

Original Research Article

A cross sectional study on stress among doctors, working in college of medicine and Sagore Dutta Hospital, Kamarhati, India

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ABSTRACT

Background: The word “stress” was defined by different scholars. The word was first defined by Hans Selye in 1936 as “a nonspecific response of the body to any demand of change”. The modern medical workplace is a complex environment, and doctors respond differently to it, some finding it stimulating and exciting, whereas others become stressed and burned. The medical workplace also provides an environment where new skills are continually being learned, both as a result of medical knowledge evolving and because a doctor's work changes. Objective of the present study was to find out the level of stress among the doctors working in CMSDH and to find out the possible sources of stress from their perspective.

Methods: The study was an institution-based cross-sectional study conducted from 26th October 2017 to 22nd November 2017 among the enlisted 257 working doctors of CMSDH present during the period of data collection. It was intended to include all the doctors working in this college for this study.

Results: A total of 257 doctors including faculty 132 (51.4%), interns 80 (31.1%) and house staffs 45 (17.5%) consented and participated in the study of whom 172 (67.0%) were male and 85 (33.0%) female. Interns are the most stressed ones mean 20.4, SD±5.2, followed by house staff mean 17.5, SD±5.1 and faculty mean 16.9, SD±5.3. Unmarried faculty members mean 19.2, SD±5.2 are slightly more stressed than married mean 17.0, SD±5.3. Preclinical faculty has more stress, mean 17.1 ±SD5.2, where the clinical intern has maximum level of stress, mean 20.4 ±SD5.2.

Conclusions: Doctors who are in massive stress need counseling and regular psychotherapy to reduce their stress level. A system of monitoring information and communication between administrative and working doctors should be evolved regularly.

Keywords: Cross sectional study, Stress

INTRODUCTION

Stress is a feeling of tension or pressure that people experience when demands placed on them exceed the resources they have to meet these demands. The term

“stress”, as it is currently used was coined by Hans Selye in 1936, who defined it as “the non-specific response of the body to any demand for change”.¹

Hospital workers, specially doctors must deal with life-threatening injuries and illnesses complicated by overwork, under-staffing, tight schedules, paper-work, intricate or malfunctioning equipment, complex hierarchies of authority and skills, dependent and demanding patients, and patient deaths, all of which are significant contributors to stress.²

Doctors are particularly exposed to higher stress because the patients’ lives are literally in their hands. The provision of critical care can lead to the health care provider's physical, psychological and emotional exhaustion, which may develop into a burnout. There was a high rate of burnout among professionals working in Intensive Care Units (ICU).³

Stretching his limits to the utmost, serving more number of patients a day than could be considered sane, the Indian doctor works under extreme stress.

Stress and suicide have been a matter of grave concern at the global level. Suicide mortality in doctors is reported to be significantly higher in relation to other professionals and general populations in many industrialized countries including the USA. American doctors kill themselves at a rate of 41% higher than other places.⁴

Study conducted in four medical colleges of Delhi in November 2007 by Saini et al. showed overall prevalence of stress was found to be 32.8% in resident doctors from all colleges.⁵

Stress management has become quite a big deal today. In fact, a minimum level of stress is required to lead a productive and creative life. But if it surpasses manageable level, the consequences can be counterproductive, even fatal. Stress identification and management has a special relevance for doctors who face multiple environmental challenges and demands, tremendous professional accountability. Combined with these is the challenge that they have to deal with managing the family and their own personal lives.⁶

Study conducted in Indira Gandhi Medical College and Hospital, a Government Medical Hospital located in Shimla (India) revealed that the Male doctors are more stressed than the female doctors in cases of - Inter-role Distance and Role Inadequacy.⁷

There were very few studies available to determine the prevalence of stress in doctors in Bengal. The lowest reported prevalence of depression (among depression, anxiety and stress) from several studies which was found to be approximately 10%, among the doctors (including pre and para clinical faculties of the medical college).

The present study is also an effort to contribute some relevant information to the existing literature regarding stress among doctors. Due to feasibility purpose, we have selected College of Medicine and Sagore Dutta Hospital, Kamarhati as our place of study as this is a newly formed college and the patient load is gradually increasing day by day. As a result, the doctors have to carry out more workload and responsibilities during these days in comparison to the previous years. So, it should be very much pertinent to explore their stress level because their professional output may be affected by their mental health condition.

Objective of the study was as follows:

- To find out the sociodemographic factors of the doctors, working in CMSDH
- To assess the level of stress among them
- To find out the possible sources of stress from their perspective
- To investigate the relationship between their stress and different socio-demographic and work related factors, if any
- To assess the impact of stress on the daily life of the doctors

METHODS

The study is of observational and descriptive type. It is an institution-based cross-sectional study. Study duration was from 26th of October 2017 to 22nd of November 2017. The project was carried out in College of Medicine and Sagore Dutta Hospital, Kamarhati, Kolkata. Study population includes All the doctors of CMSDH who have a permanent or provisional registration number of West Bengal Medical Council.

