

## Burnout and depression among college students pursuing Bachelor of Physiotherapy and Occupational Therapy, in Delhi NCR - a cross sectional study

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### Abstract

Stressors from everyday life, along with those from work and academic environment, may compromise the mental health and well-being of allied health professionals. With this study, we tried to estimate the prevalence and factors associated with burnout and depression among students of Bachelor of Physical Therapy and Occupational Therapy in Delhi NCR region. This cross-sectional study was carried out among 197 students pursuing a Bachelor of Physiotherapy (BPT) and Occupational Therapy (BOT) in Delhi, NCR region. Data collection was online, using Oldenburg Burnout Inventory (OLBI) and Patient Health Questionnaire (PHQ-9) to assess burnout and depression, respectively, along with basic socio-demographic information. Data analysis was carried out on Stata 15.1. Prevalence was estimated, and factors associated with Burnout and depression were explored using Linear and logistic regression models, respectively. Among 197 participants, the majority were females and the mean age was 22 years. The prevalence of burnout and depression was 79.7% (95% CI: 73.4, 84.7) and 66.5% (95% CI: 59.6, 72.7), respectively. Some factors, like experiencing symptoms of physical exhaustion and satisfaction with academic support from faculty at college, were associated with both burnout and depression separately. The prevalence of burnout and depression among BPT/BOT students in Delhi, NCR, was alarming yet comparable to other health professionals in India and globally. The study provides a narrative of these issues along with associated factors identified among the study population. A need for a longitudinal study to establish a causal association of factors with burnout and depression among this study population is iterated.

## 1. INTRODUCTION

World Health Organization (WHO) defines health "as a state of absolute physical, mental and social well-being and not only the absence of disease or infirmity"(WHO, 1948). Today, there are multipronged approaches available for treating physical ailments, but more often than not, the mental and social aspects of health are not focussed upon. In 2017, 44.9 million and 45.7 million Indians suffered from anxiety and depressive disorders, respectively. Also, the overall contribution of mental disorders to the total disability-adjusted life years (DALY's) increased from 2.5% in 1990 to 4.7% in 2017. Depressive disorders contribute to about 34% of the total DALY's due to mental disorders ([Sagar et al., 2020](#)).

However, this number is likely to be an underestimation as the lack of awareness and stigma associated with mental health problems might affect these numbers. A study conducted among college students in the southern part of India in 2016 observed that stigma hinders the health care seeking behaviour and showed low mental health literacy

among these students, wherein only 29% acknowledged depression and 1.3% recognised schizophrenia/psychosis (Ogorchukwu, Sekaran, Nair, & Ashok, 2016).

Poor mental health and the consequences of the same have been assessed globally. Though the conversation around the workplace's mental health and well-being is gaining momentum, there is a rising need to understand the mental health of medical workers, hospital staff and clinical students. Studies show that they are more likely to be affected by various mental health conditions. Stressors from everyday life and stressors that are particular to the wearying learning environment could be some contributing factors to their overall mental health and well-being (Ngasa et al., 2017). In a systematic review, U.S. and Canadian medical students were identified as having a higher prevalence of depression and anxiety (L. N. Dyrbye, Thomas, & Shanafelt, 2006). Along with that, an overall increased psychological distress than the general population and age-matched peers was noted (L. N. Dyrbye et al., 2006). Several factors like family motive behind the choice to study medicine, lower scores, reported suicide attempts, lower financial status, and lower religious commitments have been shown to be contributing factors to the increased level of psychological stress and depression among Palestinian medical students (Shawahna, Hattab, Al-Shafei, & Tab'ouni, 2020). Many studies assessing such socio-demographic factors affecting depression also discuss an important factor, burnout, which was first described as the "emotional exhaustion experienced by workers in the public services" by Freudenberg in 1974. In 1986 it was conceptualised as a "three-dimensional contrive of De-personalisation (DP), Emotional Exhaustion (EE), and reduced Personal Accomplishment (PA)" by Maslach and Jackson (Maslach, Schaufeli, & Leiter, 2001). The concept of Burnout has since been evolving and is now also assessed as a two dimensional construct of Exhaustion and Disengagement as defined by Demerouti and colleagues (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Many studies across the globe have assessed Burnout. In 2014, more than half of the US physicians reported experiencing professional burn out (Shanafelt et al., 2015), however these numbers were also expected to vary across region as burnout arises from stressors from work environment and this environment is affected by various factors like speciality of service, time and work setting among others (S. Kumar, 2016).

