Research Article

Assessment of Physical and Mental health of first year MBBS and Nursing students in a tertiary care centre in West Bengal.

Srila Ghosh Chowdhury[1], Sucharita Majhi[2], Kaberi Bhattacharya [3], Brahmasri Das [4]

[1]Department of Physiology, Midnapore Medical College, Paschim Midnapore, West Bengal; India.
[2] Department of Community Medicine, Midnapore Medical College, Paschim Midnapore, West Bengal; India.
[3] Department of Psychiatry, College of Sagar Dutta Medical College & Hospital, Kamarhati, Kolkata. West Bengal; India.
[4] Dept. of Biochemistry. Murshidabad Medical College, Berhampur. West Bengal; India

(Received: 28-11-2024 Revised: 13-03-2025 Accepted: 23-03-2025)

Corresponding Author: ***Brahmasri Das***. Email: brahmarshi@gmail.com

ABSTRACT

Introduction : Depression, anxiety, and stress among medical students are increasing day by day globally as well as in India. Mental and physical health's are interrelated.

Aim was to study the mental health status and screening of few physical health parameters of 1st year medical students and 1st year nursing students of a medical college.

Material & Methods : This study was conducted in a Medical college of southern part of West Bengal. 200 medical and nursing students of first year were selected. Mental health was assessed by DASS21 scale. A semi structured socio-demographic proforma was used along with examination of vital health parameters (height, weight, BMI, BP, blood group) to assess physical health.

Results: The data were analyzed with the help of statistical tools of descriptive statistics, Chi square test was done. P value was calculated. Continuous variables were examined for range, mean and standard deviation (SD), while categorical variables were evaluated for frequency and percentages.

Conclusion: Prevalence of *anxiety* among students were more than stress and depression. However, stress is more among nursing students than medical students. Few students were underweight and overweight though none were obese.

Keywords: Anxiety, stress, Depression, medical students, BMI.

1. INTRODUCTION

Depressive disorders have been declared by the World Health Organization (WHO) as priority mental health disorder of adolescence because it is highly prevalent, has a relapsing remitting course and cause significant functional disability [1]. Young adults show changes in physical, emotional and cognitive function; sometime considerably. They have to face several challenges in building relationship, adjustment in new environment such as in new college where friends are from different community with different socioeconomic backgrounds. Many people fail to tackle these challenges and often they fail to understand it as a significant problem because depression and anxiety is considered as a normal reaction to 'growing up [2].

Young people are the common victim of stress and stressful condition, that leads to irregularity in diet, lack of exercise, even addiction. This is more pronounced in medical students. As medical education is stressful throughout the whole course of training. The amount of material to be absorbed, social isolation, pressure of examination, discrepancies between expectation and reality; all can be anticipated to bring psychological stress which may lead to faulty diet, lifestyle and obesity [3].

American Psychological Association describes stress and anxiety both as emotional responses. Anxiety, is persistent, excessive worries without known cause. On the other hand, Stress is often triggered by external factors like chronic illness, unable to finish work in time etc. Insomnia,

irritability, easy fatigue, lack of concentration, muscle tension, may develop in both conditions [4].

Nursing is one of the strong pillar of health care system. Dedication, commitment, sincerity, efficiency is intimately related to this profession. Like medical students nursing students are exposed to stress as they have to take the load of patients care in addition to care of their family along with pressure of academic evaluations and assignments. One study among nursing students of a tertiary health care center in Kolkata observed that about 33.33% of the students suffered from moderate to extreme depression; 56.59% had moderate to extreme levels of anxiety whereas 23.26% showed moderate to extreme levels of stress [5].

One systematic review and meta-analysis has shown that the global point prevalence rate of elevated self-reported depressive symptoms from 2001 to 2020 was 34. The prevalence of elevated depressive symptoms is highest in the Middle East, Africa, and Asia. Female adolescents were reported to have a higher prevalence of elevated depressive symptoms than their male counterparts [2]. One study conducted in Chennai, Tamil Nadu; compared stress, anxiety and pre -hypertension in students of Medicine, Engineering and Arts which revealed that pre-hypertension was highest among medical students. It also showed that prehypertension was 1.8 times more likely to appear in subjects with severe anxiety [6]. In 2009 Soma Gupta *et al.*, conducted a study on MBBS students in this medical college and observed regular exercise and taking care of stress precipitating factors could improve the overall health of the medical students [3].

In the above context, the present study is planned to assess the prevalence of anxiety, stress and depression among Nursing and MBBS students and to find out any association between anxiety, stress, depression with obesity and elevated BP.

Objectives

1. To screen the study population for some common lifestyle diseases like hypertension and obesity.
2. To assess depression, stress and anxiety level in them.
3. To compare the findings of medical students with nursing students.
4. To find out any association between mental status with socio-demographic factors and physical health.

