To Measure the Level of Depression Anxiety and Stress Using a Dass-21-Based Questionnaire on the Students of Shri Guru Ram Rai University, India

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ABSTRACT

Objectives: The goal of this study is to evaluate the levels of depression, anxiety, and stress in university students by utilizing the Depression, Anxiety, and Stress Scale (DASS) and comparing the scores between male and female students. **Materials and Methods:** A total of 450 students were included in the study, with 411 providing consent to participate. The DASS-21 scale was used to collect data, and the study was conducted at the Shri Guru Ram Rai University in Patel Nagar, Dehradun, Uttrakhand, India. To present the data, univariate and bivariate tables, along with the chi-square test were used, and an independent *t*-test was employed to compare the DASS mean scores between male and female students. **Results:** The results showed that the mean scores for depression, anxiety, and stress were 5.39 ± 5.54 , 5.53 ± 5.62 , and 5.74 ± 5.05 , respectively, with anxiety being the most prevalent among the students. Males generally had higher depression scores, whereas females exhibited greater anxiety and stress scores. **Conclusion:** It is essential to prioritize the mental health of students, given the increasing prevalence of depression, anxiety, and stress which can significantly impact their daily activities.

Keywords: DASS-21, Depression, Anxiety, University Students, Dehradun.

INTRODUCTION

During their formative years, students often encounter numerous challenging situations.1 Recently, an increasing number of university students have been confronted with mental health issues, including depression, anxiety, and stress. These concerns have substantial implications that significantly affect students' mental well-being, academic performance, social interactions, and emotional stability. The adolescent period, which marks a crucial juncture in life, is a time when various psychological disorders tend to arise. College life can be considered the final stage of adolescence for students.² Recently, an increasing number of university students have been experiencing depression, anxiety, and stress. These issues have far-reaching consequences that significantly impact students' mental health, education, social life, and emotional well-being. Mental disorders, including depression, are among the top 20 leading causes of disability worldwide.3 Globally, approximately 400 million people are affected by depression,⁴ and approximately 10-20% of the world's children and adolescents suffer from mental disorders.⁵ These



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disorders can result in an impaired capacity to study and work, and in severe cases, can lead to suicide among sufferers if left untreated.⁶ Therefore, early detection of these conditions is of utmost importance. The 2019 Global Burden of Disease study estimated that depressive and anxiety disorders are two of the leading causes of disability worldwide, and they cost the global economy \$1 trillion annually.⁷

According to the World Health Organization (WHO), depression and anxiety have risen by 25% since 2020, impacting almost a billion individuals globally. Depression, which affects approximately 5% of the global adult population, is typically characterized by persistent sadness, emptiness, and a lack of enjoyment in activities. Anxiety, on the other hand, is pervasive and unrelated to specific recent stressors, manifesting as undirected worry. This disorder can present with symptoms such as restlessness, fatigue, difficulty concentrating, irritability, and muscle tension, which can impede routine activities and personal relationships. It is important to recognize that stress can be detrimental when it is chronically or inadequately managed.8 Aggregate data indicates that depression, anxiety, and low self-esteem are prevalent among youth, including students. Research suggests that college students, particularly freshmen, are more likely to experience negative emotions and mental disorders due to feelings of homesickness, academic pressure, environmental changes, and being in a transitional period of

life.^{9,10} Students who struggle with depression, anxiety, and stress may face significant obstacles throughout their university experience and adult life, which can negatively impact their academic performance. Sometimes, students may feel dissatisfied with their university attendance or may become excessively anxious in social settings, even among acquaintances and peers. These challenges can harm their psychological states and lead to feelings of depression, anxiety, and stress.

The significance of comprehending student's mental well-being within academic institutions cannot be emphasized enough. A rising number of students experience unfavorable emotions, such as sorrow, apprehension, and stress, which not only impact their academic achievements but also their general emotional state. University life can be overwhelmed by a rigorous curriculum and adjustments, exacerbating these feelings. To measure the levels of depression, anxiety, and stress among students at Shri Guru Ram Rai University, Dehradun, we carried out a study using a DASS-21-based questionnaire. This research is not just about numbers; it aims to improve the university experience for students. By identifying students who may require additional support and the reasons for their distress, universities can develop effective strategies to enhance their well-being. The ultimate goal is to create a more welcoming and supportive college environment that prioritizes students' emotional health and promotes personal growth. This research seeks to illustrate the difficulties faced by students and to advocate for universities that foster a healthy and thriving academic community.

The Depression, Anxiety, and Stress Scale (DASS-21) is a widely recognized and validated tool for evaluating mental health issues in adults, including both patients and non-patients. This comprehensive scale examines the three dimensions of mental health using a clear, systematic, and easily understood scale.¹¹

Aim

To measure the level of Depression, Anxiety, And Stress using a DASS-21-based questionnaire on the students of Shri Guru Ram Rai University, Dehradun.