In a study based in east-central China, overall, the students were close to being burned out as per the academic burnout scale (Wang, Guan, Li, Xing, & Rui, 2019). The odds of developing major depression were higher in burnt-out physicians as compared to non-burnt-out physicians, and these odds were likely to increase with increasing levels of burnout (Wurm et al., 2016). There aren't enough studies on another section of the healthcare workforce, the rehabilitation sector, which primarily consists of physiotherapists, occupational therapists and clinical students pursuing these courses. A study conducted in New York among practising physical and occupational therapists showed high burnout scores for them, with a higher score of EE, DP component and lower PA component (Balogun, Titiloye, Balogun, Oyeyemi, & Katz, 2002). To our knowledge, there are no studies that have explored burnout and depression among clinical students at the bachelor level of physical and occupational therapy.

For premedical students, multiple examinations and immense competition are some factors that might cause early exposure of young minds to various mental health issues like stress, burnout and depression, among many other conditions. The meticulous academic curriculum of BPT/BOT students adds to the pressure of academic life. Most of the students pursuing BPT/BOT start with their clinical postings in 3<sup>rd</sup> year, which happens alongside their academic teaching, which puts additional work pressure. These make students more susceptible to occupational health problems, including mental health conditions. Like other medical professions, clinical students tend to spend several hours with the patient as their treatment sessions are longer with prolonged duration of interaction with a patient. This may be attributed to the increased physical exhaustion. All of these may lead to undue stress, and this may be exhibited in the form of various predisposing factors to mental distress like burnout and can also lead to depression.

With this study, we tried to estimate the prevalence and factors associated with burnout and depression among students pursuing a Bachelor of Physiotherapy and Bachelor of Occupational Therapy in Delhi NCR, India.

## 2. METHODS

Prior to conducting the survey, a comprehensive literature review was initiated in October 2019, which continued till June 2021, to explore the existing evidence. A search strategy was designed to explore the online scientific databases CENTRAL and MEDLINE. Search terms like "burnout", "depression", "medical students", "physiotherapist", "occupational therapist", "medical trainees", "interns", "physiotherapy students", "occupational therapy students", "India" were used in different combination with the help of Boolean operators to yield results. Cross-referencing from the pertinent articles was done to identify other relevant studies. The initial focus was on burnout and depression, and the population of interest was BPT/BOT students and interns and in India, but due to a lack of sufficient literature, studies conducted among other health professions like nurse medical residents were included. Articles from around the world were reviewed for other associated phenomena like stress and anxiety as well. This helped in the identification and in-depth understanding of factors associated with both the outcomes of interest. A total of 13 global and 8 Indian primary studies, along with four review articles, were used to develop an understanding of the topic and compare the findings.

In the cross-sectional study, the questionnaire was pretested among 22 individuals. The feedback thus received was then contemplated upon, and necessary modifications were incorporated into the final questionnaire. The sample size was calculated manually using the formula for estimation of proportion given in Equation 1.

$$n = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

Equation 1

The prevalence of depression among medical students in Karnataka, India, is 71.2% (G. S. Kumar, Jain, & Hegde, 2012), with a 95% confidence interval. The formula for adjusting the non-response rate is provided by Equation 2.

