

Prevalence of Stress among Final Year MBBS Students in Kerala

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ABSTRACT

Introduction: Academic stress among college students has been a topic of interest for many years. Therefore, the present study was designed to determine the prevalence of stress among final year MBBS students in Kerala.

Material and methods: This is an unmatched case control study which included final year MBBS students of Government Medical Colleges in Kerala. All the students were screened for stressed and non-stressed students and randomly selected them as cases (stressed) and controls (nonstressed) after getting Informed Written Consent and institutional ethical clearance.

Results: The age of the subjects ranged from 21 to 31 which was not significantly associated with the outcome stress. BMI ranged from 15.43 to 32.05. The mean BMI among Cases is 21.75 (SD= 2.56) which was not associated statistically with the outcome. Odds Ratio for the different category of Mental Health status score showed a linear trend. Chi Square for linear trend (Extended Mantel-Haenszel) is 97.02 which was highly significant ($p=0.000$). There is dose response relationship between Psychiatric Morbidity and Stress.

Conclusion: The study has shown that stress among final year MBBS students is high. Knowing the causes of stress among these students will help educators and administrators, monitor and control these factors in order to reduce stress experienced by students. The findings of this study indicate the need for stress management intervention programs in medical colleges.

Keywords: Stress, Determinants, Psychiatric Morbidity, Public Humiliation

INTRODUCTION

Academic stress among college students has been a topic of interest for many years. They may have difficulty adjusting to more rigorous academic expectations and the need to learn to deal with individuals of differing cultures and beliefs. Medical students are privileged as a group, positively selected with regard to several health-relevant factors such as socioeconomic status, educational level and healthy habits. Psychological stress or distress has long been regarded as an influence on learning and performance.¹ It serves to motivate some students, yet overwhelm others. Most acknowledge that distress can exert inadvertent negative effects on students' studies, health or personal lives.

The role of medical schools in the medical student health promotion has suggested to create a learning environment where positive self-care is valued; could enhance the personal well-being of medical students and begin a movement toward improved personal health care for physicians in future.² Stress will disrupt the adolescent's capacity to handle the demands of daily life.³ In addition to coping with normal stressors of everyday life, medical students must

deal with stressors specific to medical school which include information and input overload, financial problems, lack of leisure time, pressures of work, work relationships and career choices.⁴

Final year is the period just before they qualify to become doctors and is reported to be highly stressful compared to first MBBS and second MBBS. Intense stress predicted clinical depression and somatic distress in third year medical students. It was reported that, 57% of somatic distress and 23% of clinical levels of depression in their study on stress, coping and well-being among third year medical students.^{5,6} The population under study is the privileged medical student community who are future doctors. In order to be competent enough to serve the public with empathy, they need to train in a healthy and stress free environment. Otherwise the consequences of chronic stress perceived during the whole training period will reduce their work efficiency and indirectly it will become a public health problem. The present study looked into the modifiable and non-modifiable factors associated with stress.

MATERIAL AND METHODS

It was a Case Control Study conducted at Government Medical Colleges southern, central and northern parts of Kerala. The cases and controls were selected proportionately from the whole study population in the three Medical Colleges. The Sample was representative of the Base Population and all had equal chance of being recruited into the study as we selected the Cases and Controls Randomly from the Sampling Frame. Random Sampling of Cases and Controls was done from the Perceived Stress Scale (PSS) Screened separate lists for the Cases and Controls of the above mentioned 3 colleges, in Phase 2. For Phases 1 and 3, convenient sampling technique was adopted for qualitative methods.

Case ascertainment was done using PSS scores which has robust psychometric properties. Cases are defined as students who perceive stress during the final year MBBS period which is indicated by a high Perceived Stress Scale score. The PSS score ranges between 0 and 40. Median score twenty was taken as cut-off score for discriminating stress from no stress. Those students with high score ≥ 20 (20-40) were ascertained into the case group.