Inclusion criteria

Those who agreed to participate in the study.

Exclusion criteria

- Doctors directly involved in the administration of the college as preservation of anonymity becomes difficult
- Medical Officers as they are very few in number
- Those chronically absent during data collection
- Those unwilling to take part

Sampling

The study was conducted among the enlisted working doctors of CMSDH present during the period of data collection. It was intended to include all the doctors working in this college for this study. So, complete enumeration was done for selecting the study subjects. Authors have searched for the number of enlisted doctors in this college from the register. It was found that, the total number of working doctors is 339. Excluding the

medical officers and those doctors who are attached with administration the number of study subjects became 339-15= 324. We have pretested our questionnaire among 10 Faculties, 5 House-staffs, 5 Interns. Excluding them, the number of study subjects became 304. Among these 304 doctors, a total of 47 doctors were further excluded due to their chronic absence and unwillingness to participate in the study. Finally, the sample size of our study came to be 257.

Tools and techniques

A 15-item, pre-designed, pretested, semi-structured, self-administered, anonymous questionnaire was used to collect the socio-demographic characteristics along with some work related factors of the doctors in order to identify the common stress stimuli. The Perceived Stress Scale (PSS) was used to assess stress. It included 10 questions and the subjects provided the answers on a five-point Likert scale (0 to 4). So, it generated a score between 0 and 40. The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one’s life are appraised as stressful. The items are easy to understand, and the response alternatives are simple to grasp. Moreover, the questions are of a general nature and hence are relatively free of content specific to any subpopulation group. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way.^{8,9}

Study variables

- Sociodemographic variables: Age, gender, educational qualification, marital status, number of children, habit.
- Work-related variables: Designation, department, duration of working experience, duration of work per day, number of night shifts per week, distance of working place from home(km), average number of patients treating per day.
- Variables related to Perceived Stress Scale

Pre-designed, semi structured questionnaire was given to a section of study population for pretesting. According to

their response, the questionnaire was reframed and finalized. The pretested, pre-designed, semi-structured, self-administered questionnaires were distributed among the study subjects. After explaining the objective of the project to the participants and taking their verbal consents, they were requested to fill up the questionnaire without keeping any points vacant. Their privacy was ensured. The collected data were entered using Microsoft Excel spreadsheets. The filled-up questionnaires were collected back in a bag carried by the researchers to preserve the confidentiality of the respondents. Findings were observed from the analysed data.

Analysis and interpretation

Each of the questionnaires, filled up by the participants, was checked. It revealed that all the participants have attended the full set of questionnaire. The collected data were entered into the MS excel spreadsheet. The data were analyzed with the help of computers using the software, named MS Excel. Percentage, mean and standard deviation were calculated in each case and the findings were represented in tabular and diagrammatic form whichever was applied.

RESULTS

Majority 132 (51.4%) of participants are faculty members followed by Intern 80 (31.1%) and house staff 45 (17.5%) (Table 1).

Table 1: Distribution of doctors according to their designation (n=257).

Designation	No.	Percentage (%)
Faculty	132	51.4%
House staff	45	17.5%
Intern	80	31.1%
Total	257	100%

Among all the participants, interns are the most stressed ones mean 20.4, SD±5.2, followed by house staff mean 17.5, SD±5.1 and faculty mean 16.9, SD±5.3. Unmarried faculty members mean 19.2, SD±5.2 are slightly more stressed than married mean 17.0, SD±5.3 (Table 2).

Table 2: Distribution of the study subjects according to their marital status and level of stress (n=257).

Marital status	Faculty		HS		Intern		Total	
	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD
Married	120(90.9%)	17.0±5.3	0	0	0	0	120(46.7%)	17.0±5.3
Unmarried	11(8.4%)	17.6±5.2	45(100%)	17.5±5.1	80(100%)	20.4±5.2	136(52.9%)	19.2±5.2
Divorced	1 (0.7%)	4.0±0	0	0	0	0	1(0.4%)	4.0±0
Separated	0	0	0	0	0	0	0	0
Widow	0	0	0	0	0	0	0	0
Total	132(100%)	16.9±5.3	45(100%)	17.5±5.1	80(100%)	20.4±5.2	257(100%)	18.1±5.2

Table 3: Distribution of the study subjects according to their age and level of stress (n=257).

