Original Research Article

Exposure to medical education and its role in Covid19 pandemic associated anxiety among medical students in South Kerala

Anaswara Karthika P [1],*

[1] *Dept. of Community Medicine, Somervell Memorial CSI Medical College, Karakonam, Kerala, India*

A B S T R A C T

Background: Medical students have varying levels of understanding about Covid19 based on their level of exposure to medical education. This influences their mental health status. There is no clear cut idea about whether Covid19 related anxiety among medical students increases or decreases with increase in scientific knowledge.

Objectives: This study aims to find out the proportion of anxiety related to COVID19 among medical students in South Kerala and assess the role of medical education on anxiety.

Materials and Methods: Analytical cross-sectional study was conducted among 500 medical students in South Kerala. Anxiety was assessed using Generalized Anxiety Disorder7 (GAD-7) scores. Univariate and Bivariate analysis were performed. P value < 0.05 was considered as statistically significant.

Results: The median GAD-7 score obtained was three (IQR 5.75). GAD-7 score >10 were reported among 9.8% participants. Anxiety level was found to be significantly associated with the year of admission (p=0.021). Among those who were tested Covid19 positive, 11.9 % hadGAD7 score >10 and among those who faced Covid related stigma, 28.6% had GAD-7 score >10. Association between anxiety and stigma related to Covid19 was found to be statistically significant (p=0.017).

Conclusion: Proportion of students with moderately severe or severe anxiety was more among preclinical students and among students who faced Covid19 related stigma. Better knowledge about preventive measures, symptoms, treatment, complications and prognosis of Covid19 can lessen pandemic induced anxiety. Government initiated programs are required to counter the rising levels of stigmatizing attitudes associated with Covid19

1. Introduction

Declaration of COVID-19 as a pandemic and declaration of lockdown has raised concern and altered the life of everyone.[1,2] Young adults are at high risk for psychiatric comorbidities.[3] According to a meta-analytic study, pooled prevalence of anxiety was found ranging from 29.2% to 38.7% among medical students, and 3% in general population.[4,5] A study from India, found the prevalence of anxiety among.

Medical students as 66.9%.[6] Similarly study from South India reported 75.5% prevalence.[7] Medical students have varying levels of understanding of Covid19 disease based on their level of exposure to medical education which in turn influences their mental health. There is no clear idea whether Covid19 related anxiety among medical students increases or decreases with increased scientific knowledge. This study aims to estimate the proportion of COVID 19 related anxiety in medical students in South-Kerala and assess the role of exposure to medical education on anxiety using GAD-7 scores.

* Corresponding author.
E-mail address: anaswarakarthikap@gmail.com (Anaswara Karthika P).

2. Materials and Methods

Ethics: Ethics Committee Clearance had been obtained from the Institutional Ethics Committee. Informed written consent was obtained from each study participant prior to data collection. Privacy and confidentiality of participants were maintained throughout the study. Participants were informed that if the GAD-7 score was >11 (which indicates Moderately severe Anxiety and above), they can voluntarily utilize the option to reach out to the investigators with the help of the contact number provided in the information sheet and the investigators will facilitate to seek help from the subject experts including Psychiatrist and Clinical Psychologist.

2.1. Study design

Analytical cross-sectional study

2.2. Study setting area

One of the private medical college in the Trivandrum district in Kerala, India.

Selection and Description of Participants: the study participants included all the undergraduate medical students from the batches of 2016 to 2019 admission in this medical college. Students who returned incomplete questionnaire and students who were absent consecutively for 2 days during distribution of questionnaire were planned to be excluded from the study. There were 150 students each in 2016 (final year) 2016 and 2017 (3rd year) batches and 100 students each in 2018 (2nd year) and 2019 (1st year/ preclinical) Batches. And all these 500 students were selected for the study

2.3. Operational definitions

2.3.1. Anxiety
Anxiety is characterized by a state of apprehension or un ease arising out of anticipation of danger.[8]

2.3.2. Stigma
Stigma in an outbreak, means people are labelled, stereotyped, discriminated against, treated separately, and/or experience loss of status because of a perceived link with a disease.[9]

Data were collected from the study participants during the post triple lockdown period, during June 2021 using a pretested, predesigned, semi-structured, questionnaire consisting of one domain to collect details of socio-demographic and covid19 pandemic related variables. Another domain dealt with the tool for assessing anxiety, the Generalized Anxiety Disorder-7 (GAD-7) score which consists of seven questions and for each question, scores of 0,1,2,3 are assigned to the response categories of "not at all", "several days", " more than half the days" and "nearly every day" respectively. GAD-7 total score for the seven items ranges from 0 to 21. And Scores of (0-5), (6-10), (11-15), and (15-21) represented mild, moderate moderately severe anxiety and severe anxiety respectively.[10] The participants were visited post their lecture sessions and the questionnaire were distributed and filled questionnaire were collected back after 10 minutes. A total of two visits were made to include the students who were absent on the first visit.