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Controls were selected from the same base population in order to be representative of the population from which the cases came. They are defined as students who do not perceive stress during their final MBBS period which is indicated by a low PSS score between 0 and 19. Controls were randomly picked up from the list of students with low Perceived Stress Scale scores obtained from the study population of three Medical Colleges after administering the PSS to avoid selection bias.

A dependent variable is Stress – Those who got PSS score more than the cut-off score (≥ 20) were defined as having perceived stress. The Independent Variable is a hypothesized cause or influence on a dependent variable. The independent variables measured were age, gender, religion, hostel stay, relationship with teachers and patients, peer conflict, history of mental illness and treatment, having doctor parent, dealing with seriously ill patients, vast syllabus, examination, behavior of examiner, information overload, tough topics, not spending extra time on internet and library to update knowledge, competitive environment, inadequate learning, problem family, acquiring new skills, romantic relationship, facing unfamiliar situations, taking responsibilities, concerns about PG and future career, academic pressure, need for outstanding academic performance, lack of time management skills, not getting enough time for personal activities and for attending family affairs, habit of postponing things to be done, inadequate availability of learning resources, inadequate training by faculty, mistreatment by faculty, fear of acquiring disease, inadequate entertainment and recreational facilities, communication skills, high parental expectation, financial issues, changes in sleeping and eating habits, social support, coping, coping skills, dietary habits and Psychiatric Morbidity. Other extraneous variables measured were weight, height and BMI.

Phases 1 and 3 - Final year MBBS students of the Government Medical Colleges mentioned above and Clinical Teachers and Parents of these students. Phase 2 – Final year MBBS students who satisfy the definition of Cases and Controls were recruited. Rationale for selecting Cases and Controls was to identify multiple risk factors for the single outcome. Who did not give consent were excluded. The whole study was undertaken in 3 consecutive phases. Data was collected using Pre-tested proforma with the all identified variables, PSS, GHQ, FGD Guide, In-Depth Interview Schedule and Key Informant Interview Schedule.

STATISTICAL ANALYSIS

For continuous variables means were calculated and compared by 't' test. Chi square test was used for determination of association between categorical independent variables with dependent variable stress. Crude Odds Ratios and their Confidence Intervals were also calculated for these associations. Mann Whitney U test was done to test the significance of Monthly Family Income since it was a skewed distribution.

RESULTS

The age ranged from 22 to 31 for cases and 21 to 25 for

controls (table-1). As per univariate analysis, Age was not significantly associated with the outcome stress. In Univariate Analysis, Female Gender was significantly associated with stress among final year MBBS students. But when recruited as cases and controls, the female participation increased to 62.1% (231) against 37.9% (141) male participants. Selection was done exclusively by random process. Even though there is some difference in proportions, they are comparable, as it is statistically insignificant. Monthly Family Income did not show significant difference between the medians of two groups. So both groups are comparable (table-2). Univariate Analysis of diet was not significantly associated with the outcome (table-2) The BMI was not associated statistically with the outcome (table-3). Among the study Population, 4.6% were underweight and 9.7% were with overweight and obesity. Of the overweight and obese population, 16 (44.4%) were females and 20 (55.6%) were males (table-3).

Chi Square for Linear Trend for the GHQ Score, which provided the Mental Health Status was analyzed after categorizing the scores into 3 groups. Odds Ratio for the different category of Mental Health status score showed a linear trend. Chi Square for linear trend (Extended Mantel-

	Cases N (%)	Controls N (%)	Total N (%)
Age in yrs			
21	0 (0)	5 (2.7)	5 (1.3)
22	46 (24.7)	38 (20.4)	84 (22.6)
23	100 (53.8)	104 (55.9)	204 (54.8)
24	34 (18.3)	33 (17.7)	67 (18)
25	3 (1.6)	6 (3.2)	9 (2.4)
26	2 (1.1)	0 (0)	2 (0.5)
31	1 (0.5)	0 (0)	1 (0.3)
Gender			
Males	47 (25.3)	94 (50.5)	141 (37.9)
Females	139 (74.7)	92 (49.5)	231 (62.1)
Religion			
Christian	47 (25.3)	30 (16.1)	77 (20.7)
Hindu	92 (49.5)	105 (56.5)	197 (53)
Muslim	47 (25.3)	51 (27.4)	98 (26.3)

Table-1: Distribution of age, Gender and Religion among Cases and Controls.

