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# Psychological well-being and burnout amongst medical students in India: a report from a nationally accessible survey

Sharad Philip<sup>1\*</sup> , Andrew Molodynski<sup>2,3</sup>, Lauren Barklie<sup>2</sup>, Dinesh Bhugra<sup>4</sup> and Santosh K. Chaturvedi<sup>1</sup>

## Abstract

**Background:** Medical students in India face multiple challenges and sources of stress during their training. No nationally representative survey has yet been undertaken. We undertook a cross-sectional national survey to assess substance use, psychological well-being, and burnout using CAGE, Oldenburg Burnout Inventory (OLBI), and the short General Health Questionnaire (GHQ-12). The survey was open to all medical students in India. Descriptive statistics along with chi square tests and Spearman's correlation were performed.

**Results:** Burnout was reported by 86% of respondents for disengagement and 80% for exhaustion. Seventy percent had a score of more than 2 on the GHQ-12, indicating caseness.

**Conclusions:** This study reveals that medical students are going through exceptional stress when compared to their age-matched peers. More nationally representative studies must be conducted on a large scale to quantify the problem and to help design new interventions.

**Keywords:** Medical students, Well-being, Burnout, India

## Background

The rigours of medical education are well-known internationally, and medical students' mental health morbidity is higher than that of their aged-matched peers [1]. Medical students are prone to anxiety, depressive disorders, and high levels of psychological distress [2–7]. Such issues may progress to negatively impact academic performance, predispose to substance use, and/or encourage other maladaptive coping strategies [4, 8, 9]. Increased distress can also increase academic dishonesty [10].

'Burnout' was first outlined by Freudenberg in 1974 [11], and 'International Classification of Diseases-11 (ICD-11)' recognises it as an occupational phenomenon in all workplace environments. Initially described as including reduced personal accomplishment, depersonalization, and emotional exhaustion, it is considered to be a health issue arising in the context of poorly managed workplace stress.

It is comprised of three dimensions—energy depletion, reduced professional efficacy, and feelings of negativism or cynicism towards one's job [12]. Burnout is directly related to increased psychological distress and unmitigated mental health issues in an apathetic environment. It has been shown to impact up to 40% of practicing doctors [13, 14].

In 2019, 1.41 million students attempted the Indian medical school entrance exam; 797,000 passed and only 75,000 were selected. The course lasts over 5 years and is academically and personally demanding. Many undertake medical studies due to parental pressure rather than personal interest [15], potentially causing disillusionment and limiting help seeking.

India is home to the world's largest population of people aged 10–24 years, and suicide is their leading cause of death [16, 17]. 'Academic trauma' has been documented as a contributor to student suicide in a news report of nearly 10,000 students committing suicide in 1 year [18]. Separate data for medical students is however unavailable.

\* Correspondence: [sharadphilipdr@gmail.com](mailto:sharadphilipdr@gmail.com)

<sup>1</sup>Department of Psychiatry, NIMHANS, Bangalore, Karnataka, India  
Full list of author information is available at the end of the article

Several cross-sectional studies have examined the stress and overall well-being of Indian medical students by using various questionnaires. One study [19] using the Oldenburg Burnout Inventory and GHQ 12 reported high levels of burnout (88% and 81% for disengagement and exhaustion respectively) and high levels of mental health problems (62% with GHQ score >2). Two studies [20, 21] using the Oldenburg Burnout Inventory have reported mean scores in Indian medical students, disengagement scores of 2.43 [20] and 18.16 [21], and exhaustion scores of 2.32 [20] and 13.89 [21] respectively. A different study [22] used the Maslach Burnout Inventory and reported 71% of the students showed moderate to high levels of burnout. Bute et al. [23] reported high levels of caseness indicating need for evaluation (66% with scores more than 4) amongst Indian medical students using the GHQ 28. Another study [24] using the same scale reported a mean score of above 7. Many other studies have examined the psychological well-being and mental health of Indian medical students [25–29]. The variety of instruments and scales used and methodological variations have resulted in a wide range of results. All studies were limited to students within a few medical colleges. There have yet been no nationally representative robust studies. Our study reports a nationally accessible large-scale survey on the well-being of medical students in India.

## Methods

We conducted an online survey amongst medical student communities in India as part of a larger international effort to understand the stresses of medical student life. Matching surveys have been undertaken in countries such as Brazil [30], Morocco [31], and Jordan [32]. A similar study was also undertaken in four medical colleges of eastern and southern India [19].

