

# Transition blues: Sources of Stress among final year medical students approaching graduation

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## ABSTRACT

**Background:** To assess the prevalence of the most common sources of stress among graduating final year medical students and to compare the students on gender and on a relative belonging to a medical profession.

**Methods:** Students from two consecutive batches of final year MBBS were requested to complete a self-developed questionnaire about the various sources of stress. The study commenced from September 2018 to January 2020. Results were entered and analyzed in SPSS version 23. Descriptive statistics and independent samples T-test were used to analyze the data gathered.

**Results:** A total of 194 (102 female, 92 male) final year MBBS class students participated in the study. The three most common sources of stress reported were; dealing with the practical life after graduation; encountering senior doctors as bosses and the highest expectations of their family/friends. Nearly two thirds of students reported high over stress levels. Female students were significantly more likely to report higher overall stress levels. On individual stress related items, females were significantly more likely to be stressed about the practical life ahead, about not feeling capable enough to deal with human life, about actual encounter with patients, and about encounter with senior doctors as their bosses. Students who had a parent or a sibling who was a doctor were significantly more likely to be stressed about the highest expectation of family friends.

**Conclusions:** A significant number of final year medical students are highly stressed about the transition to working life. Female medical students are more likely to report overall stress as well as on particular stress related aspects of practical life and undergraduate training.

**Mesh terms:** Psychological Stress, Medical students, Mental health

## INTRODUCTION

Medical undergraduate education and training is a stressful period. Many studies have previously reported high rates of psychiatric morbidity among medical students<sup>1,2,3,4</sup>. Suicidal ideations have been reported in up to a fifth of medical students<sup>5</sup>. Upon entering medical schools, students' psychological status closely resembles that of the general population. However, depression scores tend to rise as students move on to the stressful study and training of the medical school years<sup>6</sup>. Some studies report that stress in medical students tend to rise as they progress through their medical school training<sup>7,8</sup>. However other studies suggest that stress levels are highest in the first 2 years of medical school training and tend to get better in the third or fourth year<sup>9,10</sup>. There is considerable evidence that having high stress or perceived stress levels affects the academic performance of the students adversely<sup>3,11</sup>.

A systematic review and metaanalysis of 195 studies (n=129,123) from 47 countries concluded that the prevalence of depression or depressive symptoms among medical students was 27.2% and the prevalence of suicidal ideation was 11.1%. Less than a fifth of medical students who screened positive for depression were seeking treatment. The prevalence of depressive symptoms in medical students is substantially higher in medical students as compared to their age counterparts in the general population<sup>12</sup>.

Several factors have been identified that may lead to the increased prevalence rates of stress, depression and anxiety among senior medical students. Factors that lead to stress among senior medical students and house officers include history taking<sup>13</sup>, breaking bad news<sup>13</sup>, coping with uncertainty<sup>14</sup>,<sup>15</sup> a sense of responsibility<sup>14,15</sup>, and figuring out how to deal with supervisors and nurses<sup>14,16,17</sup>. Long hours at work<sup>2,17</sup>, having an extensive workload<sup>2</sup>, meeting deadlines<sup>2</sup>, poor sleep quality<sup>17,18</sup>, larger total patients loads<sup>18</sup>, talking with patients<sup>16</sup> and dealing with death or suffering<sup>16,17</sup>.

Several studies suggest that the transition time from premedical to medical, preclinical to clinical training and from clinical training to approaching qualification is particularly stressful

for medical students<sup>15,9,18</sup>. The stress of transition, however, can be reduced by gaining clinical experience during the last 2 years of medical school training<sup>15</sup>. The Royal college of Physicians, UK has warned that high stress levels among junior doctors were putting patients at risk<sup>19</sup>. The British medical association (BMA) doctor cohort study followed 430 doctors who graduated in 2006 for 10 years. The study identified that work life balance responsibilities, shortage of doctors and high levels of paper work were the major factors of stress among medical doctors<sup>20</sup>

The aim of this study was to explore the factors that final year Pakistani medical students, who were about to transition from student life to house job training, find most stressful and distressing. To our knowledge, no previous study has explored these factors previously in this population in Pakistan.

## MATERIALS AND METHODS

The most common and most prevalent factors responsible for making medical students stressed were identified after a thorough review of the literature on this subject. A questionnaire was developed in which medical students were asked to rate their answers on a scale from 1 to 5 for each question. A score of "1" would mean that the respondent was extremely stressed, "2" significantly stressed, "3" neutral, "4" stressed a little and "5" not stressed at all. A total of 194 MBBS final year medical students at Azra Naheed medical college, Lahore participated in this study. The study sample consisted of two consecutive batches of final year students. The first batch was from the final year class of 2018-19 and the second batch from the class of 2019-20. The study was conducted from September 2018 to January 2020.

Ethical approval for the study was granted by the institutional review board at Azra Naheed medical college, Lahore. Informed consent was received from all the students and anonymity and confidentiality was assured. The results were entered and analyzed in SPSS version 23.

