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IMPACT OF STRESS AND ANXIETY ON NECK PAIN IN MEDICAL STUDENTS

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***Abstract*- Neck pain is a prevalent issue among undergraduate medical students, significantly impacting their quality of life and academic performance. This cross-sectional study aimed to explore the relationship between neck pain and psychological factors such as stress and anxiety among medical students. Using the Visual Analogue Scale (VAS), Medical Student Stressor Questionnaire (MSSQ) and Zung's Self-Rating Anxiety Scale (SAS), the study found that 45% of students reported mild neck pain, 52% moderate, and 3% severe. Additionally, 72.9% experienced moderate stress and 10.7% mild anxiety. Statistical analysis revealed a strong positive correlation between neck pain and stress ($r=0.857$, $p<0.00001$) and a moderately positive correlation with anxiety ($r=0.419$, $p<0.00001$). The study concludes that stress and anxiety are significantly associated with neck pain among medical students, suggesting that addressing psychological factors may improve their overall well-being and academic outcomes.**

Keywords: **Neck pain, Stress, Anxiety.**

I. INTRODUCTION

Neck pain is one of the leading causes of long-term dysfunction across the globe. [1] An Indian study conducted in 2020 reported that 58.3% undergraduate medical students suffered from neck pain. [2] According to studies done in the Australia and USA, it also affected 52.8% and 33.8% of medical students, respectively. [3] Among medical students, history of neck pain is likely to be linked with high work demand, infrequent rest breaks, longer study hours, extensive screen time and uncomfortable neck positions. Because of this inexplicit pain, these students undergo frequent sick leave, medical disability, functional impairments, decreased productivity and health cost. [3], [4], [5]

Undergraduate medical students are at risk of psychological disorders such as stress and anxiety due to a variety of factors, including competition, academic performance, new information flow, post-graduation plans, long work & study hours, mastery of medical knowledge, and insufficient time for extracurricular activities. [6], [7] Stress prevalence was reported by 31.2% medical students in three British universities, 41.9% in a Malaysian medical school, and 61.4% in a Thai medical school. [7] Additionally, in an Indian study conducted by Shawaz Iqbal, it was concluded that 66.9% of medical undergraduates suffered from anxiety. [8]

Understanding correlation between neck pain and psychological states like stress and anxiety is essential and could enhance student's overall quality of life and academic performance. Despite a thorough evaluation of the literature through many databases, it was found that not much research has been done in the Indian medical sector comparing the effects of stress and anxiety on neck discomfort in undergraduate medical students. Thus, the present study determines the relationship between neck pain and psychological issues such as stress and anxiety among undergraduate medical students.

II. MATERIALS AND METHODS

This cross-sectional study was conducted at Constituent colleges of Baba Farid University of Health Sciences, Faridkot, India in June 2024. A total of 426 undergraduate medical students from Constituent Colleges of Baba Farid University of Health Sciences, Faridkot, India were invited in the study.

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Students included in the study consist of both males and females aged between 18 to 27 years and experiencing pain in neck region lasting more than 3 months. Whereas the students who were receiving pharmacological treatment for neck pain, having history of Depression/ Anxiety/Stress or had received treatment for conditions as fracture around neck region, Disc Prolapse, Fibromyalgia, Osteoporosis, Trauma or Ankylosing Spondylitis were excluded from the study.

III. SCALES AND PROCEDURE

Using Google Form, the survey was emailed to students who met inclusion criteria. This survey included demographics profile (age, sex, course and marital status) and three standardized psychometrically sound scales. Neck pain intensity was evaluated by Visual Analogue Scale (VAS) and Test–retest reliability of VAS has been shown to be good ($r = 0.94$, $P < 0.001$). [9] Stress among medical students was evaluated by Medical Student Stressor Questionnaire (MSSQ) and the total alpha value of the MSSQ was 0.95 suggesting that the items of MSSQ were reliable as having high internal consistency. [10] Anxiety was evaluated using Zung's Self-Rating Anxiety Scale (SAS) having a Cronbach's alpha value of 0.82. [11] The procedure of the study was described in Fig. 1.

