

Prevalence of Depression and Anxiety among Students Preparing for National Eligibility Cum Entrance Test- Undergraduate Exam in Chennai, Tamil Nadu, India

KAMATCHINATHAN PREMKUMAR¹, SUBBARAYAN SAROJINI², ASHOKKUMAR VIKRAM³, CHINNAIAN SIVAGURUNATHAN⁴, MANI EZHILVANAN⁵, RAMESH RAKSHANAA⁶, CHANDRASEKAR JANAGANBOSE MAIKANDAAN⁷



ABSTRACT

Introduction: Indian students are subjected to enormous stress to compete and perform since competitive exams have been made mandatory to enter professional courses. Inability to handle performance pressure, meet parental expectations, and achieve aspirations may lead to psychological distress and subsequent depression.

Aim: To estimate the prevalence of depression and anxiety and identify the associated factors among National Eligibility cum Entrance Test (NEET) aspirants in the Chennai, India.

Materials and Methods: The present community-based, cross-sectional analytical study was conducted at various NEET coaching centres in Chennai, Tamil Nadu, India, among 250 NEET aspirants between July and August 2021. A pretested, semi-structured, self-administered online questionnaire with 45 questions, consisting of the Beck Depression Inventory-II and Beck Anxiety Inventory, in the English language was used. Categorical data were presented as frequency and proportions.

Pearson's Chi-square test was used to evaluate differences between groups for categorised variables.

Results: Out of the total 250 students, 147 (58.8%) were males and mean age of the participants was 19.38±1.146 years. Overall, 112 (45%) participants had attempted NEET-Undergraduate (UG) exam once and 94 (38%) participants had two attempts. The overall prevalence of depressive symptoms was 148 (59.2%) and anxiety symptoms were seen in all 250 (100%) participants. Symptoms of severe depression were high among those with three previous attempts (44) and those awaiting their first NEET attempt. The number of previous attempts had a statistically significant (p -value <0.001) association with the severity of anxiety symptoms.

Conclusion: This high morbidity of depressive and anxiety symptoms highlights the need for access to preventive and curative mental health services for students preparing for highly competitive exams like NEET.

Keywords: Adolescents, Competitive exams, Mood disorder, Psychiatric morbidity, Stress

INTRODUCTION

Indian students are subjected to enormous stress to compete and perform since competitive exams have been made mandatory to enter professional courses [1]. In recent years, there has been an increased number of cases of depression among Indian students due to the growing competition to secure a seat in an elite course [2]. The National Eligibility cum Entrance Test (NEET) for undergraduate students is a highly competitive examination conducted by the National Testing Agency (NTA) for admission to medical schools in India. The number of medicine seats available in India is limited to accommodate the student population who are aspiring to take medicine. Due to the Coronavirus Disease-2019 (COVID-19) pandemic, there was uncertainty over the conduct of examinations and the exam dates were postponed multiple times. The competition itself is quite stressful and the uncertainty over the exam dates adds to the students' miseries which evokes anxiety [3]. The inability to handle performance pressure, meet parental expectations and achieve aspirations may lead to psychological distress and subsequent depression [4]. Depression in turn adversely affects peer and familial relationships and may even lead to suicide. Multiple instances of suicide by students who anticipated failure in NEET were reported from different parts of India in the past [5]. As per National Crime Records Bureau (NCRB), about one percent of suicide in India during 2021 is due to failure in examination [6].

In a study done by Shrivastava A and Rajan D in 2018, the reported prevalence of depression and anxiety was 48.6% and 48.3%,

respectively [7]. A study done in Rajasthan reported that the prevalence of depression among students in coaching institutes was 31.75% [8]. A study from Tamil Nadu reported that more than one-third of the students had anxiety and more than half of the participants had depression [9]. This psychological distress among NEET aspirants has to be given due importance and addressed adequately. Early interventions can help in preventing the sequelae arising due to depression and anxiety such as substance abuse and suicide.

Chennai, being one of the popular coaching hubs for NEET in India, is often the place of choice for aspirants to prepare for the NEET exam. Very limited studies have reported the issue of depression and anxiety among NEET aspirants. Given this background, the present study was conducted to estimate the prevalence of depression and anxiety and identify the associated factors among NEET aspirants in Chennai, India.

