

## Predictors of Stress, Anxiety and Depression among Undergraduate Medical Students: A Scenario In A Medical College of Kolkata.

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**Abstract:** Mental disorders are very common among medical students but are neglected till now & its magnitude is rising day by day. A self administered questionnaire based cross sectional study was undertaken to determine the predictors of mental distress, anxiety and depression among the undergraduate students of Medical College, Kolkata, India using General Health Questions (GHQ-12), Zung Self Rating Anxiety Scale, Zung self-rating Depression scale etc. 39.1% students were distressed, 15.6% students were suffering from anxiety & 12% were depressed. multivariate logistic regression result shows that 'lack of concentration', 'pursuing M.B.B.S as per others' choice', 'perception that university examination is hard', female gender significantly increases the odds of being stressed. Similar factors are contributing to anxiety and depression also. Peer support, having a hobby was found to be protective factors. So it is necessary that regular career counseling & practice of stress coping mechanisms should be made available for the undergraduate medical students at medical college levels.

**Keywords:** Depression, Anxiety, Stress, MBBS examination, factors of stress

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### I. Introduction

Mental health problem is gradually on the rise due to different factors for different groups. Urbanization, industrialization and increase in lifespan, together with breakup of the joint family system has increased the psychiatric problems of the population as a whole. Mental health problems are as common among medical students but factors contributing it may be entirely different.

Mental health problems of medical students are of utmost importance as stress that begins in the student period may continue to future life and if adjustments are not made, then inevitably detrimental effects will occur. That stress if not coped with proper coping mechanisms may lead to constant anxiety, depression which in turn may lead to generation of suicidal ideations also. Different factors like socio-economic, academic pressure, unwillingness, addictions, sleep deprivation, using of mobiles & social media etc. may have an association with mental health problems. So this study was undertaken with the objectives to determine different socio-demographic factors, academics related factors, magnitude of mental distress, anxiety and depression & their association, among the undergraduate medical students of Medical College, Kolkata, India.

### II. Methodology

The study was an institution based observational, analytical study having students encompassing the 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> semesters done from March to June, 2016. Taking prevalence of stress as 23 % <sup>1</sup> sample size came to 322 which was further increased by 10 % due to probable non response, so total sample size calculated was 354. Among the total 900 students these were selected by stratified random sampling method using the random number table on each semester's class register.

A Predesigned, pre tested, semi structured, self-administered questionnaire containing validated questionnaires like General Health Questions (GHQ-12), Zung Self-Rating Anxiety Scale and Zung Self-Rating Depression Scale were used in this study. Apart from stress, anxiety & depression, data collected on variables like socio-demographic factors, factors related to academic pressure, use of social media, addiction, sleep pattern etc. Those who left the scales blank &/or left more than 50% of background questionnaire unfilled were excluded from study. Data was compiled in Microsoft Excel 2007 and analyzed using appropriate statistical methods like percentage, mean, standard deviation chi-square test, correlation & logistic regression etc.

### III. Results

In this study among 354 students 22 questionnaires were found to be incomplete. Thus final sample size was 332. 39.1% students are distressed as per GHQ. Students suffer from academics related stress the most. Overall 15.6% students were anxious & about 12% Medical students were depressed as per Zung self-rated anxiety & depression scale respectively. For each of these three psychological morbidities 2 separate logistic regression models were formulated. First one consisting of factors related to academics like semester, perception regarding class hours, university examinations, post graduate entrance examinations, medium of study before M.B.B.S, whether studying in this discipline is his/her own choice, lack of interest in subject, lack of concentration etc. In case of anxiety & depression perceived academic stress was also taken into account. Second model was made with the factors related to socio-demographic characteristics & lifestyle. Variables like gender, parental attitude, relationship with friends, sleep hours, addiction, hobby etc were considered in this model. All these factors were considered for uni-variate analysis & then the factors having p value 0.1 or less were considered for multivariate analysis. Some important factors like semester, gender, addiction etc were considered for multivariate analysis even if p value is more than 0.1 in uni-variate analysis.

In multiple logistic regression academic predictors could explain 38.9% variability in case of stress (Neglekar's  $R^2=0.389$ ). But in case of anxiety & depression it decreases to 17.8% & 4% respectively. Regarding socio-demographic & lifestyle factors Neglekar's  $R^2$  for stress, anxiety & depression were 0.16, 0.28 & 0.25 respectively. The multivariate logistic regression result shows that 'lack of concentration', 'pursuing M.B.B.S as per others' choice', 'perception that university examination is hard' significantly increases the odds of being stressed. Lack of concentration increases the odds of stress 2.09 times (O.R= 2.09, 95% C.I= 1.21-3.58). Similarly 'pursuing M.B.B.S as per others' choice' increases chance of stressed 1.39 times & 'perception that university examination is hard' increases chance of getting stressed 1.83 times. (Table 1) Regarding Socio-demographic & lifestyle factors female gender, absence of hobby increases the chance of getting stressed whereas sleeping more than 8 hours is protective factor. (Table 1) Higher semester, non English medium of study before M.B.B.S, perception that class hours are lengthy, perceived academic stress significantly increases the odds of being anxious. Among these, perceived academic stress is most significant which increases the odds of anxiety 4.5 times. (Table 2) Female gender, absence of hobby, sleeping less than 8 hours, poor relation with friends increases the odds of anxiety. Among these poor relation with friends is most significant which increases the odds of anxiety 6.2 times. (Table 2) Higher semester is only academic factor which significantly increases the odds of depression whereas regarding Socio-demographic & lifestyle factors 'sleeping less than 8 hours' & 'poor relation with friends' were significant among which 'poor relation' increases odds of depression 5.8 times. (Table 3)