Descriptive statistics were used to determine report the individual frequency of each source of stress. Independent samples T-test was used to analyze gender differences between

study participants on gender as well as among the study participants who had/had not a parent or a sibling who was a doctor. Sample size was calculated using the G-power software version 3.1.9.4. The following parameters were used to determine the sample size; a two-tailed test, Effect size (d) of 0.5,  $\alpha$  error probability of 0.05, power(1-  $\beta$ ) of 0.90 and allocation ratio of 1. Thus a sample size of 172 was calculated for analyses to be conducted for the study.

**RESULTS**

The number of male students who participated in this study was 92 (47.4%) and the number of female students was 102 (52.6%) Over a third of study participants (70 students, 36.1%) had a parent or a sibling who was a doctor while 124 students (63.9%) did not have a doctor parent or sibling.

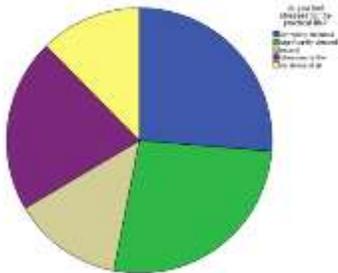


Figure 1: Student responses about the question "do you feel stressed for the practical life?"

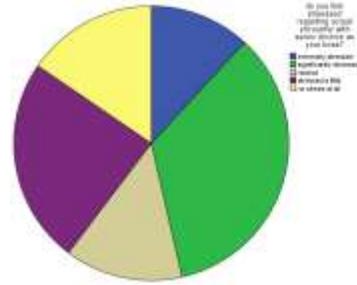


Figure 2: Student's response in percentages about encountering their seniors as their bosses.

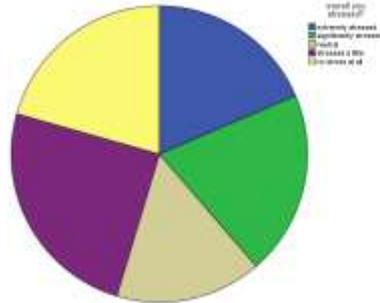


Figure 3: Percentages of students who were/weren't stressed overall.

Table 1: Percentages of students who were extremely stressed, significantly stressed, neutral, stressed a little or not stressed at all for all questionnaire item. The table also shows the means, p-values and confidence intervals for the gender difference between the study participants on each item and p-values and confidence intervals for the difference between participants who had a parents or siblings who was a doctor.

Question	Extremely stressed (percentage)	Significantly stressed	Neutral	Stressed a little	Not stressed at all	Number of male students (Mean)	Number of female students (Mean)	p-value (gender difference)	Confidence interval (gender difference)	p-value (parents or siblings doctors)	Confidence interval (parents or siblings doctors)
Do you feel stressed for the practical life?	26.3%	26.8%	13.4%	21.1%	12.4%	92 (3.03)	102 (2.33)	.000	.318 to 1.081	.558	-.228 to .532
Do you feel a fear of not being cable enough to deal with human life?	12.4%	22.2%	19.1%	27.8%	18.6%	92 (3.41)	102 (2.97)	.018	.076 to .809	.196	-.512 to .261
Do you feel stress that you may get caught of not being adequately knowledgeable?	11.3%	21.6%	20.1%	27.8%	19.1%	92 (3.27)	102 (3.17)	.573	-.262 to .473	.193	-.564 to .199
Do you feel stress for still being indecisive about future specialty?	12.4%	19.1%	19.1%	26.3%	23.2%	92 (3.35)	102 (3.24)	.561	-.269 to .494	.213	-.648 to 1.45
Do you feel stressed regarding actual encounter with patients?	5.7%	19.6%	19.6%	28.9%	26.3%	92 (3.76)	102 (3.27)	.006	.143 to .829	.184	-.594 To 1.31
Do you feel stressed regarding actual encounter with patient's attendants?	5.2%	17.0%	21.1%	23.2%	33.5%	92 (3.74)	102 (3.53)	.244	-.144 to .564	.151	-.636 to .099
Do you feel stressed regarding actual encounter with senior doctors as your boss?	11.9%	34.5%	13.9%	24.2%	15.5%	92 (3.17)	102 (2.78)	.037	.024 to .755	.068	-.735 to .027
Do you feel stressed for the hectic and stressful life ahead	13.9%	23.7%	19.1%	46%	39%	92 (3.23)	102 (3.01)	.260	-1.63 to .600	.585	-.508 to .287
Do you feel stressed for leaving this student life / friends etc	18.6%	20.6%	15.5%	16.5%	28.9%	92 (3.33)	102 (3.02)	.156	-.118 to .731	.255	-.186 to .698
Do you feel stressed for highest expectations of family, friends and teachers	16.0%	26.8%	19.6%	14.9%	22.7%	92 (3.07)	102 (2.97)	.641	-.305 to .494	.014	-.925 to -.107
How stressed are you over all	18.6%	20.1%	16.0%	24.7%	20.6%	92 (3.30)	102 (2.89)	.043	.013 to .812	.454	-.579 to .260