MATERIALS AND METHODS

A community-based, cross-sectional, analytical study was conducted among NEET aspirants undergoing training in various NEET coaching centres in Chennai city, Tamil Nadu, India, from July to August 2021. This study was approved by the Institutional Ethical Committee (IEC No: 07/JUNE/2020).

The number of NEET coaching centres available in the Chennai district was searched through internet sources and a list was prepared. There were about 30 NEET coaching centres in the Chennai district. From the list, five institutes were randomly selected.

Inclusion criteria: Students who were enrolled in a selected institute preparing for NEET-Undergraduate (UG), and those who were willing to participate were included in the study.

Exclusion criteria: Students with history of any psychiatric disorders were excluded from the study.

Sample size calculation: Considering the prevalence of depression among students as 48.6%, the sample size was calculated using the formula $4PQ/d^2$ [7].

$$N=4PQ/d^2$$

Where,

$$P=48.6$$

$$Q=(100-48.6)=51.4$$

$$d=7.5$$

$$=4(48.6 \times 51.4)/(7.5)^2$$

$$=178$$

The minimum required sample size was 178. A total of 250 students were included in the study for wider coverage of the study population, the randomly selected five coaching centres had 308 (centre-1), 315 (centre-2), 300 (centre-3), 311 (centre-4), and 313 (centre-5) students enrolled during the period of study. Enumeration of the students enrolled in the selected institutes was done. From that list, 50 students were randomly selected from each institute by using the lottery method.

Study Procedure

The principals of the selected coaching institutes were contacted and permission was sought to conduct the study. A list of students enrolled in the institute and their contact numbers were obtained. The randomly selected students were contacted telephonically and a detailed explanation of the study was provided to them. Those students who agreed to participate in the study were provided with the Google form link and the data was obtained using a pretested self-administered online questionnaire which had an informed consent form on the first page and the questionnaire on the subsequent pages. Informed consent was obtained from the parents of students who were below 18 years in addition to assent from the participants using a separate google form.

Questionnaire consisted of three parts:

Part 1: Socio-demographic questions regarding age, sex, number of previous attempts in NEET-UG.

Part 2: Questions from Beck Depression Inventory-II (BDI-II) [10].

Beck Depression Inventory consists of a 21 question, multiple choice, self-report inventory used for measuring the severity of depression in adolescents and adults. Answers to each question were scored on a scale value of 0 to 3. Higher total scores indicate more severe depressive symptoms [11]. The standardised cut-offs used in BDI-II were

- 0-13: minimal depression
- 14-19: mild depression
- 20-28: moderate depression
- 29-63: severe depression

Part 3: Questions from Beck Anxiety Inventory (BAI) [12].

The present study categorised the students into those having mild, moderate, and severe depression based on the standard cut-offs and minimal depression was considered equal to no depression.

Beck Anxiety Inventory is a 21 question, multiple choice, self-report inventory that is used for measuring the severity of anxiety in adolescents and adults ages 17 and older [13,14]. Answers to each question scored on a scale of 0 to 3. A higher total score indicates severe anxiety. The standardised cut-offs used in BAI were:

- 0-7: Minimal
- 8-15: Mild

- 16-25: Moderate
- 26-63: Severe

The present study categorised the students as having mild, moderate and severe anxiety based on the standard cut-offs. Minimal anxiety was considered as having no anxiety symptoms. The age of the study participants was categorised into two groups with 17-19 years being adolescence and 20-22 years (10-24 years considered as young people and 10-19 years as adolescence [15].

STATISTICAL ANALYSIS

Collected data were entered in the Microsoft excel software spreadsheet and coded appropriately. Analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 21.0. Categorical data were presented as frequency and proportions. Pearson's Chi-square test was used to evaluate differences between groups for categorised variables. All tests were performed at a 5% level of significance; thus, an association was considered significant if the p-value was <0.05.

RESULTS

As shown in [Table/Fig-1], out of the total 250 students, 58.8% were males. The mean age of the study participants was 19.38 ± 1.146 years and age range was from 17-22 years. Majority 147 (58.8%) belonged to the age group 17-19 years; 45% had attempted NEET-UG exam once and 38% had two NEET attempts. The overall prevalence of depression was 59.2%, including 17.2% severe depression. Anxiety was observed among all the study participants with varying severity, i.e. 61.2% mild, 26.4% moderate and 12.4% severe anxiety respectively.