2.4. Statistics

Statistical Package for Social Science (SPSS) trial version was used for data entry, data coding and statistical analysis. Univariate and Bivariate analysis were performed. Continuous variables were summarized using Median, Mean and Standard Deviation. Qualitative variables were expressed using frequency and percentages. For Bivariate analysis of categorical variables, Chi square test was used as the test of significance. P value < 0.05 was considered as statistically significant
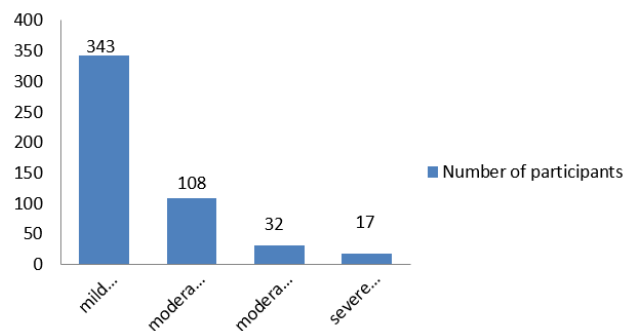
Fig. 1: Anxiety level of study participants based on GAD-7 score (N= 500)

3. Results

First and second year undergraduate medical students formed the 40% (20% each) and third and final year undergraduate students formed the rest 60% (30% each) of the study participants. The mean obtained for the age distribution of study participants was 21.91years with a standard deviation of 1.45 years. They had a minimum age of 18 years and maximum of 28 years. More than half, 339 (67.8%) medical students were females and the rest were males. History of infection with Covid19 was reported by 42(8.4%) study participants and all of them had undergone home isolation post diagnosis. And 14 out of these 42 students faced Covid19 derived social stigma mostly from family, relatives and neighbors. Scoring based on GAD-7 score was used for assessment of anxiety among the study participants. The median GAD-7 score obtained was 3 with Inter quartile Range 5.75 (Q1=1 and Q2= 6.75). GAD-7 score above 10 were reported among 49 (9.8%) study

Table 1: Health and lifestyle related factors of the study participants during Covid19 pandemic (N=500)

Health and lifestyle related factors	Yes Number (%)	No Number (%)
Negative effect on Interpersonal relationships	167(33.4%)	333(66.6%)
Loss of appetite	89 (17.8%)	411 (82.2%)
Overeating	133 (26.6%)	367 (73.4%)
Lack of sleep due to fears and worries related to Covid19 pandemic	64(12.8%)	436(87.2%)
Negative Effect on academics	324(64.8%)	176(35.2%)
Decrease in exercise and physical activity	156(31.2%)	344 (68.8%)
Increase in Screen time	439 (87.8%)	61 (12.2%)
Changes in the health seeking behaviour for common illness	245(49%)	255(51%)

Table 2: Eelation between level of anxiety and independent variables (N= 500)

Independent variables		Moderately severe or severe anxiety	Mild or moderate Anxiety	Chi (P value)
Gender	Male	13 (8.1 %)	148(91.9%)	0.800 (0.371)
	Female	36 (10.6%)	303(89.4%)	
Batch	First year	12 (12%)	88 (88%)	9.744 (0.021)
	Second year	17 (17%)	83 (83%)	
	Third year	10 (6.7%)	140(93.3%)	
	Final year	10 (6.7%)	140(93.3%)	
Covid19 positive	Yes	5 (11.9%)	37(88.1%)	0.230 (0.632)
	No	44 (9.6%)	414(90.4%)	
faced social stigma	Yes	4 (28.6%)	10 (71.4%)	5.741 (0.017)
	No	45 (9.3%)	441(90.7%)	

participants. Thus, they were identified as suffering from moderately severe or severe anxiety. (Figure 1)

