**ORIGINAL ARTICLE**

**Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study**

Sandeep Grover, Swapnajeet Sahoo, Ashish Bhalla, Ajit Avasthi
Department of Psychiatry, Postgraduate Institute of Medical Education and Research, Chandigarh, India

**ABSTRACT**

**Background:** There is a growing evidence of increased prevalence of psychological problems (stress, depression, anxiety, and substance abuse) and feelings of burnout among medical professionals all over the world and this has been shown to be associated with lapses in patient care. Data from India in this regard are limited.

**Aims:** To assess the various psychological problems (depression, perceived stress, and burnout) among medical professionals working in a government-funded tertiary care institute of India.

**Materials and Methods:** An online e-mail survey was carried out among resident doctors and faculty members (a total of 1721 doctors). A total of 445 doctors (response rate-27.69%) responded to the survey. The survey included Patient Health Questionnaire-9 (PHQ-9), Cohen’s Perceived Stress Scale, and Maslach Burnout Inventory.

**Results:** Of the eligible 1607 participants, 445 responders, 376 (77.75%) were resident doctors and 69 (15.5%) were faculty. As per the PHQ-9, 30.1% of participants were found to have depression and 16.7% of participants reported suicidal ideations. About two-thirds of the sample experienced moderate level of stress (67.2%) and another 13% of participants reported high level of stress. More than 90% of the participants reported some level of burnout. Compared to faculty, higher proportion of the residents reported stress, depression, and burnout. Presence of depression, stress, or burnout was associated with lower indulgence in recreational activities, experiencing verbal or physical abuse in the hand of patients/caregivers, feelings that seniors do not show empathy toward patients, and seniors do not show empathy toward them.

**Conclusions:** The present study suggests that a significantly higher proportion of doctors in Indian setting experience stress, depression, and burnout. The presence of stress, depression, and burnout is associated with long working hours and negative patient-related outcomes, adverse doctor–patient interactions, and interpersonal interactions among the colleagues.

**Key words:** Burnout, depression, doctors, stress

**INTRODUCTION**

The practice of medicine is unique and challenging than any other profession in the world. It is associated not only with a great degree of both personal and professional satisfaction, but also with a high level of occupational stress and burnout. Data from studies across the world suggest that health-care professionals, especially resident doctors/trainees and faculty members, are prone to developing mental health problems such as depression, anxiety,
and substance abuse. Further, it has been shown that occupational stress is often associated with emotional exhaustion, which can lead to the loss of enthusiasm for work, feeling helpless, trapped, and defeated. Frequently reported occupational stressors among medical professionals are those intrinsic to the job, those related to patient demands, feeling overburdened, related to roles within the organization, and those related to relationships at work and career development. Emotional exhaustion among professionals is usually understood as burnout.

Burnout is defined as “a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with people in some capacity,” and it is considered as an outcome of long-term exposure to occupational stress. Multiple studies have shown that one-third of physicians experience burnout at several points throughout their careers. It is suggested that burnout begins to cultivate its seeds during the medical school days, continues throughout the residency period, and finally matures in the daily life of practicing physicians. Studies suggest that the prevalence of burnout among residents varies from 50% to 76%, depending on the specialty. It has been found that burnout is more often seen in trauma surgeons, urologists, otolaryngologists, emergency physicians/surgeons, vascular and general surgeons, and young professionals having children. Other factors which have been shown to be associated with burnout include working for more than 60 h/week and having more on-call duties per week (>2 nights/week), when compared to those on only regular duty.

Existing literature on the psychological problems faced by medical practitioners is limited to few nationwide surveys and some specific hospital surveys. A large national survey of 2584 physicians from Canada showed that both male and female physicians experienced high levels of occupational stress, which was associated with lower levels of satisfaction with their medical practice. A postal survey involving 524 medical professionals from the United Kingdom which included hospital consultants, general practitioners, and senior hospital managers reported that about 27% of the sampled physicians scored in the clinical range of depression. Similarly, a survey of 50,000 practicing physicians and medical students from Australia demonstrated an increased incidence of severe psychological distress along with a 2-fold increased incidence of suicidal ideations in physicians compared with the general population. Data suggest that psychological morbidities and burnout among medical professionals are often associated with more medical errors and poor patient outcomes.

Very few studies from India have evaluated psychological issues, stress, and burnout among medical professionals. These studies have been mostly limited to medical students and interns, with few studies focusing on resident doctors. Studies have reported that about one-third of the resident doctors experience stress. Among medical students have reported the existence of stress among three-fourth of the participants and those involving interns have reported the prevalence of stress to be as high as 91.1%. Studies which have reported psychiatric morbidity suggest that more than half of the undergraduate medical students have depression (51.3%), anxiety (66.9%), and stress (53%). These wide variations across different studies are due to differences in the instruments used to assess the various psychological constructs. Studies have also evaluated the barriers in seeking psychiatric help and these suggest that stigma, confidentiality issues, lack of awareness, and fear of unwanted intervention to be the major barriers for seeking help related to mental health issues. Surprisingly, none of the studies from India has evaluated the stress and psychological issues in senior health-care professionals.

Medical professionals are also prone to abuse various substances and develop substance-use disorders. Studies have shown a high prevalence of nicotine dependence and use of other substances such as alcohol, cannabis, and benzodiazepines.

Given limited data from India and growing mental health problems in the medical fraternity, there is a need to assess mental health issues among medical professionals (faculty and resident doctors). Improving the understanding of mental health issues among medical professionals can help in amending the policies with regard to the duty hours and training of residents. In this background, the present study aimed to assess the various psychological problems (depression, perceived stress, substance abuse, and burnout) among medical professionals working in a government-funded tertiary care institute.

MATERIALS AND METHODS

This survey was carried out in a tertiary health-care institute (Postgraduate Institute of Medical Education and Research, Chandigarh) of North India. The institute has been established since 1962 and caters to the health-care needs of patients from all over India, with major patient population from North and Northwest Indian states. The institute has all the departments of various medical and surgical specialties as well as various superspecialty departments. The institute has postgraduate training in almost all the specialties and also has superspecialty courses. Trainees can also continue as senior resident for 3 years after completion of the postgraduation courses. Accordingly, the medical professionals in this institute include faculty members, senior residents, and junior residents/postgraduate students/trainees. Residents form the first-line care provider for most of the patients. Faculty members, besides acting as the first-line care provider to...
small proportion of patients, provide supervision to all the junior and senior residents in providing care to the patients. During the training (postgraduation, superspecialization, and senior residency), besides providing care to the patients, the trainees have to participate in the academic activities including presenting the activities themselves, carrying out research including their thesis/dissertation-related work, teaching trainees, and taking up administrative responsibilities. Similarly, faculty members also have to carry out research, should involve in teaching, and must take up administrative responsibilities. The faculty members have to go through the process of an interview for their promotions to the next level. The assessment at the time of promotion takes into account their performance in all the activities related to their work profile.