Variable	n (%)
Age (years)	
17-19	147 (58.8)
20-22	103 (41.2)
Gender	
Male	147 (58.8)
Female	103 (41.2)
Number of previous NEET attempts	
0	15 (6.0)
1	112 (44.8)
2	94 (37.6)
3	29 (11.6)
4	29 (11.6)
Severity of depression	
No depression	102 (40.8)
Mild	42 (16.8)
Moderate	63 (25.2)
Severe	43 (17.2)
Severity of anxiety	
Mild	153 (61.2)
Moderate	66 (26.4)
Severe	31 (12.4)

[Table/Fig-1]: Distribution of students according to age, gender and number of previous NEET attempts, severity of depression and anxiety.

The distribution of factors like age and number of previous NEET attempts were found to have a statistically significant association with the severity of depression. Most participants with depression was observed in the young age group (17-19 years). Severe depression was observed to be high among those students who are appearing for their first NEET attempt (zero previous attempts) [Table/Fig-2].

The number of previous attempts had a statistically significant association with the severity of anxiety. Moderate anxiety was high

Variables	Severity of depression				χ^2 (0.05)	p-value
	No depression (n=102) n (%)	Mild (n=42) n (%)	Moderate (n=63) n (%)	Severe (n=43) n (%)		
Age (years)						
17-19	55 (53.9)	14 (33.3)	50 (79.4)	28 (65.1)	23.952	0.001*
20-22	47 (46.1)	28 (66.7)	13 (20.6)	15 (34.9)		
Gender						
Female	60 (58.8)	25 (59.5)	32 (50.8)	30 (69.8)	3.811	0.283
Male	42 (41.2)	17 (40.5)	31 (49.2)	13 (30.2)		
Number of previous NEET attempts						
0	2 (1.9)	0	2 (3.2)	11 (25.6)	61.864	0.001*
1	37 (36.3)	16 (38.1)	42 (66.6)	17 (39.5)		
2	52 (51)	17 (40.5)	17 (27)	8 (18.6)		
3	11 (10.8)	9 (21.4)	2 (3.2)	7 (16.3)		

[Table/Fig-2]: Prevalence of depression by age, gender and number of previous attempts.

*p-value <0.05 was considered statistically significant

among those students who were awaiting their first NEET attempt and severe anxiety was found to be higher among those students who had previously attempted NEET thrice [Table/Fig-3].

Variables	Severity of anxiety			χ^2	p-value
	Mild (n=153) n (%)	Moderate (n=66) n (%)	Severe (n=31) n (%)		
Age (years)					
17-19	84 (54.9)	44 (66.7)	19 (61.3)	2.725	0.256
20-22	69 (45.1)	22 (33.3)	12 (38.7)		
Gender					
Female	89 (58.2)	40 (60.6)	18 (58.1)	0.121	0.941
Male	64 (41.8)	26 (39.4)	13 (41.9)		
Number of previous NEET attempts					
0	4 (2.6)	11 (16.7)	0	32.181	0.001*
1	66 (43.1)	33 (50)	13 (41.9)		
2	70 (45.8)	14 (21.2)	10 (32.3)		
3	13 (8.5)	8 (12.1)	8 (25.8)		

[Table/Fig-3]: Prevalence of anxiety as per age, gender and number of previous attempts.

*p-value <0.05 was considered statistically significant

The study findings were presented to the principals and the faculties of the coaching centres. An awareness program was organised for the facilities focusing on warning signs of depression and anxiety and its referral options. Motivational lectures titled 'Seeking happiness' were conducted for all the enrolled students.

DISCUSSION

Prevalence of depression and anxiety: The present study observed the overall prevalence of depression and anxiety among the study participants to be 59.2% and 100%, respectively. The National Mental Health Survey (NMHS) has reported the prevalence of depression and common mental disorders including anxiety and depression among adults in India as 5.2% and 10%, respectively [14]. The higher prevalence of depression and anxiety in the present study compared to the adults indicates the influence of academic pressure and parental pressure on the mental health of students.

Mishra SK et al., in their community-based study, on students preparing for medical entrance examinations in Dharan (Nepal), reported the prevalence of depression to be 63.8%. The present study utilised BDI whereas Mishra SK et al., used the DASS-22 questionnaire [16]. Though, different study tools were used in these studies, still the results were similar. The students preparing for medical entrance exams have lots of stress due to the vast syllabus that has to be covered in a limited period along with the need to fulfil the expectations of the family. This could be the possible reason for the high levels of depression among students in both studies.