Objectives

1. To find out gender-wise distribution.

- 2. To figure out the commonly affected age range.
- 3. Component-wise assessment through DASS-21 scale.
- 4. To find out the levels of depression, anxiety, and stress.

MATERIALS AND METHODS

Study design: The study was based on research using the DASS-21 questionnaire study.

Study duration: The study was conducted for a period of 6 months from November 2023 to May 2024.

Sample Size: It was calculated by using Raosoft Software and the recommended sample size came out to be 450. The required sample size for this study was determined based on common parameters: A population proportion of 50%, a confidence level of 95%, and a margin of error of 5% using finite formula. The calculation suggested a sample size of 384.

Study Site and source of data: The study was carried out at the Shri Guru Ram Rai University in Dehradun Uttarakhand.

Data Collection: The data was collected by personal interview using the DASS-21 scale.

Inclusion Criteria: Subjects over age 17 or older.

Students that were currently pursuing courses in Shri Guru Ram Rai University Dehradun

Students who were willing to participate in the study.

Exclusion Criteria: Students who were not willing to participate in the study.

Students who were pursuing courses from universities other than Shri Guru Ram Rai University.

Students who refused to give consent.

Study Tool: The DASS-21 scale was developed by Peter Lovibond and Sydney Lovibond in 1995.

DASS-21 scale on Depression, Anxiety, and Stress will be accessed for all subjects based on the study.

DASS-21 resulting ratings were classified as either normal, mild, moderate, severe, or extremely severe.

Procedure: At the outset, the participants were contacted, and explained to them about the informed consent forms to sign. The research's purpose and objectives were then explained to them. The informed consent forms, demographic details sheets, and DASS-21 questionnaires were then distributed to the participants who were requested to fill them all out.

Statistical Analysis

The data was analyzed using SPSS-20 computer software. Univariate and bivariate tables were utilized to present the data. Descriptive statistics were employed for the continuous or numerical variables, such as age, which was presented as a p-value, and categorical variables, such as gender, which was presented as the mean and standard deviation. Inferential statistics, including the chi-square test, were used to determine the relationship between the numerical variables. The independent t-test was used to determine the difference in mean scores between male and female students regarding their depression, anxiety, and stress levels, and the significance of this difference was assessed at a 5% level of significance.

Variables % Frequency <20 76 18 Age Group (years) 82 ≥20 335 Gender Male 193 47.0Female 53.0 218 Food Habits Non- Vegetarian 232 56.4 179 Vegetarian 43.6 Marital Status Married 25 6.1 Unmarried 386 93.9

Table 1: Deographic Characteristics of Participants.

Table 2: Distribution of participants according to their response towards DASS-21.questionnaire.

	Depression	Frequency	Percent	Anxiety	Frequency	Percent	Stress	Frequency	Percent
Normal	0-9	300	72.9	0-7	266	64.7	0-14	394	95.8
Mild	10-13	73	17.7	8-9	39	9.4	15-18	10	2.4
Moderate	14-20	32	7.7	10-14	76	18.4	19-25	7	1.7
Severe	21-27	6	1.4	15-19	22	5.3	26-33	0	0
Extremely Severe	28+	0	0	20+	8	1.9	34+	0	0
Total		411	100		411	100		411	100

RESULTS

In this study, the data is presented through the use of univariate and bivariate tables, as well as other appropriate methods. The 450 participants were contacted out of which 411 (91.33%) gave consent to participate in the study and 39 students did not give consent to take part in the study. Out of which Female students 218 (53%) were found to be more common than male students 193 (47%). The majority of students (82%) were part of the age group (\geq 20 years), while 18% were part of the age group (<20 years). The majority of students (56.4%) followed a Non-Vegetarian diet, while 43.6% followed a Vegetarian diet. Unmarried students (93.9%) were more common than Married students (6.1%) (Table 1).

Table 2 The DASS-21 scale assessment depicts the distribution of participants according to their responses on the scale. For Depression, 72.9% of participants were classified as normal, followed by 17.7% with mild, 7.7% with moderate, and 1.4% with severe depression. In the case of Anxiety, 64.7% of participants were normal, followed by 9.4% with mild, 18.4% with moderate, 5.3% with severe, and 1.9% with extremely severe anxiety. For Stress, 95.8% of participants were normal, followed by 2.7% with mild and 1.7% with moderate stress. A detailed view of the student's responses can also be seen in Table 2.