This online survey was carried out among resident doctors and faculty members in the month of April–May 2017 using SurveyMonkey® electronic platform. The survey comprised of questions pertaining to demographic and personal characteristics, substance use, depression, perceived stress, and burnout. The study was approved by the Ethics Committee of the institute, and the participation in the survey was voluntary. The invitation link to the survey was sent to 1721 doctors (faculty and residents) working at the institute. The survey was sent to all residents and faculty members except for the faculty of Department of Psychiatry. The invitation letter stated that the participation was voluntary and completion of survey reflected their consent to participate. Additionally, the e-mail explained the purpose of survey along with an option to “opt out.” The survey was sent twice during the weekends for 6 consecutive weekends. In case someone did not respond at the first instance, weekly reminders were sent for the next 5 weeks. Confidentiality of the information was maintained and no personal information of participants was disclosed to anyone. The specific instruments which were included in the survey to assess various psychological problems were Patient Health Questionnaire–9 (PHQ-9),[29] Perceived Stress Scale (PSS),[30] and Maslach burnout inventory (MBI).[6] Additionally, self-designed questions were used to assess variables such as substance abuse, frequency of involvement in any recreational activities, medical errors, and patient-related violence.

PHQ-9 is a brief 9-item self-report questionnaire which has been used in clinical practice for screening, diagnosing, monitoring, and measuring the severity of depression. It incorporates Diagnostic and Statistical Manual of Mental Disorders-IV diagnostic criteria for depression which can be completed by the participant in few minutes. PHQ scores ≥ 10 have a sensitivity of 88% and a specificity of 88% for major depression. PHQ-9 scores of 5, 10, 15, and 20 have also been used to represent mild, moderate, moderately severe, and severe depression, respectively.[29] PSS is the most widely used instrument for measuring the perception of stress and is designed to measure the degree to which situations in one’s life are appraised as stressful. It takes into account how unpredictable, uncontrollable, and overloaded respondents find their lives and also includes a number of direct queries about the current levels of experienced stress. PSS items have been found to have good correlations with other stress measures, self-reported health and health service measures, health behavior measures, smoking status, and help-seeking behavior.[30] It has been found to have adequate reliability and validity across several studies involving various streams of professionals and nonprofessionals.[31-33]

MBI is a well-validated 22-item questionnaire for measuring burnout. It evaluates emotional exhaustion, depersonalization, and low personal accomplishment due to burnout. Based on the scores obtained, one can be regarded as having no signs of burnout (15–18), little sign of burnout (19–32), at risk of burnout (33–49), severe risk of burnout (50–59), and very severe risk of burnout (60–75).[6] Psychometric properties of MBI have been well established across several studies involving different categories of professions.[34,35]

The data obtained were analyzed using SPSS-14.0 (SPSS for Windows, Version Chicago, SPSS Inc.). Frequency and percentages were calculated for the categorical variables and mean and standard deviations (SDs) were calculated for continuous variables. Comparisons were done using Chi-square test, t-test, Mann–Whitney U-test, Fisher’s exact test, etc. Associations between different variables were studied using Pearson’s correlation coefficient or Spearman’s rank correlation.

RESULTS

The survey was sent to 1721 medical professionals (faculty and residents). Of these, 46 e-mails bounced back and 68 opted out of the survey. Of the remaining 1607 medical professionals, 445 (27.69%) responded to the survey. Of these 445 responders, 376 (77.75%) were resident doctors and 69 (15.5%) were faculty. The majority of the responders were males (n = 308; 69.2%) and the mean age of the sample was 31.63 (SD = 7.45) years. The mean age of the residents was 28.93 years (SD = 3.00; range: 24–39 years) and that of faculty was 31.63 (SD = 7.45) years. The mean age of the sample was 28.93 years (SD = 3.00; range: 24–39 years) and that of faculty was 46.36 years (SD = 7.27; range: 33–64 years). Majority of the responders were from medical stream (65.2%), followed by surgical stream (26.7%), and paramedical stream (8.1%).

In terms of states of origin, most commonly participants belonged to various states from North India (43.8%) and this was followed by those from the South Indian (34.4%) states. A few responders belonged to foreign countries (2.5%). There was a slight preponderance of married medical professionals (52.6%) in the sample. Those married were mostly staying with their
spouses (70.9%) and those unmarried usually did not have a steady partner (61.6%).

When the male and female participants were compared, there were significantly more male participants from the medical specialties ($\chi^2 = 14.8; P = 0.001$). Similarly, when the differences between residents and faculty members were evaluated, resident group had significantly higher proportion of participants from the medical specialties ($\chi^2 = 12.84; P = 0.002$), those from states other than North India ($\chi^2 = 41.72; P < 0.001$), unmarried participants ($\chi^2 = 103.67; P < 0.001$), and married participants staying away from their spouses ($\chi^2 = 18.40; P < 0.001$).

The mean number of working hours during the last week for the respondents was 76.76 hours, with significantly higher working hours for the residents when compared to the faculty (80.6 vs. 53 h; $\chi^2 = 33.1; P < 0.001$). Similarly, working hours for male participants were more than those reported by female participants (80.4 vs. 68.3 h; $\chi^2 = -3.96; P < 0.001$).

**Depression, stress, and burnout**

The scores on different scales have been shown in Table 1. When the cutoff of 10 was used for PHQ-9, 30.1% of participants were found to have depression. As per the PHQ-9 suicidal item, 74 (16.7%) participants had “thoughts that you would be better off dead or of hurting yourself in some way.” The mean perceived stress score as measured by PSS was 18.78 (SD – 6.45), with about two-thirds of the sample experiencing moderate level of stress (67.2%) and another 13% of participants reporting high level of stress. The mean score on the burnout scale was 42.42 (SD – 15.15). More than 90% of the participants reported some level of burnout, with 16.9% reporting little signs of burnout, 44.3% being at risk of developing burnout, 13.5% having severe risk of burnout, and lastly 16.6% having very severe risk of burnout.

When comparisons were done for males and females, the latter had significantly higher mean scores on the PSS scale ($t$-test value: 2.96; $P = 0.003$) and higher proportion of them reported high stress ($\chi^2 = 8.859; P = 0.012$). Compared to faculty, higher proportion of the residents reported stress, depression, and burnout [Table 1].

When those from medical, surgical, and paramedical specialties were compared, no significant difference was noted between the different groups in terms of mean PHQ-9 score, PSS total score, and burnout total score.