$$n_2 = \frac{n_1}{1-NR}$$

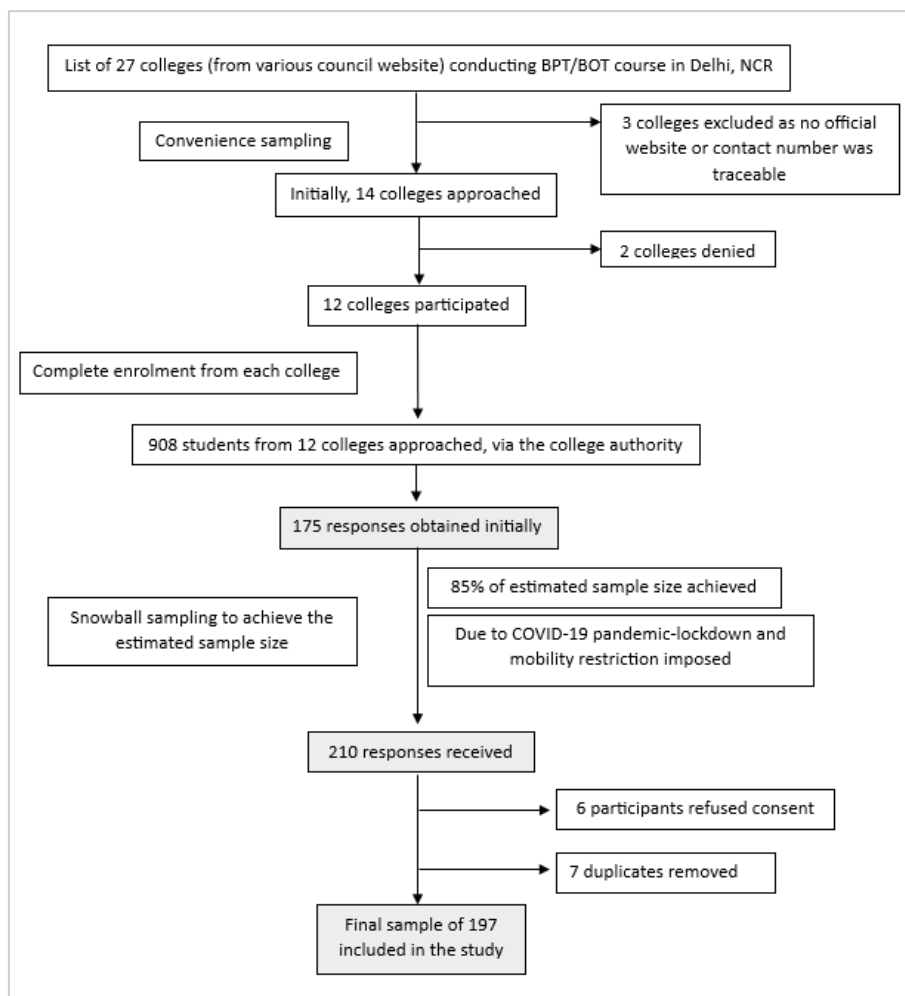
Equation 2

Taking precision as 7% and adjusting for 20% non-response, the final sample size was estimated at 203. Participants were recruited, as shown in Figure 1.

The data collection of the online survey was carried out between 21<sup>st</sup> Feb 2021 and 15<sup>th</sup> Apr 2021 via Google Forms. The link to the Participant Information Sheet (PIS) and consent form was shared with students, followed by a reminder after seven days. Once the students who were approached agreed to participate and provided online consent, the link to the three sets of questionnaires opened up on the same platform. Burnout for the study population was assessed using the Oldenburg burnout inventory (OLBI) (Demerouti, Mostert, & Bakker, 2010). The tool has a set of eight negatively phrased and eight positively phrased, a total of sixteen questions scored from 1-4 for each question. The total range of scores is 16 to 64. A higher score represented more burnout. The cut-off scores have been operationally defined for this study based on the literature.

Though there is no standard cut-off for this score, previous literature (Ruwaard, Lange, Schrieken, Dolan, & Emmelkamp, 2012) (Summers, Gorrindo, Hwang, Aggarwal, & Guille, 2020) has used a cut-off of 2.1 for each question, which translates to 35 as the cut-off score. The scale also measures burnout on the basis of two components: Exhaustion and Disengagement. The cut-off for these components, as used in previous literature (Masri et al., 2019), are 2.25 and 2.18 per question, respectively. These scores give a cut-off of 18 for exhaustion and 17 for disengagement. Depression was measured using the Patient Health Questionnaire-9 (PHQ-9). This tool includes nine questions scored 0-3 each. Respondents can score from 0-27. Question 10 assesses the difficulty faced by the respondent in daily functioning due to these problems. The total PHQ-9 score can be further divided to assess the severity of the depression as mild (5-9), moderate (10-14), moderately severe (15-19) or severe (20-27), for analysis of

depression, was taken as a binary variable. Respondents with varying degrees of depression were merged into one category, "depression present".



**Figure 1.** Participant recruitment strategy

As the data was collected by two methods, a sensitivity analysis was carried out to compare the dependent variable (85% data with 25% data) and was found to be comparable. The data obtained from 197 students from 14 colleges (12 from the initial method of selection and two more colleges added on snowballing) was described in terms of percentages and frequencies for categorical variables and mean/median with standard deviation/range for continuous variables. The prevalence of burnout and depression was also estimated using the predefined cut-off. In order to assess the association of burnout with other independent factors, bivariate analysis was carried out, taking OLBI's total score as a continuous variable. One-way analysis of variance (ANOVA) or t-test was carried out between each independent variable and the OLBI score. All the significant variables ( $p < 0.05$ ) were used in the final model of multivariable linear regression to see the association of independent factors with burnout score. The post-estimation checks of normal distribution of residuals, homoscedasticity of residuals (Breusch-Pagan/Cook-Weisberg test), outliers and multi-collinearity among the exposure variables were checked for the multivariable linear regression model.