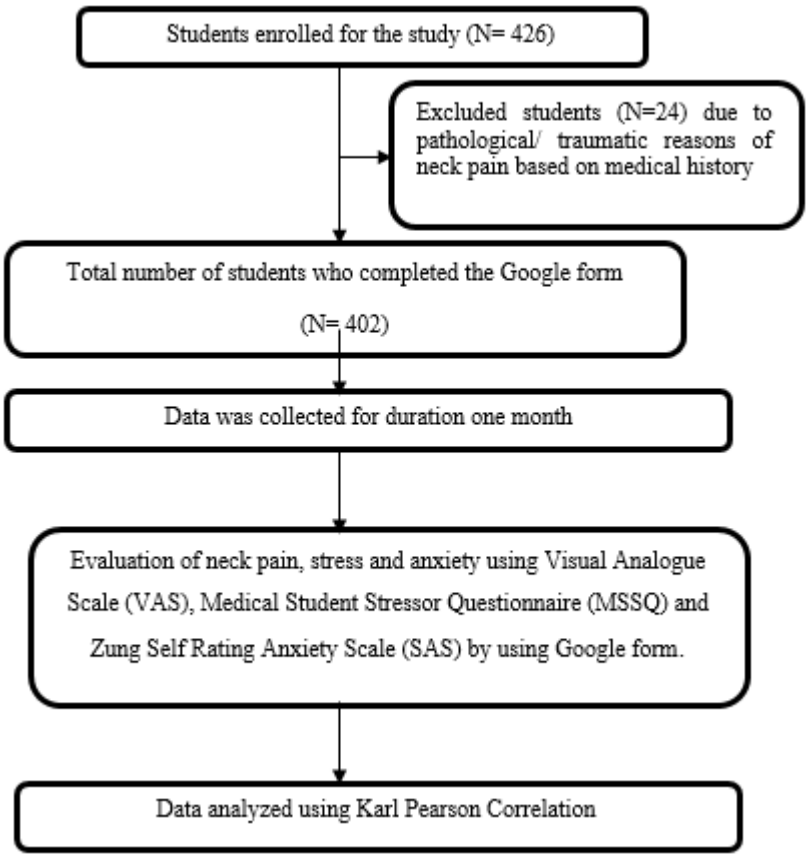

Fig.1: Flow chart of Procedure.

IV. RESULTS

Socio-demographic characteristics

The data of 402 students were analysed in the current study. The characteristics are demonstrated in Table 1.

Table 1: Distribution of socio-demographic factors of students under study.

Socio-demographic factors		N=402	%
Age group (in years)	17 to 20	156	38.8%
	21 to 25	246	61.2%
Gender	Female	346	86.1%
	Male	56	13.9%

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Academic course	Nursing	128	31.83%
	MBBS	126	31.32%
	Physiotherapy	94	23.42%
	Pharmacy	54	13.43%
Year	1st	55	13.7%
	2nd	102	25.4%
	3rd	106	26.4%
	4th	75	18.6%
	Internship	64	15.9%

Table 2: Mean and Standard Deviation of scores of Neck pain, Stress and Anxiety.

	NECK PAIN	STRESS	ANXIETY
Mean ± SD	4.7 ± 1.5	1.6 ± 0.5	33.5 ± 7.2

Table 2 shows the mean and standard deviation (SD) of Neck pain, Stress and Anxiety of 402 subjects. The value of scores Neck pain was 4.7 ± 1.5, of Stress was 1.6 ± 0.5 and that of Anxiety was 33.5 ± 7.2.

Analyses of used scales

Table 3: Distribution of Severity of Neck Pain, Stress and Anxiety (N=402)

Distribution of severity of Neck pain, Stress and Anxiety		N=402	%
Neck pain	Mild	181	45%
	Moderate	209	52%
	Severe	12	3%
Stress	Mild	25	6.2%
	Moderate	293	72.9%
	High	77	19.2%
	Severe	7	1.7%
Anxiety	Normal	345	85.8%
	Mild	43	10.7%
	Moderate	13	3.3%
	Severe	1	0.2%

Table 3 describes the severity of neck pain, stress and anxiety using VAS, MSSQ and SAS

Table 4: Representation of Correlation of Neck pain with Stress and Anxiety.

	Karl Pearson Correlation	P- value
Neck pain and Stress	0.857	<0.00001
Neck pain and Anxiety	0.419	<0.00001

Table 4 depicts the correlation of Neck pain with Stress and Anxiety. The value of r between Neck pain and Stress was found to be 0.857 which reflects highly positive correlation and between Neck pain and Anxiety was found to be 0.419 which reflects moderately positive correlation. The findings were displayed in Fig.2 and Fig. 3.