**Recreational activities and substance use**

In terms of recreational activities, only a small proportion of the participants indulged in various recreational activities such as going to gymnasium, reading books, and watching movies/pornography on a daily basis. The most common recreational activities on a daily basis included surfing internet, listening to music, chatting with friends, listening to music, and chatting on social media [Table 2]. Compared to females, males more often indulged in watching pornography ($\chi^2 = 87.485; P < 0.001$). When comparisons were made for residents and faculty members, higher proportion of faculty members went to the

| Scales                     | Total sample (n=445) | Residents (n=376) | Faculty (n=69) | $\chi^2/t$-test (P) |
|----------------------------|---------------------|-------------------|----------------|-------------------|
| **PHQ-9**                  |                     |                   |                |                   |
| Mean score (PHQ 1-9)       | 7.30 (6.01); 0-27   | 7.97 (6.08); 0-27 | 3.60 (3.96); 0-15 | 5.746 (<0.001)*** |
| Severity of depression     |                     |                   |                |                   |
| No symptoms of depression  | 178 (40%)           | 132 (35.1%)       | 46 (66.7%)     | 39.97 (<0.001)*** |
| Minimal symptoms (5-9)     | 133 (29.9%)         | 114 (30.3%)       | 19 (27.5%)     |                   |
| Minor depression (10-14)   | 75 (16.9%)          | 74 (19.7%)        | 1 (1.4%)       |                   |
| Major depression, moderate (15-19) | 37 (8.3%)     | 34 (9%)           | 3 (4.3%)       |                   |
| Major depression, severe (≥20) | 22 (4.9%)    | 22 (5.9%)         | 0              |                   |
| **Cohen PSS**              |                     |                   |                |                   |
| Mean score                 | 18.78 (6.45); 0-39 | 19.31 (6.39); 0-39| 15.89 (6.06); 2-28 | 4.110 (<0.001)*** |
| Severity of perceived stress |                     |                   |                |                   |
| Low stress (0-13)          | 88 (19.8%)          | 69 (18.4%)        | 19 (27.5%)     | 15.273 (<0.001)*** |
| Moderate stress (14-26)    | 299 (67.2%)         | 250 (66.5%)       | 49 (71%)       |                   |
| High stress (27-40)        | 58 (13%)            | 57 (15.2%)        | 1 (1.4%)       |                   |
| **Burnout scale**          |                     |                   |                |                   |
| Mean score                 | 42.42 (15.15); 15-75| 43.45 (15.22); 15-75| 36.79 (13.58); 15-68 | 3.392 (0.001)*** |
| Severity of burnout        |                     |                   |                |                   |
| No signs of burnout (15-18) | 39 (8.8%)           | 32 (8.5%)         | 7 (10.1%)      | 13.230 (0.010)**  |
| Little sign of burnout (19-32) | 75 (16.9%)    | 56 (14.9%)        | 19 (27.5%)     |                   |
| At risk of burnout (33-49)  | 197 (44.3%)         | 164 (43.6%)       | 33 (47.8%)     |                   |
| Severe risk of burnout (50-59) | 60 (13.5%)       | 56 (14.9%)        | 4 (5.8%)       |                   |
| Very severe risk of burnout (60-75) | 74 (16.6%) | 68 (18.1%)        | 6 (8.7%)       |                   |

PSS – Perceived Stress Scale; PHQ – Patient Health Questionnaire; SD – Standard deviation ***P<0.001; **P<0.01
Table 2: Questions related to duties and recreational activities

| Variables                          | Mean (SD); range/ Frequency (%) |
|------------------------------------|----------------------------------|
| **Work related**                   |                                  |
| During your residency/service in PGI, did you suffer/were diagnosed? |                                  |
| Needlestick injury                 | 109 (24.5%)                      |
| Tuberculosis                       | 15 (3.4%)                        |
| Did not reply                      | 321 (72.1%)                      |
| Keeping your overall duties in the institute in mind, the average number of duty hours in the last one week? (n=310) | 76.76 (24.95); 30-175 |
| **Recreational activities**        |                                  |
| Working out at gymnasium           |                                  |
| Daily                              | 28 (6.3%)                        |
| Not at all                         | 359 (80.7%)                      |
| Once a week                        | 33 (7.4%)                        |
| Twice a week                       | 25 (5.6%)                        |
| Reading books                      |                                  |
| Daily                              | 26 (5.8%)                        |
| Not at all                         | 321 (72.1%)                      |
| Once a week                        | 73 (16.4%)                       |
| Twice a week                       | 25 (5.6%)                        |
| Watching movies                    |                                  |
| Daily                              | 6 (1.3%)                         |
| Not at all                         | 181 (40.7%)                      |
| Once a week                        | 229 (51.5%)                      |
| Twice a week                       | 29 (6.5%)                        |
| Watching pornography               |                                  |
| Daily                              | 22 (4.9%)                        |
| Not at all                         | 253 (56.9%)                      |
| Once a week                        | 121 (27.2%)                      |
| Twice a week                       | 49 (11%)                         |
| Chatting with friends              |                                  |
| Daily                              | 160 (36%)                        |
| Not at all                         | 80 (18%)                        |
| Once a week                        | 144 (32.4%)                      |
| Twice a week                       | 61 (13.7%)                       |
| Listening to music                 |                                  |
| Daily                              | 174 (39.1%)                      |
| Not at all                         | 83 (18.7%)                      |
| Once a week                        | 107 (24%)                        |
| Twice a week                       | 81 (18.2%)                       |
| Surfing net                        |                                  |
| Daily                              | 345 (77.5%)                      |
| Not at all                         | 20 (4.5%)                        |
| Once a week                        | 45 (10.1%)                      |
| Twice a week                       | 35 (7.9%)                        |
| Chatting in social media           |                                  |
| Daily                              | 153 (34.4%)                      |
| Not at all                         | 140 (31.5%)                      |
| Once a week                        | 91 (20.4%)                      |
| Twice a week                       | 61 (13.7%)                       |
| Substance use                      |                                  |
| Alcohol                            |                                  |
| Never                              | 223 (50.1%)                      |
| Very occasionally                  | 141 (31.7%)                      |
| Daily                              | 1 (0.2%)                        |
| During weekends                    | 73 (16.4%)                      |
| Thrice a week                      | 7 (1.6%)                        |
| Tobacco                            |                                  |
| Never                              | 374 (84%)                        |
| Very occasionally                  | 36 (8.1%)                        |

Table 2: Contd...

| Variables          | Mean (SD); range/ Frequency (%) |
|--------------------|----------------------------------|
| Daily              | 26 (5.8%)                        |
| During weekends    | 3 (0.7%)                        |
| Thrice a week      | 6 (1.3%)                        |
| Cannabis           |                                  |
| Never              | 417 (93.7%)                      |
| Very occasionally  | 28 (6.3%)                        |
| Opioids            |                                  |
| Never              | 444 (99.8%)                      |
| Very occasionally  | 1 (0.2%)                        |
| Benzodiazepines    |                                  |
| Never              | 433 (97.3%)                      |
| Very occasionally  | 10 (2.2%)                        |
| Thrice a week      | 2 (0.4%)                        |
| Stimulants         |                                  |
| Never              | 444 (99.8%)                      |
| Very occasionally  | 1 (0.2%)                        |

SD – Standard deviation

In terms of substance use, daily use of various substances was low in the respondents [Table 2]. Among the various substances, the most commonly ever-used substance in the lifetime was alcohol. There was no significant difference in terms of ever use or daily use of various substances among residents and faculty members. Compared to males, females significantly less often “ever used” alcohol ($\chi^2 = 28.154; P < 0.001^{***}$) and tobacco ($\chi^2 = 16.897; P < 0.001^{***}$).