Age (year)	Faculty		HS		Intern		Total	
	No (%)	Mean±SD	No (%)	Mean±SD	No (%)	Mean±SD	No (%)	Mean±SD
21-25	0	0	28(62.0%)	17.5±5.1	72(90.0%)	20.3±4.5	100(39.0%)	18.4±4.7
26-30	9(6.8%)	17.1±5.5	17(38.0%)	17.4±5.1	8(10.0%)	19.8±4.1	34(13.2%)	17.8±5.2
31-35	32(24.0%)	17.0±5.2	0	0	0	0	32(12.3%)	17.0±5.2
36-40	35(26.5%)	17.2±5.4	0	0	0	0	35(13.5%)	17.2±5.4
41-45	23(17.5%)	16.9±5.3	0	0	0	0	23(9.0%)	16.9±5.3
46-50	11(8.4%)	18.2±4.3	0	0	0	0	11(4.8%)	18.2±4.3
51-55	9(6.8%)	17.0±5.5	0	0	0	0	9(3.4%)	17.0±5.5
56-60	6(4.6%)	17.0±5.2	0	0	0	0	6(2.2%)	17.0±5.5
61-65	7(5.4%)	15.2±5.3	0	0	0	0	7(2.6%)	15.2±5.3
Total	132(100%)	16.9±5.3	45(100%)	17.5±5.1	80(100%)	20.4±5.2	257(100%)	18.1±5.2

Table 4: Distribution of the study subjects according to their gender and level of stress (n=257).

Gender	Faculty		HS		Intern		Total	
	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD
Male	96(72.7%)	16.7±5.3	31(68.9%)	17.3±5.1	45(56.3%)	19.9±5.2	172(67.0%)	17.6±5.2
Female	36(27.3%)	17.5±5.3	14(31.1%)	18.0±5.1	35(43.7%)	20.9±5.2	85(33.0%)	19.0±5.2
Total	132(100%)	16.9±5.3	45(100%)	17.5±5.1	80(100%)	20.4±5.2	257(100%)	18.1±5.2

Table 5: Distribution of the study subjects according to their department and level of stress (n=257).

Department	Faculty		HS		Intern		Total	
	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD
Clinical	78(59.1%)	16.9±5.3	45(100%)	17.5±5.1	80(100%)	20.4±5.2	203(79.0%)	18.1±5.2
Para-clinical	34(25.8%)	17.0±5.4	0	0	0	0	34(13.2%)	17.0±5.4
Pre-clinical	20(15.1%)	17.1±5.2	0	0	0	0	20(7.8%)	17.1±5.2
Total	132(100%)	16.9±5.3	45(100%)	17.5±5.1	80(100%)	20.4±5.2	257(100%)	18.1±5.2

Interns aged between 21-25 years are in most stressed ones mean 20.3, SD±4.5. Faculty members aged between 46-50 years 18.2, SD±4.3 are more stressed than other faculty members 20.3, SD±4.5 (Table 3).

The table depicts that female faculty mean 17.5±SD5.3, HS mean 18.0±SD5.1 and interns mean 20.9±SD5.2, have more stress than male one i.e. male faculty mean 16.7±SD5.3, house staff mean 17.3±SD5.1, and intern mean 19.9. ±SD5.2 (Table 4).

Preclinical faculty has more stress, mean 17.1±SD5.2, where the clinical intern has maximum level of stress, mean 20.4±SD5.2. Clinical house staffs have, mean 17.1±SD5, 1. Para clinical faculties have mean 17.0±SD5.2 and clinical doctors have, mean 16.9 ±SD5.3 (Table 5).

Associate professors have more stress, mean 19.1±SD 5.3, followed by tutor, mean 18.1±SD 5.3, associate professor mean 16.8±SD 5.3 and professor mean 11.6±SD 5.3 (Table 6).

The faculties whose duration of work per day within the range 5-8 and 9-12 hours are in more stress i.e. mean

17.0±SD5.3 each. Where the house staffs within the range of 21-24 hours, mean 23.7±SD 5.2 and interns whose duration of work per day within the range of 5-8 hours (mean 20.0±SD 4.3) and 9-12 hours (mean 20.4±SD 4.6) are in more stress (Table 7).

Table 6: Distribution of the study subjects according to their designation (faculty) and level of stress (n=132).

Designation	Faculty	
	No (%)	Mean±SD
Professor	14 (10.6%)	11.6±5.3
Assoc. Prof.	10 (7.6%)	19.1±5.3
Asst. Prof.	58 (44.0%)	16.8±5.3
Tutor	50 (37.8%)	18.1±5.3
Total	132 (100%)	16.9±5.3

DISCUSSION

Doctors play a vital role in a society. Along with their professional life, they also have a personal life and have to manage the both. The medical workplace is a complex

environment with various complex situations and the doctors have to respond accordingly.

Due to the frequent evolutions in medical knowledge and career development doctors are in continuous effort to learn new skills. Thus, they are always under a stressful environment.