In order to assess the association of depression with other independent factors, bivariate analysis was carried out, taking PHQ as a binary variable. This was created by merging the various levels of severity of depression into one category of "depression present". Chi-square or Fisher exact test were carried out between each independent variable and the PHQ category. The final multivariable logistic regression model included the significant findings from the bivariate analysis, and the important independent variables with borderline significance were also included. However, the model thus prepared

showed some collinearity, so few variables were excluded from the final model. The variables with significant association after adjusting for other factors were reported.

### 3. RESULTS

Of the 197 participants, the mean age was 22, with the majority (68.5%) females. Among the study population, three-fourths were pursuing BPT, and 70% were fourth-year students. A detailed description of the study population has been covered in [Table 1](#) and [Table 2](#). It was also noted that most participants did not smoke (96.5%) or consume alcohol (93.9%). Also, no participant consumed chewable tobacco.

**Table 1.** Socio-demographic and lifestyle profile of the study population, N=197

Characteristics, N=197	n (%)
<b>Gender</b>	
Female	135(68.5)
Male	61 (31.0)
Other	01(0.5)
Mean age in years, SD	22.1 ± 1.4
<b>Marital status</b>	
Unmarried	193 (98.0)
Married	04 (2.0)
<b>Family type</b>	
Nuclear	118 (60.0)
Joint	40 (20.2)
PG/Hostel/Flat, with or without roommate	39 (19.8)
<b>Family income (annual) (N=149)</b>	
Up to three lakhs	59 (39.6)
3-5 lakhs	32 (21.5)
>5 lakhs	58 (38.9)
<b>Number of siblings</b>	
No siblings	11 (5.6)
1-2 siblings	138 (70.0)
≥3 siblings	48 (24.4)
<b>Physical injury in last year</b>	
No injury	150 (76.2)
Yes	43 (21.8)
Do not want to answer	04 (2.0)
<b>Chronically ill member for at least 1 year</b>	
Yes	29 (14.7)
No	168 (85.3)
<b>Loss of immediate family member in last year</b>	
Yes	42 (21.3)
No	149 (75.6)
Do not want to answer	06 (3.1)
<b>Loss of close acquaintance in last year</b>	
Yes	77 (39.1)
No	114 (57.9)
Do not want to answer	06 (3.0)
<b>Close family member with history of depression</b>	
Yes	46 (23.4)
No	141 (71.6)
Do not want to answer	10 (5.0)

<b>Exercise frequency</b>	
Never/ less frequent	41 (20.8)
1-2 times a week	91 (46.2)
3-4 times a week	40 (20.3)
5-7 times a week	25 (12.7)
<b>Alcohol consumption</b>	
Yes	12 (6.1)
No	185 (93.9)
<b>Smoking</b>	
Yes	07 (3.5)
No	190 (96.5)
<b>Physical exhaustion symptoms (multiple choice)</b>	
No exhaustion	36 (18.2)
Lack of sleep	33 (16.7)
Neck pain	01 (0.5)
Inattentive/lack of concentration	27 (13.7)
Low back pain	49 (24.8)
Feeling sleepy	39 (19.8)
Headache	79 (40.1)
Tired all the time	40 (20.3)

The mean OLBI score was 38.7. Mean disengagement and exhaustion scores were 18.8 and 19.8, respectively. Prevalence of burnout was 79.7% (95% CI: 73.4, 84.7); high exhaustion was 79.7% (95% CI: 73.4, 84.7); high disengagement was 82.7% (95% CI: 76.7, 87.4) among the study participants. Out of the total study population, the majority of the respondents, 34.6% (95% CI: 28.1, 41.4) (n=68), were mildly depressed, while about 5.6% (95% CI: 3.1, 0.9) (n=11) had severe depression. However, overall, about two-thirds of the population, 66.4% (95% CI: 59.5, 72.7) (n=131), had depression at varying degrees (mild, moderate, moderately severe and severe combined). In response to the last section of PHQ-9, which inquired about difficulty in daily functioning, about 50% of students reported that it is somewhat difficult for them to manage overall everyday functioning.