Regarding depression, the majority of normal students (75.2%) belonged to the age group of 20 years or older, while 67.2% of normal students were below 20 years of age. For mild depression, the corresponding age groups of <20 and \geq 20 years had 20.6% and

16.6% of students, respectively. This difference was not statistically significant (p=0.319>0.05) at a 5% level of significance. Therefore, there is no significant difference between the age group and their level of depression.

The majority of normal students (67.1%) were aged 20 or older, while 58.6% were below 20 years of age. When it came to mild depression, the corresponding age groups of students (<20 and \geq 20 years) had 10.3% and 9.1%, respectively. However, this difference was not statistically significant (p= 0.305 > 0.05) at a 5% level of significance. As a result, there was no significant relationship between age and anxiety levels among students (Table 3). For stress, the majority of normal students (96.6%) were aged 20 or older, which was not statistically significant (p=0.227 > 0.05) at a 5% level of significance. Therefore, there was no significant difference in stress levels among age groups of students (Table 3). The mean ± SD score for depression, anxiety, and stress among students was found to be 5.39 ± 5.54, 5.53 ± 5.62, and 5.74 ± 5.05, respectively (Table 4).

Among male students, the mean scores for depression, anxiety, and stress were 5.41 ± 5.84 , 5.20 ± 5.63 , and 5.32 ± 5.30 , respectively. For female students, the mean scores were 5.36 ± 5.19 , 5.89 ± 5.61 , and 6.22 ± 4.73 , respectively.

It was observed that females had higher stress and anxiety scores compared to males (Table 5).

After analyzing the data from an independent *t*-test involving 193 male and 218 female students, it was determined that the means

Variables				Levels					
			Normal	Mild	Moderate	Severe	Extremely Severe		
Depression									
Age category (Years)	<20	Count	78	24	11	3	-	116	0.319
		Percent	67.2	20.6	9.4	2.5	-	100	
	≥ 20	Count	222	49	21	3	-	295	
		Percent	75.2	16.6	7.1	1.0	-	100	
Total		Count	300	73	32	6	-	411	
		Percent	72.9	17.7	7.7	1.4	-	100	
Anxiety									
Age category	<20	Count	68	12	23	9	4	116	0.305
(Years)		Percent	58.6	10.3	19.8	7.7	3.4	100	
	≥ 20	Count	198	27	53	13	4	295	
		Percent	67.1	9.1	17.9	4.4	1.3	100	
Total		Count	266	39	76	22	8	411	
		Percent	64.7	9.4	18.4	5.3	1.9	100	
Stress									
Age category (Years)	<20	Count	109	3	4	-	-	116	0.227
		Percent	93.9	2.5	3.4	-	-	100	
	≥ 20	Count	285	7	3	-	-	295	
		Percent	96.6	2.3	1.0	-	-	100	
Total		Count	394	10	7	-	-	411	
		Percent	95.8	2.4	1.7	-	-	100	

Table 3: Age-wise distribution of students according to their response towards DASS.

Were belonged to age group (≥ 20 years) whereas 57.4%.

Table 4: Descriptive Statistics of students towards depression, anxiety, and stress score.

Variables	Ν	Minimum	Maximum	Mean	Std. Deviation
Depression	411	0	21	5.39	5.545
Anxiety	411	0	21	5.53	5.626
Stress	411	0	21	5.74	5.055

Table 5: Descriptive statistics of male and female of students towards DASS.

Variables	Gender	Ν	Mean	Std. Deviation	Std. error mean
Depression	Male	218	5.41	5.847	0.396
	Female	193	5.36	5.197	0.374
	Total	411	5.39	5.545	0.274
Anxiety	Male	218	5.20	5.630	0.381
	Female	193	5.89	5.615	0.404
	Total	411	5.53	5.626	0.278
Stress	Male	218	5.32	5.300	0.359
	Female	193	6.22	4.733	0.341
	Total	411	5.74	5.055	0.249

Variables		Levene's test for equality of variances		<i>t</i> -test for equality of means					
		F	Sig.	t	Df	Sig. (2- tailed)	Mean difference	Std. error	
Depression	Equal variances assumed	5.496	0.020	-0.083	409	0.934	-0.046	0.549	
	Not equal			-0.084	408.992	0.933	-0.046	0.545	
Anxiety	Equal	0.494	0.483	1.240	409	0.216	0.689	0.556	
	Not equal			1.241	403.238	0.215	0.689	0.556	
Stress	Equal	4.108	0.043	1.799	409	0.073	0.897	0.498	
	Not equal			1.812	408.967	0.071	0.897	0.495	

Table 6. Results of multiplendent (-test between male and remaie respondents towards DA55.	Table 6: Results of ind	dependent <i>t</i> -test between male and female respond	lents towards DASS.
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Were belonged to age group (≥ 20 years) whereas 57.4.

did not significantly differ at a 5% level of significance (p=0.934, 0.216,0.073 > 0.05) (Table 6).