Patient care and professional interactions

As shown in Table 3, a small proportion (7.2%) of the participants reported to have experienced physical abuse in varying extent in the hands of patients or their caregivers. However, verbal abuse was experienced in the hands of patients or their caregivers by about half of the participants. More than half of the participants who were involved in interacting with patients reported having committed prescribing error at least once, lapses in patient care which were not life threatening, indulging in shouting at the patients or the caregivers, not giving sufficient time to the patients, seeing more than the desired number of patients, and at least once felt that they had poor communication skills. Having committed life-threatening lapses at least once was reported by about one-fifth of the participants.

A significant proportion of the participants also reported feeling that seniors do not show empathy toward them or their colleagues have positive and negative bias toward trainees and negative bias directed toward self.

In terms of gender difference, female doctors less often shouted at the patients/caregivers ($\chi^2 = 12.813; P = 0.012^{*}$) and less often reported to be seeing more number of patients...
### Table 3: Patient care and professional interactions

| Variables | Frequency (%) | Total sample (n=445) | Residents (n=376) | Faculty (n=69) | χ² (P) |
|-----------|---------------|----------------------|-------------------|---------------|--------|
| Have you ever been physically abused by a patient or his/her caregiver? | | | | | |
| Does not apply | 55 (12.4) | 45 (12.0) | 10 (14.5) | 3.013 (0.556) |
| Never | 358 (80.4) | 301 (80.1) | 57 (82.6) |
| Once | 20 (4.5) | 18 (4.8) | 2 (2.9) |
| Two-five times | 11 (2.5) | 11 (2.9) | 0 |
| More than five times | 1 (0.2) | 1 (0.3) | 0 |
| Have you ever been verbally abused by a patient or his/her caregiver? | | | | | |
| Does not apply | 38 (8.5) | 28 (7.4) | 10 (14.5) | 19.625 (<0.001)*** |
| Never | 199 (44.7) | 157 (41.8) | 42 (60.9) |
| Once | 92 (20.7) | 81 (21.5) | 11 (15.9) |
| Two-five times | 91 (20.4) | 88 (23.4) | 3 (4.3) |
| More than five times | 25 (5.6) | 22 (5.9) | 3 (4.3) |
| Have you ever felt that your prescription for a particular patient was wrong? | | | | | |
| Does not apply | 83 (18.7) | 58 (15.4) | 25 (36.2) | 25.786 (0.000)*** |
| Never | 154 (34.6) | 132 (35.1) | 22 (31.9) |
| Once | 94 (21.1) | 85 (22.6) | 9 (13.0) |
| Two-five times | 87 (19.6) | 79 (21) | 8 (11.6) |
| More than five times | 27 (6.1) | 22 (5.9) | 5 (7.2) |
| Did you ever commit a lapse in patient care; however, this was not life threatening? | | | | | |
| Does not apply | 56 (12.6) | 40 (10.6) | 16 (23.2) | 8.934 (0.062) |
| Never | 131 (29.4) | 112 (29.8) | 19 (27.5) |
| Once | 114 (25.6) | 97 (25.8) | 17 (24.6) |
| Two-five times | 119 (26.7) | 105 (27.9) | 14 (20.3) |
| More than five times | 25 (5.6) | 22 (5.9) | 3 (4.3) |
| Did you ever commit a lapse in patient care, which was life threatening? | | | | | |
| Does not apply | 66 (14.8) | 45 (12) | 21 (30.4) | 18.078 (0.001)*** |
| Never | 296 (66.5) | 258 (68.6) | 38 (55.1) |
| Once | 60 (13.5) | 55 (14.1) | 7 (10.1) |
| Two-five times | 21 (4.7) | 19 (5.1) | 2 (2.9) |
| More than five times | 2 (0.4) | 1 (0.3) | 1 (1.4) |
| Have you ever shouted at the patient or the caregiver? | | | | | |
| Does not apply | 30 (6.7) | 19 (5.1) | 11 (15.9) | 37.746 (<0.001)*** |
| Never | 88 (19.8) | 61 (16.2) | 27 (39.1) |
| Once | 64 (14.4) | 55 (14.6) | 9 (13) |
| Two-five times | 146 (32.8) | 130 (34.6) | 16 (23.2) |
| More than five times | 117 (26.3) | 111 (29.5) | 6 (8.7) |
| How often do you feel that you are not able to give sufficient time to the patient? | | | | | |
| Does not apply | 46 (10.3) | 31 (8.2) | 15 (21.7) | 13.010 (0.011)* |
| Never | 46 (10.3) | 41 (10.9) | 5 (7.2) |
| Once | 13 (2.9) | 12 (3.2) | 1 (1.4) |
| Two-five times | 98 (22) | 87 (23.1) | 11 (15.9) |
| More than five times | 242 (54.4) | 205 (54.5) | 37 (53.6) |
| How often do you feel that your communication skills are poor? | | | | | |
| Does not apply | 29 (6.5) | 21 (5.6) | 8 (11.6) | 14.787 (0.005)** |
| Never | 214 (48.1) | 171 (45.5) | 43 (62.3) |
| Once | 41 (9.2) | 37 (9.8) | 4 (5.8) |
| Two-five times | 96 (21.6) | 85 (22.6) | 11 (15.9) |
| More than five times | 65 (14.6) | 62 (16.5) | 3 (4.3) |
| How often do you feel that you are seeing more than the desired number of patients you should be seeing? | | | | | |
| Does not apply | 46 (10.3) | 32 (8.5) | 14 (20.3) | 13.850 (0.008)** |
| Never | 49 (11) | 38 (10.1) | 11 (15.9) |
| Once | 10 (2.2) | 10 (2.7) | 0 |
| Two-five times | 54 (12.1) | 45 (12) | 9 (13) |
| More than five times | 286 (64.3) | 251 (66.8) | 35 (50.7) |

Contd...
Table 3: Contd...