**Table 2.** The academic profile of the study population, N=197

<b>Characteristics, N=197</b>	<b>n (%)</b>
<b>Course</b>	
BPT	148 (75.1)
BOT	49 (24.9)
<b>Type of college</b>	
Government	32 (16.2)
Private/Semi private	159 (80.7)
Do not know	6 (3.1)
<b>Year of study</b>	
Fourth year	138 (70.1)
Intern	59 (29.9)
<b>Examination type</b>	
Semester end	77 (39.1)
Annual	120 (60.9)
<b>Clinical posting</b>	
Yes	100 (50.7)
No	97 (49.3)

<b>Choice of course</b>		
First/second preference		106 (63.8)
Last resort		20 (10.2)
Family pressure/other reason		71 (36.0)
<b>Course concerns (multiple choice)</b>		
	Before COVID-19	During COVID-19
No concern	26 (13.2)	20 (10.1)
Financial issues	34 (17.2)	21 (10.6)
Getting enough attendance	27 (13.7)	06 (3.0)
Travelling to College/place of clinical posting	43 (21.8)	25 (12.6)
Exam pressure	38 (19.2)	31 (15.7)
Course syllabus	33 (16.7)	37 (18.7)
Clinical placements	65 (32.9)	55 (27.9)
Getting good marks	41 (20.8)	22 (11.1)
Attending online class	NA	39 (19.8)
Lack of on campus class	NA	39 (19.8)
Internet connectivity issue	NA	26 (13.2)
 <u>Support satisfaction before COVID19 pandemic</u>		
	Before COVID-19	During COVID-19
<b>Peers at work place</b>		
No satisfaction	11 (5.6)	3 (3)
Low satisfaction	47 (23.9)	18 (18)
High satisfaction	139 (70.5)	79 (79)
<b>Peers at college</b>		
No satisfaction	8 (4.1)	
Low satisfaction	47 (23.9)	
High satisfaction	142 (72.0)	
<b>Faculties at workplace</b>		
No satisfaction	20 (10.2)	6 (6)
Low satisfaction	55 (27.9)	26 (26)
High satisfaction	122 (61.9)	68 (68)
<b>Faculty at college</b>		
No satisfaction	16 (8.1)	
Low satisfaction	50 (25.4)	
High satisfaction	131 (66.5)	
<b>Future concerns after course completion (multiple choice)</b>		
No concern		05 (2.5)
Getting paid appropriately		62 (31.4)
Getting a job after this course		97 (49.2)
Getting into PG course		93 (47.2)
Owing to COVID-19 my pay-scale might be less		13 (6.6)
Owing to COVID-19 my job opportunities might be less		13 (6.6)

Bivariate analysis between all socio-demographic, lifestyle-related and academic factors with burnout scores (continuous variable) was carried out. Followed by adjusted analysis (multivariable linear regression) using key variables identified from the literature and observed in the present study. The goodness of fit for the model was assessed, and the fit of the model was good (R square 32%).

The independent variables explain thirty-two per cent of the variation in burnout. Also, the residuals were normally distributed, and the heteroscedasticity was not significant (p-value 0.390). On testing the multi-collinearity, the average variance inflation factor



was found to be 1.19, thus concluding no correlation. As shown in Table 3, experiencing symptoms of physical exhaustion (3.2, 95% CI: 1.55, 5.01), not being satisfied with academic support provided by faculty at college (3.4, 95% CI: 1.04, 4.94), having concerns about reduction in future pay due to COVID-19 (2.7, 95% CI: 0.10, 5.33) and choosing the course as a last resort (2.8CI: 0.60, 5.16); all had higher burnout scores which were statistically significant with p-value <0.05.