DISCUSSION

University students face significant challenges, including studying, forming new friendships, adjusting to a new environment, and coping with exams. The transition from high school to university can be particularly stressful for first-year students, while last-year students grapple with the pressure of making decisions about their future and finding employment.

The majority of respondents in this study (82%) were aged 20 or older, with a slight majority of female students (53%). Similar observations were recorded from a study conducted byShailesh Gupta *et al.* conducted a study in Noida, where the majority of respondents (58.2%) belonged to the age group (>20 years) whereas 41.8% of respondents belonged to the age group (<20 years).⁸ Different results were shown by Asif *et al.* in Sailkot.¹ According to the DASS assessment, 72.9% of students were found to have normal levels of depression, while 64.7% had normal levels of anxiety and 95.8% had normal levels of stress (see Table 3). Among students experiencing depression, anxiety, and stress, the majority (60%) belonged to the age group of 20 or older.

The mean scores of depression, anxiety, and stress for male students were found to be 5.41 ± 5.84 , 5.20 ± 5.63 , and 5.32 ± 5.30 , respectively. In comparison, the corresponding mean scores for female students were 5.36 ± 5.19 , 5.89 ± 5.61 , and 6.22 ± 4.7 . The findings indicate that male students exhibited higher levels of depression than female students, while female students experienced greater levels of anxiety and stress. This could be attributed to female students being more focused on their studies, assignments, work, classes, as well as their relationships. In a study conducted by Shailesh Gupta *et al.* in Noida, similar results were reported, where more female students suffered from anxiety

and stress compared to male students.⁸ Similarly, Besham Kumar *et al.* in Karachi and K Satish Kumar *et al.* also found that the level of depression, anxiety, and stress was higher in female students than in male students.^{12,13}

Our research unveils that a substantial number of students experience anxiety and depression, and it was observed that fewer students reported stress. These findings align with the results of a previous study conducted by Rumeysa Yeni Elbay and colleagues on Turkish university students, which demonstrated that students experienced more depression and anxiety than stress.14 Additional studies, such as those conducted by Devika Sharma and colleagues in Jaipur, Rajasthan at the Rajasthan University of Health and Sciences College of Medical Sciences (RUHS CMS) and Sadia Sultan et al. among laboratory medicine students in Makkah, Saudi Arabia, have produced similar outcomes.^{15,16} Moreover, Thack Dun Tran et al. in Vietnam,¹⁷ Besham Kumar et al.,12 and Nicole Stormon et al. in Australia,18 have also reported similar results. But, Mona Alamazi et al. and Irene Sia Siew Thing et al. have shown different results.^{19,20} University students as a whole experience higher levels of stress than other populations due to factors such as a demanding curriculum, peer competition, and the need to balance exams, projects, and compromised sleep. This stress can make it difficult for students to set priorities and achieve their goals. The strength of this study was that it was the first study conducted in Dehradun, aimed at improving the mental health of students in the region. This study will help to determine the current status of mental health among students and provide insight into the issues that need to be addressed to promote mental well-being during academic pursuits.

The limitations of the study were that the sample size was smaller and limited to predictive patterns of child depression. Additionally, the scales used in the study needed to be translated into Hindi and other local languages to ensure accessibility for all participants.

CONCLUSION

Although males generally tended to have higher depression scores, females exhibited greater anxiety and stress scores. This disparity may be attributed to the fact that females tend to be more focused on their academic goals and interpersonal relationships, or it could be due to a lack of interaction with peers or seniors or unfamiliarity with a new environment. It is essential to prioritize the mental health of students, considering the increasing prevalence of depression, anxiety, and stress among university students, which can significantly affect their daily activities. To create a better learning environment, it is crucial to address these issues and promote mental health during academic pursuits. While there are various treatments available for assessing mental health, it is advisable to seek counseling before resorting to medications and therapies, as it is better to gather one's emotions before taking any extreme measures.

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CONSENT OF PARTICIPATION

Informed consent was obtained from all the participants and their confidentiality was maintained throughout the study. Data collection began only after signing the informed consent form.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

DASS: Depression, Anxiety, and Stress Scale; **WHO:** World Health Organisation; **SPSS:** Statistical Package for the Social Sciences; **SGRRU:** Shri Guru Ram Rai University.

SUMMARY

The research suggests that, on average, male participants had higher levels of depression, while female participants displayed greater levels of anxiety and stress. It is crucial to address the mental health needs of university students, given the growing prevalence of depression, anxiety, and stress, which negatively impact their daily lives and academic performance.

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