al^[20] observed third year medical students have greater frequency of anxiety symptoms.

Some authors believe that there are different stressors over a college program, depending on the level or semester at which the student is.^[22, 23]

Year of education showing significant levels of trait anxiety among medical college students (p value 0.020*). Similar study by Dahlin et al^[23] showing the transition from preclinical to clinical training has been identified as a crucial stage in relation to psychological stressors in medical school.

CONCLUSION

Under graduate medical college students having medium level anxiety with more in males belong to lower middle socioeconomic status and sub urban region. Year of education playing a significant role in development of anxiety.

Limitation of the Study :

- (1) Size of sample is small.
- (2) No control group.

Table 3: Anova test for State and Trait anxiety of variables

Variable	F Value	P Value
Year of Education		
STAI-S	1.676	0.190
STAI-T	3.978	0.020*
Category		
STAI-S	0.227	0.877
STAI-T	1.784	0.151
Religion		
STAI-S	1.487	0.228
STAI-T	0.361	0.698
Habitant		
STAI-S	0.509	0.602
STAI-T	0.006	0.994
Family		
STAI-S	0.043	0.958
STAI-T	0.691	0.502

- (3) Not assessed after psychiatric intervention

Recommendations for Future Research:

Similar study can be conducted with a larger sample size. Students with other graduates (professional other than medical and nonprofessional graduates) can be compared with medical college students.

Large, prospective, multicentre studies are needed to identify personal and training related factors that influence anxiety among medical college students.

Periodical Counseling and psychiatric intervention is required to all medical college students to prevent anxiety and its consequences like depression and suicide attempts.

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CONFLICT OF INTEREST :

The authors declared no conflict of interest.

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