Severity of depression and anxiety: In the present study, 40.8% did not have depression but 25.2%, moderate depression. Anxiety symptoms were observed in all the study participants with 61.2%, with mild anxiety. Shrivastava A and Rajan D, also reported that 20.3% had moderate depression and 8.8% were severely depressed [7]. Also, 21.8% were found to have mild anxiety, 17.8% have moderate anxiety and 27.3% have severe anxiety. These results reveal a neglected area in the students' psychology that requires immediate attention.

Depression and anxiety by age: The present study found statistically significant higher levels of moderate and severe depression among the age group 17-19 years in comparison to 20 years and above [Table/Fig-2]. Similarly, the prevalence of moderate and severe anxiety was high among 17-19 years. Shrivastava A and Rajan D, also reported that the students of age group less than 18 years had a higher level of depression, anxiety and stress than students above 18 years of age [7]. This may be attributed to the mental maturity with an increase in the age of the students.

Depression and anxiety according to gender: In the present study, the prevalence of depression and anxiety was similar between genders [Table/Fig-2,3]. Similarly, in a study done by Shrivastava A and Rajan D, among genders, prevalence of depression ($p=0.942$) and anxiety ($p=0.227$) was insignificant [7].

Depression and anxiety according to the number of NEET attempts: The students who are awaiting their first NEET attempt had higher levels of severe depression (73%) and moderate to severe anxiety (73%) in the present study [Table/Fig-2,3]. This could be due to the pressure from the family to clear NEET on the first attempt and the apprehension of dropping a year if they fail in NEET. Similarly, the students who previously attempted NEET thrice had higher levels of severe depression (73%) and severe anxiety (24%) [Table/Fig-2,3]. This may be due to the fear of not attaining their goal of becoming a doctor and the thought of their parent's hard-earned money getting wasted in some coaching centres because of increasing attempts to clear NEET.

Limitation(s)

Beck Depression Inventory-II and BAI have the same limitations as seen with other self-report inventories, in that the scores can be easily exaggerated or minimised by the person completing them. As with all cross-sectional studies, the present study could not completely determine the causal relations between the factors that were studied.

CONCLUSION(S)

The present study revealed a high level of depressive (59.2%) and anxiety symptoms (100%) with varying severity among the students preparing for NEET-UG in Chennai coaching centres. Age and

number of previous NEET attempts were significantly associated with depressive symptoms among students. This high morbidity of depressive and anxiety symptoms highlights the need for access to preventive and curative mental health services for students preparing for highly competitive exams like NEET. Basic counseling services should be made available to these students either by the coaching institute or by the health department of the state government to effectively address this morbidity.

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PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Psychiatry, Tagore Medical College and Hospital, Rathinamangalam, Chennai, Tamil Nadu, India.
2. Assistant Professor, Department of Paediatrics, Sri Muthukumaran Medical College Hospital and Research Institute Chikkarayapuram, Chennai, Tamil Nadu, India.
3. Assistant Professor, Department of Community Medicine, Tagore Medical College and Hospital, Rathinamangalam, Chennai, Tamil Nadu, India.
4. Associate Professor, Department of Community Medicine, Tagore Medical College and Hospital, Rathinamangalam, Chennai, Tamil Nadu, India.
5. Assistant Professor, Department of Community Medicine, Tagore Medical College and Hospital, Rathinamangalam, Chennai, Tamil Nadu, India.
6. Undergraduate Student, Tagore Medical College and Hospital, Rathinamangalam, Chennai, Tamil Nadu, India.
7. Professor, Department of Psychiatry, Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, Melmaruvathur, Chennai, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Chinnaiyan Sivagurunathan,
Associate Professor, Department of Community Medicine, Tagore Medical College and Hospital, Rathinamangalam, Chennai-600127, Tamil Nadu, India.
E-mail: drsivaguru85@gmail.com

PLAGIARISM CHECKING METHODS: [Lain H et al.]

- Plagiarism X-checker: Sep 09, 2022
- Manual Googling: Oct 18, 2022
- iThenticate Software: Oct 26, 2022 (18%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Sep 03, 2022**
Date of Peer Review: **Sep 30, 2022**
Date of Acceptance: **Oct 27, 2022**
Date of Publishing: **Dec 01, 2022**