| Variables                                                                 | Frequency (%)          | Total sample (n=445) | Residents (n=376) | Faculty (n=69) | χ² (P)       |
|---------------------------------------------------------------------------|------------------------|----------------------|------------------|---------------|-------------|
| How often do you feel that your seniors do not show empathy toward patients? |                        |                      |                  |               |             |
| Does not apply                                                            | 38 (8.5)               | 25 (6.6)             | 13 (18.8)        | 12.818 (0.012)* |             |
| Never                                                                     | 124 (27.9)             | 104 (27.7)           | 20 (29)          |               |             |
| Once                                                                      | 31 (7)                 | 28 (7.4)             | 3 (4.3)          |               |             |
| Two-five times                                                             | 110 (24.7)             | 98 (26.1)            | 12 (17.4)        |               |             |
| More than five times                                                       | 142 (31.9)             | 121 (32.2)           | 21 (30.4)        |               |             |
| How often do you feel that your seniors do not show empathy toward you and your colleagues? |                        |                      |                  |               |             |
| Does not apply                                                            | 15 (3.4)               | 11 (2.9)             | 4 (5.8)          | 10.670 (0.031)* |             |
| Never                                                                     | 86 (19.3)              | 64 (17)              | 22 (31.9)        |               |             |
| Once                                                                      | 31 (7)                 | 28 (7.4)             | 3 (4.3)          |               |             |
| Two-five times                                                             | 118 (26.5)             | 103 (27.4)           | 15 (21.7)        |               |             |
| More than five times                                                       | 195 (43.8)             | 170 (45.2)           | 25 (36.2)        |               |             |
| How often do you feel that your seniors or faculty colleagues have positive and negative biases toward particular residents? |                        |                      |                  |               |             |
| Does not apply                                                            | 14 (3.1)               | 12 (3.2)             | 2 (2.9)          | 4.635 (0.327)  |             |
| Never                                                                     | 69 (15.5)              | 54 (14.4)            | 15 (21.7)        |               |             |
| Once                                                                      | 28 (6.3)               | 22 (5.9)             | 6 (8.7)          |               |             |
| Two-five times                                                             | 118 (26.5)             | 105 (27.9)           | 13 (18.8)        |               |             |
| More than five times                                                       | 216 (48.5)             | 183 (48.7)           | 33 (47.8)        |               |             |
| How often do you feel that your seniors or faculty colleagues have negative biases toward you? |                        |                      |                  |               |             |
| Does not apply                                                            | 15 (3.4)               | 14 (3.7)             | 1 (1.4)          | 3.268 (0.514)  |             |
| Never                                                                     | 124 (27.9)             | 105 (27.9)           | 19 (27.5)        |               |             |
| Once                                                                      | 74 (16.6)              | 64 (17)              | 10 (14.5)        |               |             |
| Two-five times                                                             | 135 (30.3)             | 116 (30.9)           | 19 (27.5)        |               |             |
| More than five times                                                       | 97 (21.8)              | 77 (20.5)            | 20 (29)          |               |             |

***P<0.001; **P<0.01; *P<0.05

than the desired (χ² = 11.509; P = 0.022*). In terms of residents and faculty, residents more often experienced verbal abuse in the hands of patients/caregivers, committed prescription errors, committed non life-threatening errors in patient care, committed life-threatening errors in patients care, shouted at patients/caregivers, were not able to give sufficient time to their patients, felt of having poor communication skills, seek more than the desired number of patients, and felt a lack of empathy on part of the seniors.

Association of depression, stress, and burnout
When the association of depression, stress, and burnout was evaluated, strong positive correlations were seen between these scales [Table 4].

Association of depression, stress, and burnout with working hours
Higher working hours were associated with higher level of depression, stress, and burnout [Table 4].

Association of depression, burnout, and stress with recreational activities
To understand the association of depression, burnout, and stress with recreational activities, the responses for the recreational activities were recoded as never or indulged in the activity at least once a week.

Indulgence in recreational activities such as going to gymnasium at least once a week was associated with significantly lower scores on the scales assessing depression, burnout, and stress in both residents and faculty members. Indulgence in recreational activities such as reading books, chatting with friends, chatting on social media, and listening to music at least once a week was associated with significantly lower scores on the scales assessing depression, burnout, and stress in residents [Table 5].

Recreational activity of reading books among faculty members was associated with significantly lower scores for depression and burnout. Use of pornography among the faculty members was associated with significantly lower scores for depression, stress, and burnout. Chatting with friends was associated with lower scores for depression among the faculty members [Table 5].

When the recreational activities of those with and without depression were compared, it was observed that a higher proportion of participants with depression did not indulge in recreational activities of going to gymnasium (χ² = 17.31; P < 0.001***), reading books for recreation (χ² = 17.31; P = 0.001***), watching movies (χ² = 6.91; P = 0.009***), chatting with friends (χ² = 5.749; P = 0.016*), listening
Table 4: Relationship between perceived stress, depression, and burnout with the average number of work hours

| Activity                          | Residents, mean (SD) | Faculty members, mean (SD) | t-test (P) | Residents, mean (SD) | Faculty members, mean (SD) | t-test (P) |
|-----------------------------------|----------------------|----------------------------|------------|----------------------|----------------------------|------------|
|                                   | Not at all           | Ever use (daily/once a week) | Total PHQ-9 | Not at all           | Ever use (daily/once a week) | Total PHQ-9 |
| Working in gymnasium              |                      |                            |            |                      |                            |            |
| Total PHQ-9                       | 8.30 (6.08)          | 6.05 (5.72)                | 2.558 (0.011)* | 4.92 (4.37)          | 2.00 (2.68)                | 3.252 (0.002)* |
| Total PSS                         | 19.66 (6.30)         | 17.29 (6.58)               | 2.558 (0.011)* | 17.92 (4.33)         | 13.41 (6.98)               | 3.277 (0.002)* |
| Total burnout                     | 44.28 (15.32)        | 38.60 (13.77)              | 2.578 (0.010)* | 41.39 (12.94)        | 31.16 (12.33)              | 3.336 (0.001)** |
| Reading books                     |                      |                            |            |                      |                            |            |
| Total PHQ-9                       | 8.43 (5.98)          | 6.56 (6.19)                | 2.584 (0.010)* | 4.51 (4.53)          | 2.56 (2.90)                | 2.089 (0.041) |
| Total PSS                         | 19.84 (6.23)         | 17.66 (6.61)               | 2.877 (0.004)* | 16.56 (6.61)         | 15.12 (5.36)               | 0.984 (0.328) |
| Total burnout                     | 45.35 (14.73)        | 37.56 (15.27)              | 4.37 (0.001)** | 40.35 (14.14)        | 32.68 (11.83)              | 2.419 (0.018)* |
| Watching movies                   |                      |                            |            |                      |                            |            |
| Total PHQ-9                       | 8.73 (6.46)          | 7.48 (5.77)                | 1.970 (0.05)  | 4.50 (4.60)          | 2.83 (3.18)                | 1.764 (0.082) |
| Total PSS                         | 19.79 (6.55)         | 18.99 (6.27)               | 1.192 (0.234) | 16.53 (6.63)         | 15.35 (5.56)               | 0.803 (0.425) |
| Total burnout                     | 44.88 (15.46)        | 42.51 (15.01)              | 1.482 (0.139) | 38.09 (14.21)        | 35.67 (13.10)              | 0.735 (0.465) |
| Chatting with friends             |                      |                            |            |                      |                            |            |
| Total PHQ-9                       | 8.32 (6.31)          | 7.55 (5.77)                | 1.218 (0.224) | 3.95 (4.06)          | 2.91 (3.75)                | 3.252 (0.002)* |
| Total PSS                         | 19.87 (6.65)         | 18.62 (6.01)               | 1.904 (0.058) | 17.02 (5.80)         | 13.65 (6.08)               | 3.277 (0.002)* |
| Total burnout                     | 43.39 (15.64)        | 43.52 (14.73)              | –0.086 (0.982) | 38.86 (14.44)        | 32.65 (10.79)              | 3.336 (0.001)** |
| Listening to music                |                      |                            |            |                      |                            |            |
| Total PHQ-9                       | 10.01 (6.47)         | 7.49 (5.89)                | 3.172 (0.002)* | 6.07 (5.57)          | 3.03 (3.29)                | 2.595 (0.012)* |
| Total PSS                         | 21.70 (6.84)         | 18.79 (6.18)               | 3.419 (0.001)** | 18.23 (6.69)         | 15.35 (5.84)               | 1.554 (0.125) |
| Total burnout                     | 48.02 (15.88)        | 42.45 (14.91)              | 2.739 (0.006)* | 38.61 (17.24)        | 36.37 (12.74)              | 0.533 (0.596) |
| Surfing net                       |                      |                            |            |                      |                            |            |
| Total PHQ-9                       | 8.31 (6.90)          | 7.96 (6.05)                | 0.224 (0.823) | 3.00 (1.63)          | 3.64 (4.06)                | –0.314 (0.754) |
| Total PSS                         | 20.31 (8.09)         | 19.26 (6.31)               | 0.638 (0.524) | 18.00 (5.47)         | 15.76 (6.11)               | 0.711 (0.480) |
| Total burnout                     | 46.31 (15.28)        | 43.32 (15.22)              | 0.768 (0.443) | 41.00 (7.83)         | 36.53 (13.85)              | 0.635 (0.528) |
| Chatting in social media          |                      |                            |            |                      |                            |            |
| Total PHQ-9                       | 9.11 (6.73)          | 7.46 (5.70)                | 2.443 (0.015)* | 3.39 (3.77)          | 3.71 (4.09)                | –0.320 (0.750) |
| Total PSS                         | 20.81 (7.15)         | 18.63 (5.91)               | 3.088 (0.002)** | 15.95 (3.88)         | 15.86 (6.22)               | 0.056 (0.956) |
| Total Burnout                     | 46.56 (14.83)        | 42.04 (15.21)              | 2.687 (0.008)** | 37.00 (13.36)        | 36.69 (13.83)              | 0.087 (0.931) |