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2. MATERIALS & METHODS

Study type: Descriptive, Observational.

Study design: Cross sectional

Study setting: Study was conducted at Midnapore Medical College and Hospital after taking approval of the Institutional Ethics committee.

Study Duration: from May to October, 2022.

Sampling technique: All first year MBBS and nursing students were approached in the study (census method). Among them 128 MBBS students and 72 Nursing student participated.

Inclusion criteria: All 1st year MBBS students and Nursing students, who gave informed consent.

Exclusion criteria: Student who have any pre-existing mental or medical ailments.

Study Tool:

1. A pretested semi structured socio demographic proforma was prepared.

2. DASS-21, is a self -report questionnaire consisting of 21 items, 7 items of similar content per subscale: depression anxiety and stress. The depression scale assesses dysphoria, hopelessness, devaluation of life, negative self-criticism, lack of interest/involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle symptoms, situational anxiety, and subjective experience of anxiety. The stress scale is subjected to any nonspecific arousal. It assesses emotional changes, fluctuating mood, difficulty in relaxing, impatient [7].

Students were asked to score every item on a scale from 0 (did not apply to me at all) to 3 (applied to me very much). The scores on each item per subscale were added and multiplied them by a factor 2. Sum scores for the total DASS scale thus range between 0 and 126, and those for

each of the subscales may range between 0 and 42 [7].

Mercury sphygmomanometer

4. Stethoscope

5. Weighing machine (bathroom type)

6. Stadiometer.

Methods

Students were briefed about the study, its aim and its importance. They were requested to give 10 - 15 minutes during tiffin break. Willing students filled up the proforma and DASS 21, after signing the informed consent form. The details of demographic data, diet, economic background, family history of hypertension (HTN), mental illness, were collected for each individual with the help of pre –tested questionnaire. Any first - degree family member diagnosed with and / or receiving drug therapy for HTN was enquired..

Physical health was assessed by measuring height in stadiometer, weight by weighing scale. BMI was calculated by using Quetelet's formula. (BMI = Wt in kg / Ht in m^2).

BP measurement done by sphygmomanometer after 5 mints rest in 3 occasions and average of the three readings was taken. Hypertension was defined as systolic blood pressure (SBP) ≥ 140 mm Hg or diastolic blood pressure (DBP) ≥ 90 mm Hg and prehypertension (PHTN) as SBP ≥ 120 – 139 mm Hg or DBP ≥ 80 – 89 mm Hg.

Data thus collected were entered into Microsoft excel. The data were analyzed with the help of statistical tools of descriptive statistics, Chi square test was done. Range, mean and standard deviation (SD) were calculated for Continuous variables, while categorical variables were evaluated for frequency and percentages.

3. Result & analysis

Total 200 students of UG MBBS and Nursing participated in this study. Out of them 128 (64%) were MBBS students and rest were nursing students. Out of 128 MBBS students 74 were male. All the nursing students were female. Average age of the students were 20.08 years (range 17 - 24 years with Standard Deviation 1.5 years)

Table 1 . Distribution of study participants according to their socio demographic characteristics.

	Male (N = 74) Mean ± SD	Female (N = 54) Mean ± SD	Nursing (N = 72) Mean ± SD
Age in years	20.10 ± 1.02	20.42 ± 1.48	19.12 ±1.12
Religion Hindu	60%	70 %	76 %
Non Hindus	40%	30%	24%
Residence Urban& city dewellers	86%	67%	53 %
Rural	14%	33%	47%
Food habit Non veg	95%	90 %	90 %
Veg	5%	10%	10%
Height in m	1.71 ± 0.07	1.59 ± 0.075	1.5 ± 17.49
Weight in kg	68.78 ± 8.34	57.11 ± 7.032	52 ± 10.21
BMI	23.89 ± 2.51	23.01 ± 2.44	22.3 ± 4.27

Table 2: Distribution of study subjects according to Nutritional status.

	Underweight BMI (kg / m^2) < 18.5	Normal BMI (kg /m^2) 18.5 – 24.9	Preobese / overweight BMI (kg / m^2) 25 – 29.9	Total
MBBS male	1 (1.35)	55 (74.33)	18 (24.32)	74
MBBS, female	2 (3.7)	38 (70.37)	14 (26.93)	54
Nursing	7 (9.72)	49 (68.06)	16 (22.22)	72
TOTAL	10 (5)	142 (71)	48 (24)	200

Nearly one fourth of the study population of all groups were pre obese, however, none of them was obese. 5% of all students were under weight. Thinness was more seen among nursing students and least among male Medical students.

Numbers in the parenthesis showed percentage. WHO BMI chart was followed [8].