Compared to males more proportion of females suffered from severe anxiety. Proportion of anxiety was less among final year students. Among those who were found to have severe anxiety, 23.53% were preclinical students. Descriptive statistics revealed that **"Being so restless that it is hard to sit still"** was the question from GAD-7 for which highest proportion of the participants (346(69.2%)) choose the option "not at all" (score=0) and "Becoming easily annoyed or irritable" was the question from GAD-7 for which least proportion of the participants (231(46.2%)) choose the option "not at all". Likewise, **"Feeling nervous, anxious or on edge"** was the question from GAD-7 for which highest proportion of the participants (34(6.8%))choose the option "nearly every day" (score=3) and "Trouble while relaxing" was the question from GAD-7 for which least proportion of the participants (12(2.4%)). Analysis to find out the distribution of participant's scores of individual questions in the GAD-7 scale, based on gender and batch concluded that more number of males (4.35%) recorded highest score (score3) for the question "Feeling afraid that something awful might happen" and more number of female participants(8.55%) recorded highest score for the question "Feeling nervous, anxious or on edge". "Feeling nervous, anxious or on edge" and "Becoming easily annoyed or irritable" were the questions that recorded highest score (score>3) among more

number of preclinical and final year students respectively.

Details regarding the medical students' physical, mental, and social health and lifestyle related factors during the Covid19 pandemic were studied (Table 1). Social media consumed most of the screen time for (73.6%) of the participants. Only very less (8%) reported that watching television consumed most of their screen time and for rest of them it was either mobile games or laptops. Health seeking behavior for common illnesses increased among 2.6% participants but 46.4% reported a decrease in health seeking behavior during the current pandemic. Bivariate analyses of categorical data were done to find out the determinants of anxiety among medical students based on GAD7 scores. For the purpose of analysis, the four categories of anxiety based on GAD7 scores were dichotomized into moderately severe and severe anxiety as one group & mild and moderate anxiety as the other group. (Table 2)

Anxiety level was found to be significantly associated with the year of admission (p=0.021) which in turn means that anxiety and level of exposure to medical scientific knowledge are significantly associated. Proportion of preclinical students having GAD-7 score >10 (12%) was almost twice that of proportion among final year students (6.7%). Among those who were tested Covid19 positive, around 11.9 % had moderately severe or severe anxiety. But among those who faced social stigma, more students (28.6%) suffered from moderately severe or severe anxiety The association between level of anxiety and social stigma

related to Covid19 isolation was found to be statistically significant (p=0.017).

4. Discussion

The current study investigated the mental health status of undergraduate medical students in a private medical college, which is a Government-approved center for treating COVID-19 patients. As more female students have enrolled in the medical college in the past 5 years, female participants were more than the male participants. In this study, the mean age of the study participants were 21.91 years. A study conducted among pre medical students in Maharashtra, India had the mean age of the respondents at 19.17 years.[11] Higher mean age in this study may be due to the older age at which students enter into medical colleges after cracking NEET examination.

The median GAD-7 score in this study was obtained as three with IQR 5.75 (Q1=1, Q2= 6.75). Overall 9.8% medical students were identified to be suffering from moderately severe or severe anxiety. The proportion is less compared to 30.6% (GAD-7>10 score) in a study on Prevalence of Anxiety and Depression Among Medical Students During Covid-19 Pandemic done in USA and 46.17% (GAD-7>10 score) in a similar study from Brazil. Even though the proportion is comparatively less, the result shows the impact of Covid-19 on mental health of both Pre-clinical students as well as clinical students. According to a meta analysis on Global Prevalence of Anxiety Among Medical Students, about one in three medical students globally have anxiety-a prevalence rate which is substantially higher than the general population.[4,12,13] In this study, it is observed that females have a higher prevalence of moderately severe and severe anxiety (10.6%) compared to males (8.1%), although the finding is not statistically significant. Similar results were obtained in another study conducted among students of different college and universities in West Bengal, India where proportion of moderately severe and severe anxiety among female participants was (17.49%) compared to males (3.85%).[8] These results are in line with the study titled Survey on Anxiety and Depression Level Among South Indian Medical Students During the COVID 19 Pandemic, were 11.6% of male students and 17.9% of female students showed moderately severe anxiety symptoms; and 5.5% of male students and 7.9% of female students showed severe anxiety symptoms.[7] This gender difference may be because females are more likely to seek help and be more open of mental health issues than males and so it thrusts on the importance to find out hidden anxiety among male students.

The proportion of first year preclinical students with moderately severe or severe anxiety was almost double (12%) that of final year students (16%) and the association was statistically significant (p=0.021). This is in line with the American study were higher GAD-7 scores were observed for participants who were in the pre-clinical phase of their education(GAD-7>10). This is in contrast to the outcome from a meta analysis on Global Prevalence of Anxiety Among Medical Students were, the year of study found no statistically significant differences in the prevalence of anxiety.