PSS – Perceived Stress Scale; PHQ – Patient Health Questionnaire; SD – Standard deviation; ***P<0.001; **P<0.01; *P<0.05

When the recreational activities of those with moderate and severe perceived stress (regarded as perceived stress present) were compared with participants with low stress (regarded as perceived stress absent; cutoff value - 13), it was seen that a higher proportion of participants experiencing higher stress reported not indulging in recreational activities such as not going to gymnasium ($\chi^2 = 20.4; P < 0.001$), not reading books for recreation ($\chi^2 = 14.78 P < 0.001$), and not chatting with friends ($\chi^2 = 4.47; P = 0.035$).

However, when the recreational activities of those with feelings of burnout were compared with those having no signs of burnout (cutoff value = 18), it was seen that a higher prevalence of burnout was associated with not indulging in only one recreational activity, i.e., not reading books for recreation ($\chi^2 = 7.11; P = 0.008$).

Association of depression, burnout, and stress with substance use
As with recreational activities, for evaluation of the association with substance use, the responses for the substance use were recoded as never used and ever used.
in a week. Use of substances was not associated with depression, stress, and burnout.

**Association of depression, burnout, and stress with patient-related activities and interpersonal functioning**

The data for patient-related activities were recoded to categorize the variables as ever or never faced/felt. Further, participants who were not involved in patient interaction (i.e., those from paramedical streams reported that these variables do not apply to them) were not included in the analysis.

Among residents, the prevalence of ever-faced physical or verbal abuse was associated with significantly higher scores on scales for depression, stress, and burnout. Higher scores on PSS and burnout scale were associated with mistakes in prescriptions. Higher scores for depression, PSS, and burnout were associated non life-threatening lapses in patient care. Higher burnout scores were associated with life-threatening lapses in patient care [Table 6].

Among residents, higher scores for depression, stress, and burnout were associated with variables of shouting at the patients or their caregivers, feeling of having poor communication skills, feeling that seniors do not show empathy toward the patients, seniors do not show empathy toward them, seniors have positive and/or negative bias toward certain residents, and faculty having negative bias toward them. Additionally, higher score for burnout was associated with feeling of giving less time to the patient and feeling of seeing more than the desired number of patients [Table 6].

Among faculty members, higher scores for depression were associated with encountering verbal abuse from the patients or their caregivers, feeling that seniors do not show empathy toward patients, seniors do not show empathy toward you, and other faculty members have negative bias toward you.

Lower scores on the PSS were associated with more chances of committing life-threatening lapses in patient care. Higher scores on the PSS were associated with feeling of seniors do not show empathy toward them and other faculty members having negative bias toward them [Table 6]. Higher burnout scores were associated with a lack of empathy on the part of seniors toward them and faculty members having negative bias toward them.

When the patient-related activities and interpersonal functioning of those with and without depression were compared, it was observed that a higher proportion of participants with depression reported having ever experienced physical abuse from patients or caregivers ($\chi^2 = 6.64; P = 0.01**$), ever been verbally abused by patients or caregivers ($\chi^2 = 28.55; P < 0.001***$), committing non-life-threatening lapses in patient care ($\chi^2 = 4.41; P = 0.036$), shouted at patients or caregivers ($\chi^2 = 11.68; P = 0.001***$, feeling that one has poor communication skills ($\chi^2 = 12.17; P < 0.001***$), feeling that seniors do not show empathy toward patients ($\chi^2 = 5.86; P = 0.016$), feeling that seniors do not show empathy toward them ($\chi^2 = 15.85; P < 0.001***$), and feeling that faculty or senior colleagues have negative biases toward them ($\chi^2 = 6.84; P = 0.009$).

Similarly, when the patient-related activities and interpersonal functioning of those with moderate and severe perceived stress (regarded as perceived stress absent; cutoff value - 13), it was found that a higher proportion of participants experiencing stress experienced verbal abuse in the hands of patients or caregivers ($\chi^2 = 10.5; P = 0.001***$), committed prescription errors ($\chi^2 = 4.45; P = 0.035$), shouted at patients or caregivers ($\chi^2 = 13.45; P < 0.001***$), felt that they have poor communication skills ($\chi^2 = 4.14; P = 0.042$), felt that seniors do not show empathy toward patients ($\chi^2 = 47.9; P = 0.029$), felt that seniors do not show empathy toward them ($\chi^2 = 18.52; P < 0.001***$), and felt that faculty or senior colleagues have negative biases toward them ($\chi^2 = 12.75; P < 0.001***$).