A cross-sectional study was conducted upon 257 doctors including faculty, house staffs and interns with the help of a pre-designed, pre-tested, semi-structured, self-administered and anonymous questionnaire including a PSS to find out the level of stress among the doctors working in CMSDH, Kamarhati.

Table 7: Distribution of the study subjects according to their duration of work per day and level of stress (n=257).

Duration of work per day (hrs)	Faculty		HS		Intern		Total	
	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD	No. (%)	Mean±SD
1-4	2(1.5%)	16.2±4.2	10(22.3%)	17.3±5.1	0	0	12(4.7%)	16.4±5.4
5-8	104(78.8%)	17.0±5.3	22(48.8%)	17.6±5.0	10(12.5%)	20.0±4.3	136(53.0%)	18.0±5.1
9-12	24(18.2%)	17.0±5.3	8(17.8%)	17.5±5.1	27(33.7%)	20.4±4.6	59(23.0%)	18.0±5
13-16	2(1.5%)	10.0±5.2	2(4.5%)	18.4±5.2	29(36.3%)	18.1±4.5	33(12.8%)	17.9±5.4
17-20	0	0	0	0	12(15.0%)	19.9±4.1	12(4.7%)	19.8±4.2
21-24	0	0	3(6.6%)	23.7±5.2	2(2.5%)	19.7±3.5	5(1.8%)	19.7±4.1
Total	132(100%)	16.9±5.3	45(100%)	17.5±5.1	80(100%)	20.4±5.2	257(100%)	18.1±5.2

On analyzing the data acquired during the study authors get to know that:

The interns scored maximum [20.4±5.2] in Perceived stress scale. And, when compared to other doctors, the percentage of interns, under high perceived stress was found maximum [12.5%] too. Even, among the doctors working in clinical department, interns were found more stressed.

The interns staying within a distance of 1 kilometer from hospital were found more stressed [22.4±5.2] than others.

Further, the symptoms indicating higher stress level were found to be more positive among interns than faculty and house staffs.

Stress was higher among doctors working in preclinical department [17.0±5.2]. Other studies have shown high burnout in doctors working in clinical departments.¹⁰⁻¹² High patient load, stress to complete work in time, patients requiring continuous and vigilant care in these specialties may be the reason.^{11,13} Literature review shows greater burnout among females.¹⁴

Almost 3/4th of faculty members were found under moderate stress. And according to the considered socio-demographic factors, the unmarried faculty members and the members with no child or two children were more stressed than the other faculty members. Faculty with working experience of 26-30 yrs were under maximum stress [17.7±5.1], while those under 31-35 yrs working experience were having least stress.

The level of stress among the faculty under pre-clinical department was higher [17.0±5.2] than the other departments. Further, the level of stress among the associate professors [19.1±5.3] was higher than the other designations under faculty. Academic qualification seemed to be one of the major factors responsible for the stress among faculty.

Habit of alcohol consumption was found to be more prominent in the faculty members with higher stress. Maximum numbers of doctors were under moderate stress (78.2%). Level of stress among the doctors with 2 night shifts per week was found higher [21.1±5.3] than the others. And the level of stress among the doctors treating 101-150 patients per day was found higher [19.6±5.5] too. A study conducted in Addis Ababa revealed that gender, work shift, work unit etc were significantly associated with workplace stress.¹⁵

Smoking habit was found more prevalent among the doctors than the alcohol consumption. Nearly 55% of doctors were found content with their daily living while 45% were not. And the major factors responsible for their unhappiness were the nature of work and working environment followed by family issues and health related problem. While among faculty, academic qualification was another major factor for stress. Various impacts of stress were analysed among doctors, of which dyspepsia and fatigue were found to be the most common.

Similarly, a study done in Jordan revealed that workplace stress was highest among general practitioners, and lowest among physician specialists.¹⁶ A study done in New Zealand showed that excessive hours and on-call

work were the major factors associated with workplace stress.¹⁷ A study conducted in Worabe, South West Ethiopia, pointed out that sex, age, religion, ethnicity, marital status, child rearing, professional qualification, monthly salary, work experiences and department of work were the contributing factor of workplace stress.¹⁸ Similarly, a study done in Iran concluded that the risk factors of workplace stress were gender, hospital ward and working shift.¹⁹

CONCLUSION

Workload and work schedule should be redistributed among doctors by the hospital administration. Hospital environment should be adapted to need of the doctors. Doctors who are in massive stress need counselling and regular psychotherapy to reduce their stress level. Health of the doctors is a major concern, and therefore the promotion of healthy dietary and lifestyle habit should be encouraged. Doctors who are in massive stress need counseling and regular psychotherapy to reduce their stress level. Doctors should stop smoking and drinking alcohol or at least their consumption to bare minimum. A system of monitoring information and communication between administrative and working doctors should be evolved regularly.

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