**Table 3.** Multivariable linear regressions of independent variables with burnout score

<b>Characteristics</b>	<b>Unadjusted Beta-coefficient (95%CI)</b>	<b>Adjusted Beta-coefficient (95% CI)</b>
<u>Socio-demographic and family factors</u>		
<b>Chronically ill member for at least 1 year</b>		
No	2.4 (0.41, 4.47)	(-0.80, 2.95)
Yes	0.018	0.261
<b>Loss of immediate family member</b>		
Yes	2.4 (0.67, 4.19)	2.8 (1.23, 4.48)
No	2.4 (-1.91, 6.86)	1.2 (-2.85, 5.34)
Do not want to answer	0.024	0.002*
<b>Close family member with history of depression</b>		
No	2.5 (0.86, 4.23)	1.2 (-0.29, 2.87)
Yes	3.7 (0.45, 6.96)	1.8 (-1.25, 4.98)
Do not want to answer	0.002	0.181
<b>Lifestyle factors</b>		
Physical exhaustion symptoms		
No symptom	4.6 (2.92, 6.45)	3.2 (1.55, 5.01)
Some symptom	<0.001	<0.001*
<b>Academic factors</b>		
Type of college		
Government	-1.8 (-3.78, 0.11)	-0.3 (-2.13, 1.46)
Private/Semi private	2.3 (-2.17, 6.80)	1.8 (-2.19, 5.88)
Do not know	0.036	0.503
<b>Choice of course</b>		
First/second preference	3.2 (0.79, 5.68)	2.8 (0.60, 5.16)
Last resort	1.6 (0.09, 3.17)	0.9 (-0.48, 2.31)
Family pressure/other reason	0.012	0.037*
<b>Support satisfaction before COVID19 pandemic</b>		
High satisfaction	2.6 (0.99, 4.23)	(-0.51, 2.53)
Low satisfaction	5.0 (2.46, 7.62)	3.4 (1.04, 4.94)
No satisfaction	<0.001	0.015*
Course concern, before COVID-19 pandemic		
<b>Course concerns</b>		
No concern	2.8 (0.72, 4.96)	0.7 (-1.21, 2.69)
Some concern	0.009	0.457
<b>Financial concerns</b>		
No	2.39 (1.01, 4.78)	0.7 (-1.01, 2.55)
Yes	0.003	0.393
<u>Future concern about reduced pay due to COVID-19 pandemic after course completion</u>		
No	4.6 (1.74, 4.46)	2.7 (0.10, 5.33)
Yes	0.002	0.042*

\*p-value<0.05, statistically significant



Association between all socio-demographic, lifestyle-related and academic factors with depression was explored. It is important to note that for those who were in the depressed category, the majority (50%) were mildly depressed. Bivariate analysis was carried out between all the independent variables and depression (binary variable), following which adjusted analysis was carried out using key variables identified from the literature and was used in the final model of multivariable logistic regression. The goodness of fit for the model was checked using the Hosmer-Lemeshow test and estimated to be 45%. As shown in Table 4, students who reported experiencing some symptoms of physical exhaustion had 4.2 (95% CI: 1.64, 11.21) times higher odds of being depressed than those who did not report such symptoms.

**Table 4.** Multivariable logistic regression of independent variables with depression (binary)

Characteristics	Crude OR (95% CI)	Adjusted OR (95% CI)
<u>Socio-demographic factors</u>		
<b>Gender</b>		
Female	(0.55, 2.01)	2.0 (0.92, 4.54)
Male	0.860	0.077
<b>Close family member with history of depression</b>		
No	1.9 (0.92, 4.21)	(0.46, 2.66)
Yes	5.5 (0.68, 45.3)	5.3 (0.56, 51.01)
Do not want to answer	0.070	0.339
<u>Personal habits and lifestyle factors</u>		
<b>Physical exhaustion symptoms</b>		
No symptom	5.6 (2.60, 12.32)	4.2 (1.64, 11.21)
Some symptom	<0.001	0.006*
<u>Academic factors</u>		
<b>Study year</b>		
Intern	1.93 (1.02, 3.63)	2.5 (1.13, 5.64)
Fourth	0.041	0.023*
<u>Course concern, before COVID-19</u>		
<b>Clinical placement concerns</b>		
No	2.0 (1.06, 4.12)	2.3 (1.06, 5.05)
Yes	0.031	0.034*
<u>Course concern, during COVID-19</u>		
<b>Online class concerns</b>		
No	2.2 (0.96, 5.21)	1.9 (0.73, 4.94)
Yes	0.059	0.118
<u>Support satisfaction before COVID-19</u>		
<b>Faculty at college</b>		
No satisfaction	0.8 (0.16, 4.72)	0.3 (0.03, 3.34)
Low satisfaction	0.1 (0.04, 0.84)	0.1 (0.01, 1.18)
High satisfaction	<0.001	0.049*
<b>Peers at college</b>		
High satisfaction	5.9 (2.22, 15.99)	3.8 (1.23, 11.74)
Low satisfaction	2.1 (0.41, 10.93)	0.3 (0.03, 4.08)
No satisfaction	0.001	0.034*

\*p-value<0.05, statistically significant

Fourth-year students were 2.5 (95% CI: 1.13, 5.64) times more likely to be depressed than interns. Students who reported low satisfaction with support provided by peers at colleges were 3.8 (95% CI: 1.23, 11.74) times more likely to be depressed than those who were highly satisfied. Students who reported having concerns related to clinical placement before the COVID-19 pandemic were 2.3 (95% CI: 1.06, 5.05) times more likely to be depressed than the students with no such concerns. Also, students who reported high satisfaction with academic support from faculty at college were 0.1 (95% CI: 0.01, 1.18) times less likely to be depressed than those who were not satisfied. All these variables were statistically significant,  $p$ -value $<0.05$ .