In addition, it was found that when participants with feelings of burnout and those having no signs of burnout (cutoff value = 18) were compared for various patient-related activities and interpersonal functioning, a higher proportion of patients with burnout reported experiencing verbal abuse by patients or caregivers ($\chi^2 = 27.16; P < 0.001***$), committing non-life-threatening lapses in patient care ($\chi^2 = 4.72; P = 0.03$), shouted at patients or caregivers ($\chi^2 = 9.75; P = 0.002$), feeling that one has poor communication skills ($\chi^2 = 4.503; P = 0.034$), seeing more than the desired number of patients ($\chi^2 = 12.66; P < 0.001***$), feeling that seniors do not show empathy toward patients ($\chi^2 = 6.27; P = 0.012$), feeling that seniors do not show empathy toward you ($\chi^2 = 22.678; P < 0.001$), feeling that faculty or senior colleagues have negative biases toward residents ($\chi^2 = 15.07; P < 0.001***$), and feeling that faculty or senior colleagues have negative biases toward them ($\chi^2 = 14.89; P < 0.001***$).

**DISCUSSION**

Studies evaluating the work-related stress, depression, and burnout among medical professionals from India are very few in number. Every other day, there are news highlights about the lapses done by the doctors in the patient care and violence against doctors. However, there has been very little effort to understand the factors associated with the same. This survey was carried out in a tertiary care hospital, which, as per the last 2 years’ annual report (2015–2016) of the institute, had catered to 2,423,501 patients in its various outpatient services on an outpatient basis and a total of 87,973 patients...
were admitted to its various inpatient services.\[^{36}\] It is considered one of the premier institutes of the country. Although it is a tertiary care hospital, any patients can walk in into the hospital for any small ailment, without any referral. The medical professionals are expected to provide the best quality care to all the patients. Besides providing patient care, the professionals are also expected to excel in the field of academics and research. Keeping this working environment in mind, the present survey was conducted to evaluate the psychological problems faced by medical professionals (both

| Variables | Residents, mean (SD) | Faculty, mean (SD) |
|-----------|---------------------|-------------------|
| Physical abuse | | |
| Total PHQ-9 | 7.69 (5.75) | 6.68 (5.68) |
| Total PSS | 19.01 (6.24) | 17.87 (6.37) |
| Total burnout | 42.68 (14.88) | 38.24 (15.07) |
| Verbal abuse | | |
| Total PHQ-9 | 6.68 (5.68) | 6.68 (5.68) |
| Total PSS | 17.87 (6.37) | 17.87 (6.37) |
| Total burnout | 38.24 (15.07) | 38.24 (15.07) |

Prescription wrong | | |
| Total PHQ-9 | 7.41 (5.87) | 7.41 (5.87) |
| Total PSS | 18.45 (6.54) | 18.45 (6.54) |
| Total burnout | 41.22 (15.32) | 41.22 (15.32) |

Non-life-threatening lapses in patient care | | |
| Total PHQ-9 | 6.91 (5.30) | 6.91 (5.30) |
| Total PSS | 17.86 (6.18) | 17.86 (6.18) |
| Total burnout | 38.01 (15.58) | 38.01 (15.58) |

Life-threatening lapses in patient care | | |
| Total PHQ-9 | 7.88 (5.61) | 7.88 (5.61) |
| Total PSS | 19.25 (6.29) | 19.25 (6.29) |
| Total burnout | 42.75 (14.69) | 42.75 (14.69) |

Shouted at the patients or the caregivers | | |
| Total PHQ-9 | 5.85 (5.21) | 5.85 (5.21) |
| Total PSS | 16.65 (6.29) | 16.65 (6.29) |
| Total burnout | 34.83 (13.86) | 34.83 (13.86) |

Feel that you give less time to the patient | | |
| Total PHQ-9 | 6.78 (6.31) | 6.78 (6.31) |
| Total PSS | 18.63 (6.44) | 18.63 (6.44) |
| Total burnout | 37.36 (16.83) | 37.36 (16.83) |

Feel that your communication skills are poor | | |
| Total PHQ-9 | 7.51 (5.70) | 7.51 (5.70) |
| Total PSS | 18.49 (6.66) | 18.49 (6.66) |
| Total burnout | 41.52 (14.36) | 41.52 (14.36) |

Feeling that they are seeing more number of patients than desired | | |
| Total PHQ-9 | 6.97 (5.68) | 6.97 (5.68) |
| Total PSS | 18.34 (6.69) | 18.34 (6.69) |
| Total burnout | 33.78 (16.18) | 33.78 (16.18) |

Feel that seniors do not show empathy toward patients | | |
| Total PHQ-9 | 6.24 (5.44) | 6.24 (5.44) |
| Total PSS | 17.04 (6.37) | 17.04 (6.37) |
| Total burnout | 39.23 (14.46) | 39.23 (14.46) |

Feel that seniors do not show empathy toward you | | |
| Total PHQ-9 | 5.71 (5.62) | 5.71 (5.62) |
| Total PSS | 15.87 (6.19) | 15.87 (6.19) |
| Total burnout | 35.09 (13.41) | 35.09 (13.41) |

Feel that faculty has positive/negative bias toward certain residents | | |
| Total PHQ-9 | 6.24 (4.82) | 6.24 (4.82) |
| Total PSS | 17.62 (6.50) | 17.62 (6.50) |
| Total burnout | 36.07 (15.87) | 36.07 (15.87) |

Feel that faculty has negative bias toward you | | |
| Total PHQ-9 | 6.46 (5.48) | 6.46 (5.48) |
| Total PSS | 17.68 (6.69) | 17.68 (6.69) |
| Total burnout | 39.17 (15.03) | 39.17 (15.03) |

PSS – Perceived Stress Scale; PHQ – Patient Health Questionnaire; SD – Standard deviation; ***P<0.001; **P<0.01; *P<0.05
resident doctors and faculty) in this tertiary care hospital. The survey included three scales to assess psychological distress in the form of depression, stress, and burnout.

The response rate to the survey was 27.69%, which can be considered as reasonably good response, considering the fact that previous online surveys involving doctors have reported lower response rates.[37,38]

The present study shows that 30.1% of the participants scored ≥10 on PHQ-9, which is suggestive of major depressive disorder, with moderate-to-severe depression being present in 13.1% of the responders. The prevalence of depression was significantly higher among the resident doctors, when compared to faculty members. When one compares the findings of the present study with the recent mental health survey, which evaluated psychiatric morbidity among people from community,[39] it can be said that the prevalence of depression was significantly higher among resident doctors. Previous studies from different parts of the world which have evaluated depression among doctors using scales such as Hospital Anxiety Depression Scale[40,41] and Beck Depression Inventory[42] have reported prevalence rates of depression to vary from 8.2% to 27%,[40-42] and the findings of the present study are on the higher side of the reported range. This suggests that a higher proportion of the medical professionals in the Indian setting have depression.

In the present study, perceived stress was evaluated using PSS, and four-fifth of the participants reported moderate-to-high stress. As with depression, compared to faculty members, a higher proportion of residents reported stress. Findings of the present study lend support to the existing literature, which have also reported higher rates of stress and burnout among various medical professionals including medical students and have reported high rates of perceived stress and burnout in them.[50,43-45] These studies linked stress with academics as well as psychosocial factors as the potential stressors.[43,44] Studies which have evaluated stress among medical professionals suggest that stress adversely affects the work efficiency of junior doctors during their postgraduate residency training programs and leads to absence from duty days, inefficient day activities, and general health problems.[46] Although the present study did not evaluate all these outcomes, it does show that higher levels of stress are associated with negative doctor–patient interactions.