This cross-sectional survey was conducted over the 'Type Form' platform, which presents survey questions sequentially and records respondent data. These data are collected and displayed graphically for each question. The survey link was disseminated to multiple medical student groups. A message accompanied the link to introduce the survey and its' aims and to assure confidentiality and anonymity. Participant consent was sought in the beginning of the survey. The link was launched along with the message over multiple medical student groups across many colleges, predominantly by reaching out to student leadership and WhatsApp chat groups. The survey was open from 09/02/20 until 31/08/20. Fortnightly reminders were sent. As the circulation increased, a medical student magazine 'Lexicon' picked up the survey link and promoted it.

Survey questions included basic demographic details such as year of study, level of parental education, hours

of work outside of student activities, current and past mental health difficulties, prescribed medications, and basic details of substance use. The short version of the 'General Health Questionnaire' (GHQ-12) [33, 34] was included to screen for minor psychiatric disorders, with a score of 2 or more indicating caseness. The GHQ-12 has been used previously in Indian populations [35]. The CAGE questionnaire [36] was included to measure alcohol use with a score of more than 2, considered as 'CAGE positive'. Lastly, the Oldenberg Burden Inventory [37] was included to identify burnout with threshold scores of 2.10 for disengagement and 2.25 for exhaustion [38].

## Results

Three hundred and forty-four respondents completed the survey. Of these respondents, three were removed as they were not medical students. There were respondents from New Delhi, Pondicherry, Vellore, Ludhiana, Bellary, and Bangalore amongst other sites.

Responses were spread across the training years as follows: 15% in the first year, 22% from the second year, 20% from year three, 12% from year four, 10% from year five, and 19% from year six. Two percent did not specify year of training.

Sixty percent of respondents identified as female, 39% identified as male, and one respondent identified as other gender.

Parental education levels for 46% were post-graduation; 35% were undergraduate degrees, while 13% were up to high school education.

Fifteen percent of respondents reported working for more than 20 h weekly. The majority of respondents (79%) did not work. Details of the sociodemographic details are presented in Tables 1, 2, 3, 4, and 5.

## Mental health

Before commencing their medical education, 27 respondents (8%) consulted a mental health professional, and five (2%) were given a mental health diagnosis. Diagnoses included mood disorder, anxiety disorder, adjustment disorder, and obsessive-compulsive disorder. Four respondents reported attention deficit hyperactive disorders. Seventeen (5%) students were on psychotropics. Twelve did not provide details, four (1%) were prescribed antidepressants, and one (0.3%) was prescribed benzodiazepines.

Thirty-six (11%) students reported that they were seeing a mental health professional at the time of the survey. Conditions reported included mood disorder, anxiety disorder, stress-related disorder, and obsessive-compulsive disorder. Twenty-four (7%) respondents reported being on prescription medications for their mental health. Nineteen (5%) were on antidepressants, three (1%) were on mood stabilisers, four (1%) were on

**Table 1** CAGE, GHQ, and OLBI scores according to student's year of study

Variables		CAGE>2 N (%)	GHQ>2 N (%)	GHQ>3 N (%)	OLBI Disengagement >2.1 N (%)	OLBI Exhaustion >2.25 N (%)
<b>Year of study</b>	Year 1 (n=50)	2 (4%)	41 (82%)	35 (70%)	45 (90%)	39 (78%)
	Year 2 (n=76)	5 (7%)	49 (64%)	39 (51%)	65 (86%)	56 (74%)
	Year 3 (n=68)	4 (6%)	46 (67%)	43 (63%)	58 (85%)	56 (82%)
	Year 4 (n=41)	2 (5%)	29 (71%)	28 (68%)	31 (76%)	34 (83%)
	Year 5 (n=36)	1 (3%)	19 (53%)	15 (42%)	29 (81%)	32 (88%)
	Year 6 (n=64)	3 (4%)	51 (80%)*	47 (73%)*	57 (89%)	51 (80%)

sedatives, two (1%) were on antipsychotics, and one (0.3%) was on beta blocker. Twelve (4%) reported being prescribed stimulants for ADHD/ADD.

Two hundred and thirty-nine respondents (70%) reported academic work as a source of stress. One hundred and eighty (52%) respondents reported stress from relationships; eighty-eight (26%) reported stress due to financial reasons. Most respondents reported multiple stressors.

#### CAGE and substance use

Forty-nine (14%) respondents were CAGE positive. Thirty-three (10%) reported using a nonprescription substance to modify their mood to feel better. These nonprescription medications included sedatives, 13 respondents (4%); stimulants, six respondents (2%); antidepressants, five respondents (1%); and over the counter medications, three respondents (1%).