The three most common sources of stress among final year medical students were dealing with the practical life after their graduation (53.1% of the students were extremely or significantly stressed); encountering senior bosses as their doctors (46.4% extremely or significantly stressed) and the highest expectations of their family/friends (42.8% extremely or significantly stressed). Other sources of stress (in decreasing order of frequency) were as follows; leaving student life/friends (39.2% extremely or significantly stressed), hectic and stressful life ahead (37.6% extremely or significantly stressed), not feeling capable enough to deal with human life (34.5% extremely or significantly stressed),

getting caught of not being adequately knowledgeable enough (33.0% extremely or significantly stressed), being indecisive about future specialty (31.4% extremely or significantly stressed), actual encounter with patients (25.3% extremely or significantly stressed), and actual encounter with patients' relatives (22.2% extremely or significantly stressed). Nearly two fifths (38.7%) of the students were either extremely (18.6%) or significantly stressed (20.1%) overall. Individual details of responses from the students are outlined in table 1.

Independent sample T-test was used to calculate gender differences on the various sources of stress. Female students were

significantly more likely to be stressed than male students on overall reported stress. Female students were also significantly more likely to be stressed about the practical life ahead, about not feeling capable enough to deal with human life, about actual encounter with patients, and about encounter with senior doctors as their bosses. However there was no significant gender difference on the stress of getting caught of not being knowledgeable enough, on the stress of still being indecisive about future specialty, on the stress of dealing with patients relatives, on dealing with stressful and hectic life ahead, on the stress of leaving student life/friends and on the stress of the highest expectation of family and friends. Further details of gender differences among the study participants are described in table 1.

Students who had a doctor parent/sibling were significantly more likely to be stressed about the highest expectation of family/friends. There was no significant difference on any other stress measures between students who had a parent or a sibling who was a doctor versus students who did not (Table 1).

## DISCUSSION

Nearly two-fifths of the study participants (38.7%) reported feeling extremely or significantly stressed overall. This is in line with earlier literature findings from UK<sup>7, 4, 20</sup> and Belgium<sup>3</sup>. However previous studies from Pakistan<sup>9</sup> and India<sup>1</sup> conducted in medical students have reported significantly higher rates of stress, anxiety and depression. It is possible that the validated measures of stress, depression and anxiety used in previous studies are sensitive enough to pick out even those individuals who are suffering from milder forms of distress/illness. Another explanation for the difference in our results and previous studies from Pakistan can be the fact we have used a 5-point rating scale to assess stress levels in our study. It is possible that a multipoint likert-style rating scale assesses stress levels in a way which is different from formal psychiatric questionnaires. One Indian study however reported comparable levels (45.8%) of work-related stress among medical interns (house officers)<sup>2</sup>.

The most common reasons for students to get stressed in this study were dealing with the practical life after their graduation, dealing with senior doctors as their bosses and meeting the highest expectations of family/friends. Similarly, a Taiwanese study which used a qualitative study design found that coping with uncertainty, a sense of responsibility and figuring out how to deal with supervisors and nurses were the most important reasons of stress in medical interns<sup>18</sup>. A qualitative study from UK also reported that dealing with newly gained responsibility, managing uncertainty, working in multi-professional teams, experiencing the sudden death of patients and feeling unsupported were the main stress factors among recently graduated young doctors<sup>15</sup>. Another British study<sup>16</sup> reported that talking with patients, private life issues, presenting cases and performing on ward rounds, dealing with death or sufferings, relationship with consultants and academic work were the main factors causing stress among fourth year medical students. Being belittled or humiliated by senior colleagues has also been reported as one the main stress causing factors among second year residents in the United States. Some participants even reported being slapped, pushed kicked or hit<sup>21</sup>. One study reported that after their medical school training, medical students find themselves prepared for professional activities with low patient risk (e.g. medical examination) but are less prepared and confident for activities with high patient risk (e.g. interpreting an ECG)<sup>22</sup>.

Previous studies conducted in Pakistan<sup>23, 24, 8</sup> and elsewhere<sup>25, 6, 9</sup> have reported higher rates of depression and anxiety among females as compared to males. In line with these findings, in our study female students reported significantly higher overall stress levels as compared to male students. Female medical students were also significantly more likely to be stressed about dealing with practical life, about not being capable enough to deal with human life, about actual encounter with patients and about dealing with senior doctors as their bosses as compared to male students.

However there were no significant gender differences on the rest of stress measures between the participants.

## CONCLUSIONS

Transitioning from student to practical life is stressful experience. Our study has highlighted the most prevalent sources of stress among final year medical students who are about to appear in the final professional examinations. This stress can be reduced by gradually introducing the junior doctors into their new responsibilities and by a welcoming and gentle attitude of seniors towards them. House officers should be made to feel supported at all times. House officer induction programs should take into account the sources of stress reported in this study and in the literature and facilitate a gentler and more effective transition for senior medical students.

**Sources of funding:** None

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