Table 3: Distribution of study subjects according to their blood pressure (BP)

	Normal BP	Isolated elevated DBP	elevated BOTH BP	Family history +ve
Male MBBS N = 74	25 (33.78 %)	30 (41%)	13 (18%)	6
Female MBBS N=54	43 (80%)	11 (20%)	nil	5
Nursing N = 72	64 (92 %)	6 (8 %)	nil	2

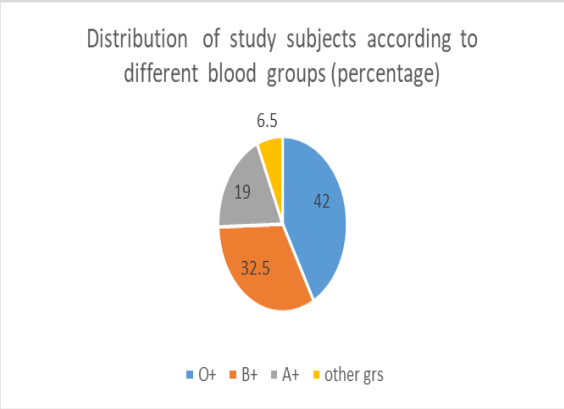

Figure 1: Distribution according to different blood groups

Table 4 : Distribution of study subjects according to mental health status *(Multiple responses)

Mental illness	MBBS (Male) N=74	MBBS (Female) N-54	Nursing N= 72	Total N=200
Anxiety present	46 (62.16 %)	38 (70.37 %)	44 (61.11 %)	128 (64%)
Stress present	28 (37.84 %)	18 (33.33 %)	40 (55.55 %)	86 (43%)
Depression present	23 (31.08 %)	23 (42.59 %)	37 (51.39 %)	83 (41.5%)

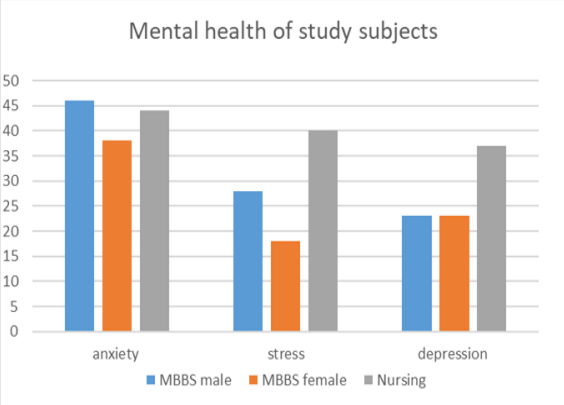

Fig 2: Comparison of mental health of students of different course

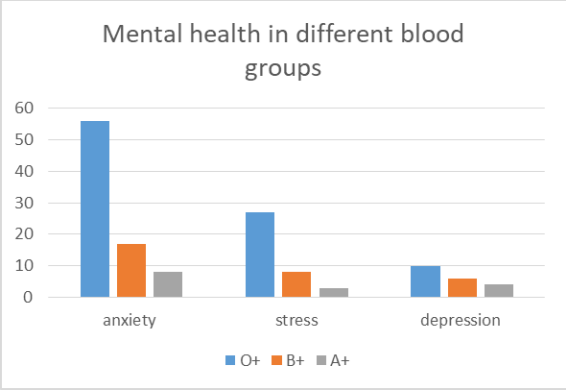

Fig 3: Distribution of mental health with blood group among students (in Percentage)

Table 5. Association of anxiety, Depression and stress level with different course of studies

courses	Anxiety +	The chi-square value is 0.14.The p-value is > 0.5at 95% Confidence Interval (CI), so there is no significant association. .	Depression +	The chi-square Test value is 3.6 The p-value is. >0.05; CI 95%, The result is statistically not significant .	stress +	The chi-square Test value is 4.12 The p-value is <0.05 . CI 95%, Degree of freedom = 1. **Statistically significant.**
Medical students , N= 128	84 (65.6%)		46 (35.9%)		46 (35.9%)	
Nursing students , N= 72	44 (61%)		37 (51.4%		40 (55.6%)	
total	128 (64 %)		83 (41.5 %)		86 (43%)	

Apparently anxiety was more among medical students than nursing students and depression found more among nursing students than medical undergraduates, but the finding was not statistically significant. Stress was significantly more among nursing students than medical students.

4. Discussion

Medical graduation course is considered among the most stressful professional course. Students have to withstand pressure from parents and others from the beginning for a bright carrier. This expectation along with various training, academic pressure make a medical student more prone to experience stress which may become excessive [9, 10]. Recently incidents of suicides by medical students in different parts, indicate neglect of mental health of this young population of our state. Studies from other parts of the world have also found a wide range of prevalence of depression among medical students, though a substantial proportion of medical students have been reported to be affected [11, 12].