Monthly Family Income	Status	Mean Rank	Sum of Ranks	Mann-Whitney U Test Statistics
	Cases	183.43	34118.50	1.673E4 Sig. 0.58
	Controls	189.57	35259.50	

Table-2: Univariate Analysis of Monthly Family Income among two groups

No.	BMI Categories	Number	Percentage
1	< 18.49	17	4.6
2	18.50 – 24.99	319	85.7
3	25 – 29.99	31	8.4
4	> 30	5	1.3

Table-3: Group Analysis of Distribution based on Body Mass Index.

Exposure Score (GHQ Score)	Cases	Controls	Odds Ratio
1 (1-2) – Normal Mental Health	36	123	1.00
2 (3-4) – Psychiatric Morbidity	47	39	4.12
3 (≥ 5) – Psychiatric Morbidity	103	24	14.66

Table-4: Analysis of Chi Square for Linear Trend.

Haenszel) is 97.02 and p value is 0.000. There is dose response relationship between Psychiatric Morbidity and Stress (table-4).

DISCUSSION

Most studies are cross-sectional, which limits conclusions that can be made regarding causal relationships between distress as outcome and its possible determinants. Several studies both from West and Asia have reported that medical training is highly stressful particularly for those who are beginning their medical education. In a review of the existing literature for stress in health professions students revealed that the highest incidence of stress occurred in medical students followed by dental and then nursing students.⁷

Comparison between medical students and other undergraduate groups have shown a higher level of stress and depression among medical students. Moreover, the results of a study of 304 first and second year medical students revealed a 12% incidence of major depression and a lifetime prevalence of 15%; the latter is 3 times higher than that of the average population.⁸ Other studies have reported incidences of depression among medical students in the range of 20% to 25%.^{8,9} Predictors of depression identified in these studies included previous depression or other mental health problems, perceived medical school stress, intensity and vulnerability of traits and family history of depression. Reported levels of stress among medical students range from 25% to 75%.^{6,10} In United States, a survey of 9 medical schools found that 47% of student respondents had at least 1 major issue related to mental health or substance use and that stress affected 26% within this group.¹⁰ What is equally disturbing in this study is that 70% of students indicated concerns about confidentiality and the potential impact of having stress-related issues appear on their academic record. Epidemiologic study of the psychological health and risk behaviors of medical students by Sima A et al. in 2004 assessed their stress related complaints.¹¹ They found the overall prevalence of 'high risk' subjects as 30.5% with no significant gender differences. 43.6% of the subjects experienced work-related complaints, 33.3% of them had emotional and 23.1% had physical complaints.

One of the difficulties with stress in medical school is that students tend not to seek help from the support services available to them. The results of a survey from the University of Pennsylvania showed that although 24% of their medical students identified themselves as being depressed, only 22% of this group accessed mental health services.¹² Barriers to access included lack of time, fear of lack of confidentiality, stigma associated with the use of mental health services, cost, fear of documentation in academic records and fear

of unwanted intervention. These barriers do not improve on graduation, since 35% of physicians in the United States do not have a regular source of health care.

Overall prevalence of stress in this study is 60% as evidenced in the initial screening, which is similar to 57% in Saudi Arabia study¹³, the Thai study 61.4%¹⁴, but higher than Malaysian study 41.9%¹⁵ and British study 31.2%.¹⁶ The increase in stress level in fifth year is expected as it is the clinical teaching where students are loaded with clinical schedules at the hospital. Due to the considerable amount of perceived stress students are experiencing, a study suggests for periodical measurement of perceived stress at all universities.¹⁷

CONCLUSION

The study has shown that stress among final year MBBS students is high and a similar trend has been seen in studies done around the globe. Knowing the causes of stress among these students will help educators and administrators, monitor and control these factors in order to reduce stress experienced by students.

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