Similarly, in the present study, the prevalence of burnout was very high, with more than 90% of the sample reporting some degree of burnout, 44.3% of doctors at risk of developing burnout, 13.5% having severe risk of burnout, and 16.6% having very severe risk of burnout. Studies from various parts of the world have estimated burnout in 31%–76% of medical professionals depending on the level of career and the medical stream.[2,7,10,47-49] This again clearly indicates that significantly higher proportion of doctors experience burnout and there is a need to address the same. In the present survey, we could not find any significant differences in burnout scores for participants from different streams (medical, surgical, and paramedical), suggesting that the burnout rates are almost equal in the survey sample. This finding is contradictory to the findings of some of the studies from developed countries[9,10,50,51] and suggests that doctors have certain common factors related to work-related stress and the stream-specific factors play a small role.

When the association of perceived stress, depression, and burnout was evaluated, there was a significant positive correlation between the three variables. This suggests that there is some overlap between these constructs. However, it can be said that stress and burnout possibly pave the way for the development of depression. In the present study, perceived stress, depression, and burnout had a significant association with the average number of working hours per week and these associations confirm the similar observations in the earlier studies.[44]

The present study also showed that prevalence of negative psychological outcomes (i.e., depression, stress, and burnout) was significantly higher among resident doctors, when compared to the faculty. Although it is not possible to compare this finding with the existing literature, similar evidence was provided by a study, which compared the prevalence of depression among general practitioners and case managers and reported higher rates of depression among practitioners.[45] The higher prevalence of negative psychological outcomes (i.e., depression, stress, and burnout) among the residents is understandable, considering the fact that they spend longer duration in the work, are often staying away from their families, have to see more number of patients, and are under constant pressure of academics and completion of their thesis/dissertation work.

In the present study, among both residents and faculty members, higher negative psychological outcomes (i.e., depression, stress, and burnout) were associated with longer duration of working hours. Studies from the developed countries and India have also reported similar associations.[19,52,53] The high prevalence of negative psychological outcomes (i.e., depression, stress, and burnout) among resident doctors and faculty members clearly indicates that they experience significantly higher work stress. Accordingly, there is a need to screen doctors for depression from time to time and reduce their working hours to bring down the work-related stress. Additionally, efforts must be made to teach skills and coping strategies to the medical professionals to manage stress and work pressure.
In the present study, higher levels of negative psychological outcomes (i.e., depression, stress, and burnout) were also associated with adverse patient/caregiver-related outcomes such as prescription errors, being recipient of abuse, and patient care lapses. Studies from developed countries have also reported similar associations \cite{54,55} and had suggested that reduction in the number of working hours is associated with reduction in depression/stress and errors at the workplace.\cite{43,56} Considering the similar associations in the present study, it can be said that current training programs for residents need a relook with the aim at reduction in their working hours. Similarly, for faculty members too, measures need to be taken to rationalize their working hours to keep them in a good state of mental health. In the present study, higher levels of negative psychological outcomes (i.e., depression, stress, and burnout) were also associated with feelings of seeing more number of patients than desired, shouting back at the patients, feeling of having poor communication skills, and feeling that seniors do not show empathy toward patients. All these parameters indicate that the residents are overburdened with patient care and there is a need to rationalize the patient case load. This can only be achieved by administrative decisions such as limiting the number of patients to be seen per day, developing proper referral and back referral system, and strengthening the other health facilities in the catchment area.

Higher levels of negative psychological outcomes (i.e., depression, stress, and burnout) were also associated with feeling that seniors have bias for the trainees/junior colleagues and toward them. It is difficult to determine the cause and effect relationship of depression with these variables, but these associations do suggest that there is a need to focus on the interpersonal relationship issues at the work place.

It is well known that physicians are poor at recognizing depression in patients,\cite{57,58} let alone themselves and furthermore, they are notoriously reluctant to seek treatment for any personal illness.\cite{59,60} A recent survey of American surgeons revealed that although 1 in 16 had experienced suicidal ideations in the past 12 months, only 26\% had sought psychiatric or psychological help. Over 60\% of those with suicidal ideations indicated that they were reluctant to seek help due to concern that it could affect their medical license.\cite{61} In the present study, about 30\% of the participants were found to have depression as per PHQ-9 and about 16.7\% of the participants reported of having thoughts that “one would be better off dead or of hurting yourself in some way.” The present survey finding on suicidal ideations among medical professionals is in the range of these previous studies.\cite{62,63} Presence of suicidal ideations in high proportion of participants indicates that there is an urgent need to focus on the mental health issues of the doctors. Various medical councils of the world have now shifted their focus on improving the physician well-being during residency training programs.\cite{64} Studies from India suggest that medical students do not seek or hesitate to seek psychiatric help because of stigma, confidentiality issues, lack of awareness, and fear of unwanted intervention.\cite{22} Accordingly, it can be said that just relying on the initiative of the physicians to seek professional help may not be sufficient to improve the mental health of the doctors. There is a need to develop screening programs to carry out routine checkups and the physicians must be encouraged to discuss about their mental health without any prejudice.

Findings of the present study must be interpreted in light of the limitations of this study. The response rate to the survey was only 28\% and it is quite possible that many of the doctors who had psychological problems did not participate in the survey because of fear of stigma and prejudice. The reverse could also be true that many of the doctors who did not have any psychological issues choose not to participate. It is important to note that the rates of depression reported in the present study are based on PHQ-9 and not on the detailed psychiatric evaluation. The present study did not evaluate the specific factors associated with the work-related stress. It is also quite possible that stress and depression in some of the participants may be emerging out of other psychosocial factors which were not evaluated as part of this study. Hence, all the stress and depression cannot be attributed to only work-related stress. The present survey carried out a cross-sectional assessment and does not provide a longitudinal perspective of the problem. Future studies must follow longitudinal study designs to overcome the limitations of this study.

**CONCLUSION**

The present study suggests that a significantly higher proportion of doctors in Indian setting experience stress, depression, and burnout. The presence of stress, depression, and burnout is associated with long working hours and negative patient-related outcomes, adverse doctor—patient interactions, and interpersonal interactions among the colleagues. These findings suggest that there is an urgent need to develop mechanisms to evaluate the work-related stress, burnout, and depression among doctors and address the same. At the same time, there is a need to equip the medical professionals with skills of stress management and mitigate stigma associated with mental disorders so that at the time of the need, the professionals can seek help. The stress management skills should focus on a broad range of behavioral and cognitive strategies. Additionally, at the institute level, there must be screening of professional’s mental health at the regular level and there must be provision for conducting regular stress management workshops.
Future research must focus on in-depth face-to-face interview and carry out longitudinal assessments for better understanding of these issues.

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There are no conflicts of interest.

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