Regarding the physical health status, we observed that 24% of the total students were overweight, 5% were underweight . None of them were obese (Table2). In a similar study to find out the prevalence of overweight and obesity among undergraduate medical students done in the same institution in the year 2007 by Gupta *et al.*, [3] showed an overall prevalence of overweight to be 17.5% and that of obesity was 3.4%. They also suggested that regular exercise and taking care of stress precipitating factors

could improve the health of the medical students. Chhabra *et al.,* [13]. reported a prevalence of 11.7% overweight and 2% obesity among medical students of Delhi.

Obesity is a risk factors for hypertension and other cardiovascular diseases. Early intervention like changes in lifestyle may prevent serious health hazards of the students in later life. We informed students about their probable health hazards associated with obesity.

It was observed that 41% male and 20% female MBBS students had isolated high DBP (Table 3). 18 % male had both high SBP and DBP. Moreover 20% of our female MBBS and 8% of nursing students had isolated DBP. Six students had history of hypertension in family. None were aware of their elevated BP. Similar findings were noted by Aldiab *et al.,* [14a] in Al Kharj (Central Saudi Arabia) in 2018 ; H Al-Kadi [14b] in 2022 among healthy Saudi Adults in large population based studies. They found rate of male prehypertension was higher than female and overweight and obesity was an associated factor . So it came out as gender is the strongest non modifiable predictor of prehypertension. Effort should be given upon prevention of other modifiable risk factors like smoking, obesity etc. specially in young male population.

Predominance of O+ blood group among students who experienced depression, anxiety and stress symptoms was found in our study (Fig. 3). A different finding was noted by Romian *et al.*, in an university of medical sciences in Iran in 2022 [15]. They also used same DASS21 scale like us and found that blood group has no significant relationship with stress anxiety and depression. Another study which assessed correlation between preoperative anxiety and ABO blood group among elective surgical patients, found that AB group has a higher anxiety level [16].

We had noted that 64% of our total study population had symptoms of anxiety, 41.5% had depression and 43% had stress (Table 4). One systematic review is showing that among Indian medical students depression is widely prevalent, ranging from 8.7% -71.3%. This review which included 16 studies in medical students in India suggests that depression affects about one fifth of undergraduate students while stress affects almost half of them. Though all 16 studies didn't address anxiety, we had observed that about one third of our medical students experience it [10].

Several studies reported that depression, anxiety and stress are common associates of nursing profession as this profession demands high commitment, sincerity, efficiency and energy. Recent study among BSc nursing students of a tertiary care hospital in Hyderabad revealed that 67.7%, 85.3% and 46.9% of students were having symptoms of depression, anxiety and stress respectively [17]. In our study, prevalence of anxiety among nursing students is 61%, stress 55.6%, and depression is 51.4% (Table 4) Basu *et al.,* noted that about one third (33.33%) of the nursing students suffered from moderate to severe depression whereas more than half (56.59%) had moderate to extreme levels of anxiety and one fifth (23.26%) of the study population experienced moderate to severe levels of stress in the nursing school of a tertiary care hospital in Kolkata, West Bengal [5].

One of our important finding was that nursing students were significantly more stressed than other two groups (Table 5). This is a stark contradiction to the finding by Behere *et al.,* in 2011 in Wardha. They did a cross -sectional questionnaire-based survey among students of engineering, medical and nursing students.[18] Few students of all three streams denied of experiencing any stress. Denial was maximum among nursing students. Few of first two groups had a stress level to such an extent that needed clinical attention. None of nursing students was in this group. They suggested that being female, nurses have to face less social pressure and expectation and have natural resistance to stress.[18] But a systematic review article showed that low to moderate level of stress is found in all the studies related with stress and coping strategies among nursing students of India, whereas high /severe stress was comparatively low. All of the [19] studies reported that the significant stressors were related to academic stress, time management and interpersonal relation, family condition and environmental factors [19].

Majority of our students were not aware about benefit of healthy foods, regular exercise. This is alarming for the society. Educators should follow regular screening for prehypertension of the young students and lifestyle modifications should be advised with balanced diet and regular exercise. They should be assured of confidentiality and unwanted intervention which may be the cause for avoiding seeking medical advice.

5. Conclusion

It had been found from this cross sectional descriptive observational study that anxiety was present among more than 60% of the Medical and nursing students. whereas stress was significantly more among Nursing students.nearly one fourth of the young students were pre obese but none was found to be obese whereas few was found underweight. Male students were detected to be suffering from hypertension more than females.

Limitations: the present study was done in a single center, so interpretation of the result cannot be interpolated generally. Moreover, only first year students were considered. So, the development of physical and mental illness cannot be assessed with increased years of study–course. As it was a cross sectional study, incidence cannot be detected.

Acknowledgements

Authors are grateful to all 1st year Medical & nursing students of Midnapore Medical college & Hospital for their kind cooperation.

Conflict of interest

We didn't have any conflict of interest.

Funding information

Authors declare no external funding from any sources.

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