## 4. DISCUSSION

### 4.1 Prevalence of burnout

In the current study, the overall prevalence of burnout among BPT/BOT students of Delhi NCR was 79.7%. Since different tools are used for assessing the prevalence of burnout in several studies documented in the literature, a comparison with similar studies shows 90% among medical residents and faculties (Grover, Sahoo, Bhalla, & Avasthi, 2018); 30% of Interns and medical residents (Ratnakaran, Prabhakaran, & Karunakaran, 2016); 55.4% of physicians and nurses had burnout (SABA Study Investigators and the Asian Critical Care Clinical Trials Group et al., 2018). In the current study, two components of burnout, the prevalence of high exhaustion and high disengagement, were 79.7% and 82.7%, respectively. Different tools assess different components of burnout; however, no studies were identified that explored the prevalence of the components among similar study populations. In the current study, the average total burnout score was 38.7, the mean disengagement score was 18.8, and the mean exhaustion score was 19.8. This was in the middle of findings among medical students in New Delhi, who demonstrated lower mean scores of 15.3 and 17.5 for disengagement and exhaustion components of burnout, respectively (Goel, Akarte, Agrawal, & Yadav, 2016) and in Cameroon, where mean disengagement and exhaustion score were 16.6 and 20.4 respectively (Njim, Makebe, et al., 2019).

### 4.2 Association of burnout with socio-demographic, lifestyle and academic factors

Experiencing symptoms of physical exhaustion was associated with burnout in the present study participants. Common factors causing burnout, like feeling worn out or not having time for leisure activities, were significantly associated with burnout in a systematic review (Kesarwani, Husaain, & George, 2020) from India and primary studies among dental graduates (Kulkarni et al., 2016) and medical students (Grover et al., 2018) in India. In the current study, academic factors like concern about reduced pay after course completion during the COVID-19 pandemic were associated with burnout. This finding is comparable to some global studies, a qualitative study among postgraduate students of physiotherapy (Brooke, Brown, Orr, & Gough, 2020), where financial pressure was identified as one of the key themes related to burnout, lower pay and uncertainty about future was also associated with a higher risk of burnout in a study among working PT's/OT's (Kim et al., 2020) and medical students (L. Dyrbye & Shanafelt, 2016). Other significant academic factors in our study associated with burnout were the reasons for choosing the course. This can be compared to the study conducted by Kesarwani and colleagues, which concluded that professional dissatisfaction was associated with burnout among health professionals in India (Kesarwani et al., 2020). In the current study, satisfaction with academic support provided by faculty at college was significantly associated with burnout, and these can be related to similar findings from another study that showed factors like feeling of negative bias from faculty and a lack of empathy from seniors were significantly associated with high burnout score among the medical residents from Chandigarh, India (Grover et al., 2018). The study among working PTs and OTs in New York, U.S.A. (Balogun et al., 2002) identified that the level of support from supervisors and colleagues predicted some components of burnout.

Unlike the current study, global studies identified that female gender among postgraduate (PG) physiotherapy students (Brooke et al., 2020), as well as marital

status and recreational drug use among medical students (Njim, Makebe, et al., 2019), significantly predicted burnout.

### **4.3 Prevalence of depression**

In this study, the overall prevalence of depression among the study population was 66.5%. It is worth noting that all professional courses in the healthcare sector across several countries demonstrate a high prevalence of key mental health issues. Most of the Indian studies have reported depression among medical students, medical professionals and college students as 71.2% (G. S. Kumar et al., 2012), 30.1% (Grover et al., 2018) and 47.8% (Nezam et al., 2020) respectively. Studies conducted globally show that depression among various sets of healthcare professionals like nurses and medical students ranges from 34 % to 66% (Mbanga et al., 2019) (Njim, Mbanga, et al., 2019) (Ngasa et al., 2017). Also, another study in medical students in the U.S.A. showed a higher prevalence of depression when compared to the general population (L. N. Dyrbye et al., 2014). In the current study, out of the total respondents, only 5.5% were severely depressed as compared to 6.7%, and the majority were mildly depressed as compared to moderate among medical students in Karnataka (G. S. Kumar et al., 2012).