Forty (12%) students reported using cannabis, and five (1%) reported using hallucinogens. Nineteen (6%) of the respondents had used substances to enhance academic performance.

Fifteen (4%) respondents reported that someone close to them was worried about their substance use, and twenty-four (7%) reported being concerned about their own substance use.

#### GHQ-12 and OLBI score

The mean score of our sample was 5.26, and two hundred and thirty-nine (70%) respondents scored more than 2 in GHQ-12. The mean score for the group on the OLBI scale was 2.6. Two hundred and ninety-four (86%) of the respondents met the disengagement criteria for

the OLBI scale while two hundred and seventy-five (80%) met criteria for exhaustion.

#### Comparisons before training and during training

Twenty-six (8%) respondents reported having had consultations with general practitioners and mental health professionals during the training. Eighteen (5%) of those who responded had only consulted before training and did not do so during their training.

Thirty-seven (11%) respondents reported being diagnosed with a mental health condition after the commencement of their medical training while only two (0.6%) reported being diagnosed in the past but not currently diagnosed. Four (1%) respondents were diagnosed in the past and continued with the diagnosis.

#### Association of sociodemographic factors with GHQ and OLBI scores

GHQ scores indicating 'caseness' were significantly associated with the first and sixth year of medical training. Higher GHQ scores were also reported for higher parental education levels ( $p < 0.05$ ). We found an association between GHQ scores greater than two and a higher number of reported stressors ( $p < 0.05$ ) (Ref. Table 1).

Disengagement and exhaustion were significantly associated ( $p < 0.05$ ) with increasing number of stressors (Ref. Table 5).

#### Correlation of GHQ, OLBI, and CAGE scores

GHQ scores were positively correlated with the disengagement domain (correlation coefficient 0.511) and the exhaustion domain (correlation coefficient 0.521) of the OLBI scores. CAGE scores also positively correlated with the GHQ scores (correlation coefficient 0.136).

**Table 2** CAGE, GHQ, and OLBI scores according to number of hours worked by student

Variables		CAGE>2 N (%)	GHQ>2 N (%)	GHQ>3 N (%)	OLBI Disengagement >2.1 N (%)	OLBI Exhaustion >2.25 N (%)
<b>Work</b>	Not working (n=271)	12 (4%)	194 (72%)	171 (63%)	234 (86%)	221 (82%)
	<20 h per week (n=23)	1 (4%)	14 (61%)	14 (61%)	17 (74%)	15 (65%)
	>20 h per week (n=50)	4 (8%)	31 (62%)	26 (52%)	43 (86%)	39 (78%)

**Table 3** CAGE, GHQ, and OLBI scores according to student's gender

Variables		CAGE>2 N (%)	GHQ>2 N (%)	GHQ>3 N (%)	OLBI Disengagement >2.1 N (%)	OLBI Exhaustion >2.25 N (%)
<b>Gender</b>	Male (n=135)	7 (5%)	87 (64%)	77 (57%)	115 (85%)	101 (75%)
	Female (n=208)	10 (5%)	152 (73%)	134 (64%)	178 (86%)	173 (83%)

## Discussion

This was the first nationally accessible survey of medical student well-being in India. A previous study [19] used the same methods but was conducted in selected medical colleges. We used innovative approaches to recruit respondents. Our survey found that medical students were at greater risk of developing mental ill health than their age-matched peers. Further, it appears that medical training increases mental health morbidity. Only 2% of the respondents had a diagnosis prior to commencing their training while 12% reported being diagnosed after entering medical college. This is a sizeable increase meriting further research to identify aggravating and protective factors. An identical survey carried out a year ago reported that 10% of respondents had received a mental ill health diagnosis prior to entering medical school and that 15% did during medical school [19]. Rates in the overall literature vary, and this will at least in part be due to sampling and the use of different measures.

From the survey on types and number of stressors, analysis was done looking for associations between the scale measures and stressors. Statistically significant results were obtained regarding increased mental health disturbances and the number of stressors.

There appears to be an association between duration of medical training and mental health issues. It can be understood that many stressors are likely to have greater impacts during the first year and the last year of medical training. The former period is one of great change and uncertainty while the latter period is one of exam pressure and expectations. These periods should be the focus of support systems and measures.