In this study moderately severe and above level of anxiety was more among students who suffered and recovered from Covid19 (11.9%). It was found that among them, 33.33% faced Covid19 related social stigma and 35.7% of them faced stigma either from family or close relatives. Anxiety showed significant association with social stigma related to Covid19. In A Cross-Sectional Study by Scott J Halperin, proportion of medical students with GAD-7 score >10 was higher among those whose friend or relatives had been diagnosed with Covid-19.[12] In another study conducted in Delhi, India about 19.3% of the study participants faced stigma during quarantine. According to a comparative study on COVID-19-related stigma, compared with healthy controls, COVID-19 survivors reported more overall stigma and stigma in domains of social rejection, financial insecurity, internalized shame and social isolation. Status as a COVID-19 survivor and having family members infected with COVID-19, were positively associated with higher overall stigma levels.[14,15] This may be because this is a new virus about which proper concept is still not very clear. Lack of proper awareness and fear associated with being infected by the disease are contributing to the high levels of stigma. Here among those who faced social stigma, more students (28.6%) suffered from anxiety which is in line with the findings of American Psychiatric Association that social stigma and discriminations can worsen the mental health problems like anxiety.[16] Here 64.8% of the study participants had their academic performance negatively affected. Similar to the outcomes from Harries, A. J et al. study, were the proportion was 74.7%.[17] It was much higher (96.7%) among participants in a study conducted by Mohamed A. A. Mahdy.[18] Stress associated with fear related to the pandemic and switch to online modes of teaching and absence of physical classes may be the reasons for this.

The increase in screen time (73.6%) in this study indicates that investing more time on screen is a method to utilize their idle time due to restricted physical movements outside during the lockdowns. In this study, 46.4% of the participants showed decreased health seeking behaviour. While only 28% of the participants in another study conducted in Nepal showed decreased health seeking behaviour. Fear of contracting the infection, stigma, lockdown restrictions, and self medication can be the reasons for this reduction.[19] This reduction in health seeking behavior is alarming. This challenge can be addressed through prioritizing and facilitating the concept of tele-health that can improve the provision of health services

There are numerous mental health problems including depression other than anxiety which were not addressed here. The study was limited to the students of a single medical college and inclusion of students from various medical colleges across India would have yielded additional information and better interpretation. Since the study is based on self reported information provided by students, there may be some inaccurate reporting due to respondent's own unique interpretation of the questions. Among the medical students, 3.4% were identified to be suffering from severe anxiety and 6.4% from moderately severe anxiety. This shows that there is a need for more focus on addressing the mental health problems of medical students including anxiety. Furthermore, all medical institutions should take initiative in identifying the students with anxiety or other mental health problems, and they should take the responsibility for ensuring proper counseling, treatment and follow up of such students. Promoting sound mental health among undergraduate students is the responsibility of both the Government and medical college authorities. The parents and relatives should be sensitized to provide adequate support to their children. There should be awareness and support to reduce the stigma associated with Covid19.

5. Conclusion

The study also concluded that Anxiety was significantly associated with level of exposure to scientific medical knowledge and social stigma faced related to Covid19 isolation. The medical knowledge among first year / preclinical students was meager and can be equated to that of non medical people. And it can be noted that the proportion of students with moderately severe or severe anxiety was more among first year preclinical students compared to final year students. This in turn is a reflection of the fact that more knowledge and awareness about the preventive measures, symptoms, treatment, complications and prognosis of Covid19 can lessen this pandemic induced anxiety among medical students. Compared to students who were tested positive for Covid19 infection, proportion of students with moderately severe or severe anxiety was more among students who faced covid19 related stigma which shows that similar to Covid19 infection social stigma is equally an important concern. Stigma is increased by insufficient knowledge about the new corona virus disease (COVID-19) Stigma will force them to hide the illness to avoid discrimination and thus prevent them from seeking health care immediately. Assessment of stigma experiences should be conducted not only among medical students but also in the general population among COVID-19 survivors and appropriate psychological assistance, Government and NGO initiated awareness programs through anti-stigma campaigns, and enforcing policies to reduce stigma are some of the methods to counter the rising levels of stigmatizing attitudes associated with Covid19.

6. Source of Funding

None.

7. Conflict of Interest

None.

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Author biography

Anaswara Karthika P, Assistant Professor https://orcid.org/0000-0001-8451-3855