### IV. Discussion

Numerous stressors can affect the wellbeing of the students & give rise to psychological morbidities like anxiety and depression. In the present study result also, we found that depression, anxiety and mental distress prevails among the medical students which is corroborating with another study conducted by S.Iqbal et al, India.<sup>1</sup> It was also found that different academic & socio demographic stressors have a contributing role on mental health problems.

From the result it is evident that examination and class related pressure are very important stressor which increases both general distress and anxiety. This result corroborates with the study conducted in Riyadh, Saudi Arabia.<sup>2</sup> Two important predictors found in this study are "studying M.B.B.S as per others' choice" and "non English medium of study before M.B.B.S" which increases stress and anxiety respectively. It indicates if a student struggles to understand the study materials due to lack of self will or language barrier that in turn increases stress. As found in other national and international studies higher the semester higher is stress, anxiety and depression which should be properly addressed so that burn out of Medical Students does not occur.<sup>2,3</sup>

Regarding socio-economic factors it is seen that females are more prone to getting stressed and anxious which goes hand in hand with the study conducted in Riyadh.<sup>2</sup> Other important protective factors found in this study are sound sleep, pursuing hobby and good relationship with friends. Among these relationship with friends is predicting both anxiety and depression which suggests the role of peers in the field of medical education.

**Conflict of interest:** None

### Reference

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- [4]. Table 1: logistic regression showing different predictors of stress (n=332)

Academic Predictors of stress	p value	O.R	95.0% C.I.for O.R	
			Lower	Upper
Semester	0.905	1.008	0.888	1.144
Lack of concentration*	0.007	2.09	1.21	3.58
Pursuing MBBS is not own choice*	0.014	1.39	1.11	2.13
Perception that university examination is hard*	0.049	1.83	1.01	3.35
Perception about PG entrance examination	0.288	1.23	0.834	1.838
Lack of interest	0.077	0.618	0.362	1.053
Socio demographic & lifestyle predictors of stress				
Female gender*	0.001	3.3	1.903	5.723
Sleep hours more than 8 hours*	0.024	0.837	0.717	0.976
Absence of hobby*	0.027	3.432	1.152	10.223
Parental Attitude	0.052	2.921	0.992	8.605
Relationship with Friends	0.202	2.238	0.65	7.711
Smoking status	0.152	0.497	0.191	1.294
Alcohol consumption	0.286	1.767	0.622	5.021

\* factors which predicting significantly

**Table 2:** logistic regression showing different predictors of anxiety (n=332)

Academic Predictors of Anxiety	p value	O.R	95.0% C.I.for O.R	
			Lower	Upper
Semester*	0.02	1.277	1.039	1.569
Non English Medium of study before MBBS*	0.001	2.973	1.55	5.704
Lengthy class hours*	0.033	1.87	1.05	3.35
Lack of concentration	0.11	1.83	0.87	3.84
Lack of interest	0.524	1.17	0.72	1.91
Academic stress	0.001	4.545	2.275	9.078
Socio demographic & lifestyle predictors of Anxiety				

Female gender*	0.048	2.251	1.007	5.033
Poor Relation with friends*	0.015	6.248	1.424	27.41
Absence of hobby*	0.026	4.876	1.205	19.727
Sleep hours less than 8 hours*	0.023	1.274	1.034	1.569
Smoking status	0.699	1.302	0.342	4.951
Alcohol consumption	0.812	0.814	0.149	4.438
Spending time with friends	0.268	0.552	0.193	1.58
Parental Attitude	0.384	1.785	0.485	6.575

\* factors which predicting significantly

**Table 3:** logistic regression showing different predictors of depression (n=332)

Academic Predictors of Depression	p value	O.R	95.0% C.I.for O.R	
			Lower	Upper
Semester*	0.025	1.276	1.032	1.579
Lack of interest	0.348	1.44	0.67	3.04
Lack of concentration	0.55	1.26	0.58	2.71
Lengthy Class hours	0.253	0.7	0.39	1.27
Perception about MB university examination	0.476	1.35	0.58	3.14
Perception about PG entrance examination	0.196	0.71	0.43	1.186
Academic stress	0.309	1.423	0.72	2.81
Socio demographic & lifestyle predictors of Depression				
Gender	0.213	1.665	0.74	3.71
Sleeping less than 8 hours*	0.002	1.421	1.13	1.77
Poor Relation with friends*	0.008	5.837	1.58	21.43
Smoking status	0.531	1.571	0.38	6.46
Alcohol consumption	0.431	0.519	0.11	2.65
Parental Attitude	0.805	1.186	0.35	4.6
Absence of hobby	0.559	0.52	0.05	4.65

\* factors which predicting significantly