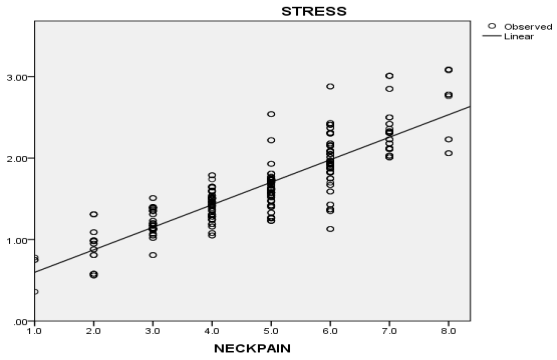

Fig 2: Representation of mean and correlation for the comparison between neck pain and stress

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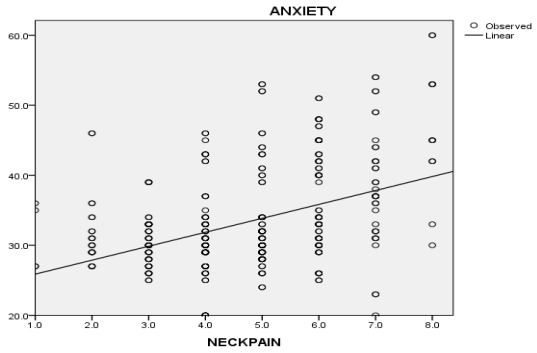

Fig 3: Representation of mean and correlation for the comparison between neck pain and anxiety

V. DISCUSSION

The current study aims to evaluate the association between neck pain and psychological problems including stress and anxiety in undergraduate medical student's. Based on the data analysis, it can be stated that medical students experiencing neck pain are significantly impacted by stress and anxiety.

Neck problems were found to be a common complaint among undergraduate medical students, as evidenced by the prevalence in 402 participants in current study. Consequently, attention should be drawn to risk factors associated with development of neck problems.

In current study, prevalence of stress among the undergraduate medical students having neck pain was significant. it was determined that 6.2% of undergraduate medical students had mild stress, 72.9% had moderate stress, 19.2% had high stress, and 1.7% had severe stress. Results indicate a strong positive correlation between stress and neck pain(r=0.857).

The present study is supported by Shrutika H Wankhade, et al. (2021) who examined the effect of stress on neck pain among undergraduate physiotherapy and nursing students and revealed that there is a significant relationship between the severity of stress level and presence of neck pain. [12] Another study conducted by Bahrami-Ahmadi et al., (2016) found that nurses who had higher levels of stress and also experienced a greater prevalence of neck pain. [13]

In current study, anxiety was found in 14.2% of the participants, with 10.7% having mild anxiety, 3.3% having moderate anxiety and 0.2% having severe anxiety. Additionally, there was moderately positive correlation between anxiety and neck pain(r=0.419).

This is consistent with study conducted by Mohammed S. Alghamdi, et al. (2023) on Association Between Neck Pain and Psychological Distress and which revealed that anxiety have a significant impact on neck pain disability. [14] Another study by Liu et al. (2018), concluded that patients with neck pain were more likely to have comorbid anxiety symptoms, demonstrating the link between anxiety and neck discomfort. [15]

VI. LIMITATIONS

Present study consists of a few limitations. One potential limitation of the study is that it was conducted in single university and findings may not generalize to other populations or different educational settings. Another limitation is the use of self-reported questionnaire, which is influenced by subjects opinion and may result in system bias. Additionally, the presence of other factors such as lifestyle, workload, physical activity levels, or ergonomic factors (like posture while studying) may also contribute to neck pain, making it difficult to isolate the effects of stress and anxiety alone.

VII. CONCLUSION

The study concluded that rising stress and anxiety levels are associated with an increased occurrence or aggravation of neck pain. Both factors will affect academic performance and decrease educational outcomes. Additionally, we encourage integration of stress reduction and anxiety management strategies into traditional treatments of neck pain enhances their overall effectiveness in managing the condition.

Conflict of Interest- The authors declare that there is no conflict of interest regarding the publication of this paper.

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