This study demonstrates the need to optimise well-being and to decrease burnout in medical students, which is now known beyond doubt to be increasing amongst physicians throughout their careers [39]. We need to urgently develop initiatives to minimise morbidity and maximise an individual's well-being and medical career. Some suggestions are listed below:

- i. Emphasising the importance of well-being both in and away from the workplace
- ii. Increasing the amount of targeted support around mental health from medicaleducators/institutions
- iii. Stigma reduction and attitude changes that will allow a positive platform on which well-being and mental health optimization and/or treatment can be accessed

Based on the findings from Singh et al. [22], we endorse co-curricular activities to promote cohesion and development of secondary and tertiary support systems in the colleges. Yoga and meditation activities conducted in group formats may also be beneficial [40]. Emphasis on physical activity and sleep hygiene should be retained. Online social networks can complement existing more traditional ones. Robust peer mentoring systems and the training of faculty members may aid in surveillance and early detection of mental health issues. This may subsequently reduce morbidity for those affected and reduce dropout rates. Mental health promotion activities should also be a focus of student welfare activities.

## Limitations

This study is a cross-sectional survey of a convenience sample available only in English. However, English is the medium of instruction during medical training in India. The questions used were easily understood English.

## Implications

Findings from this study highlight high levels of burnout and psychological distress being experienced by medical students in India. Mental health morbidity appears to increase in medical training. Further research is warranted to assess mental health morbidity and its' contributing and mitigating factors amongst students pursuing professional and non-professional disciplines in India.

**Table 4** CAGE, GHQ, and OLBI scores according to level of parental education of student

Variables		CAGE>2N (%)	GHQ>2N (%)	GHQ>3N (%)	OLBI Disengagement >2.1 N (%)	OLBI Exhaustion >2.25 N (%)
<b>Parental education</b>	Less than graduation (n=68)	4 (6%)	38 (55%)*	36 (52%)	57 (84%)	49 (72%)
	Graduation and above (n=277)	13 (5%)	201 (72%)	175 (63%)	236 (85%)	225 (81%)

**Table 5** CAGE, GHQ, and OLBI scores according to student's total number of stressors

Variables		CAGE>2 N (%)	GHQ>2 N (%)	GHQ>3 N (%)	OLBI Disengagement >2.1 N (%)	OLBI Exhaustion >2.25 N (%)
<b>Number of stressors</b>	0 (n=33)	1 (3%)	8 (24%)	6 (18%)	25 (76%)*	12(36%)
	1 (n=126)	8 (6%)	93 (74%)	79 (63%)	112 (89%)	107 (85%)*
	2 (n=107)	3 (3%)	94 (88%)*	86 (80%)*	103 (96%)*	104 (97%)*
	3 (n=41)	4 (10%)	35 (85%)	32 (78%)	38 (92%)	39 (95%)
	4 (n=8)	0 (0%)	7 (87%)	6 (75%)	7 (87%)	8 (100%)

\*p-value &lt; 0.05

## Conclusions

Medical students in India report high levels of psychological distress and burnout. Urgent attention and interventions are required from peers, teachers, and policy makers.

## Abbreviations

ADHD/ADD: Attention deficit hyperactive disorders/attention deficit disorder; GHQ: General Health Questionnaire; ICD-11: International Classification of Diseases-11; OLBI: Oldenburg Burnout Inventory

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## Authors' contributions

SP contributed in planning the study, preparing the methodology and questionnaire, analysing the results, preparing the tables, writing the introduction and discussions, and reviewing, revising, and approving the final manuscript. AM contributed in planning the study, preparing the methodology and questionnaire, interpreting the results, writing the introduction and discussions, and reviewing, revising, and approving the final manuscript. LB contributed in preparing the methodology and questionnaire, writing the discussions, and reviewing, revising, and approving the final manuscript. DB contributed in planning the study, preparing the methodology and questionnaire, writing the discussions, and reviewing, revising, and approving the final manuscript. SKC contributed in planning the study, preparing the methodology and questionnaire, analysing the results, preparing the tables, writing the introduction and discussions, and reviewing, revising, and approving the final manuscript. The authors read and approved the final manuscript.

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## Availability of data and materials

Available

## Declarations

### Ethics approval and consent to participate

As per the Indian Council of Medical Research guidelines for online surveys, only participant consent is required. There is no requirement for ethics committee permissions. No ethical approval was deemed necessary by the national algorithm in the UK as this was an online population survey of consenting medical students irrespective of their health status. Only consenting subjects were included. Participant consent was sought in the beginning of the survey.

### Consent for publication

The authors have consented to publication.

### Competing interests

The authors declare that they have no competing interests.

## Author details

<sup>1</sup>Department of Psychiatry, NIMHANS, Bangalore, Karnataka, India. <sup>2</sup>Oxford Health NHS Foundation Trust, Oxford, UK. <sup>3</sup>Oxford University, Oxford, UK. <sup>4</sup>King's College, London, UK.

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