### **4.4 Association of depression with socio-demographic, lifestyle and academic factors**

In this study, fourth-year students had higher odds of being depressed, and a potential reason for this could be that they had to attend both clinical postings and academic curricula. This finding was similar to a study among nursing students in Iran in which junior year had a higher level of depression (Janatolmakan, Andaieshgar, Aryan, Jafari, & Khatony, 2019) and to medical students in the U.S.A. (L. N. Dyrbye et al., 2014) who had a higher level of depression compared to resident doctors and early career physicians. A study among faculties and resident doctors in a medical college in Chandigarh, India, showed higher depression among the resident doctors as compared to faculties and suggested a combination of reasons like a higher number of working hours, staying away from families and patient load with constant academic pressure and dissertation work (Grover et al., 2018). However, this finding was discordant to various studies. Higher depression was observed among senior medical students from Cameroon (Ngasa et al., 2017). Another study among medical students in Karnataka shows that the academic year of the course was significantly associated with depression (senior students were more depressed) (G. S. Kumar, Jain, & Hegde, 2012). In the current study, respondents who had concerns regarding clinical placement (before COVID-19) were also more likely to be depressed. This finding can be compared to findings from studies among medical residents and faculties that assessed several patient-related factors at the workplace, like being overburdened or seeing more patients, which led to higher depression scores, though not statistically significant (Grover et al., 2018). Another study from Cameroon showed that medical students at a clinical level were more depressed than preclinical students (Ngasa et al., 2017). Experiencing symptoms of physical exhaustion, less satisfaction about academic support from faculty and overall support from peers at college (before the COVID-19 pandemic) were associated with depression in the current study. These findings can be compared with a study by Grover and colleagues, where depression was found to be associated with lower indulgence in recreational activities and with a lack of empathy from seniors among medical residents from Chandigarh, India (Grover et al., 2018).

Contrasting to this study, many national and global studies have observed female gender and major life events like any mortality or chronic morbidity in the family (Ngasa et al., 2017) among medical students along with recreational drug use among nurses (Mbanga et al., 2019) and history of depression in the family among medical students (G. S. Kumar et al., 2012) was significantly associated with depression.

To the best of our knowledge, this study is unique as the population of BPT/BOT students in Delhi NCR has never been studied before for the outcome of burnout and depression. Thus, it adds value to the literature on the mental health of this population. The sample included students from fourteen different colleges in Delhi NCR; this improved the

external validity of the data. The data was collected via self-administered tools, thus reducing interviewer bias. By applying multi-method sampling, the Hawthorne effect was reduced, and this helped in achieving the estimated sample size and thus improving the internal validity of the study. Selection bias in the study was reduced by complete enrolment at the participant level.

This study has some references (definition, score cut-offs) older than 10/20 years, which may need to be interpreted while understanding the limitations of the timelines. There was the potential of introducing respondent bias in this study. Though the measurement tool was standardized, it was self-reported. Therefore, factors like introspective ability, mental status of respondents while answering, Hawthorne effect, and social perception toward substance use are some factors that might have affected the response. The mode of data collection was digital. Thus, individuals without access to an internet connection were automatically left out, so the data might not represent the study population from various strata of society. The study was cross-sectional; thus, the associations identified cannot be inferred as causal. Snowballing for 15% of the study population might have introduced some selection bias.

## **5. CONCLUSIONS**

The current study explored specific aspects of the mental health of students pursuing allied health courses (BPT and BOT) in Delhi, NCR. It brought to light the status of two important aspects of mental health, i.e., burnout and depression, which may have direct implications on the work performance of this important cadre of healthcare professionals. The prevalence of burnout and depression in the study population was alarming yet comparable to other health professionals. We ascertained factors like having concerns about the course, feeling physically exhausted, and less or no support from peers and faculties as factors associated with burnout and depression. All of this highlights the importance of diagnosing and resolving mental health issues explored in the present study while addressing the factors associated with them for better outcomes in terms of mental health and overall well-being. The present study paves the way for future studies that should focus on longitudinal assessment of mental health morbidities among students of allied health services to establish causal association and carry out in-depth analysis to generate a better understanding of these factors and a stronger evidence base for future research and interventions.

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## **CONFLICT OF INTEREST**

This article is generated as a part of a student dissertation for completing a Master's in Public Health and declares no conflict of interest.

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