LINK MEDICAL JOURNAL
of Health and Community Research | LMJHCR

Volume 4, Issue 2, 2026
e-ISSN: 3007-3448
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DOI: 10.61919/2m9jzk10

Original Article

Relationship between Alexithymia and Latent Trigger Points in Upper Trapezius among Female Health Sciences Students: An Analytical Study

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Received: 27 August 2026 **Revised: 10 October 2026** **Accepted: 18 October 2026** **Published: 25 October 2026**

How to Cite: Fizzah Hafeez et al. Relationship between Alexithymia and Latent Trigger Points in Upper Trapezius among Female Health Sciences Students: An Analytical Study. Link Medical Journal.2026; 4 (2):1-6

ABSTRACT

Background: Alexithymia is a personality trait characterized by difficulty identifying and describing emotions and may contribute to increased muscle tension and psychosomatic manifestations. Latent myofascial trigger points in the upper trapezius are common among university students due to prolonged static postures, academic stress, and sustained use of electronic devices. Objective: To determine the association between alexithymia and latent trigger points in the upper trapezius among female health sciences students. Methods: This cross-sectional study included 245 female health sciences students aged 18–25 years from universities in Lahore. Alexithymia was assessed using the Toronto Alexithymia Scale-20 (TAS-20), while latent trigger points of the bilateral upper trapezius were identified using standardized manual palpation based on Delphi consensus criteria. Descriptive statistics were used for demographic and clinical variables, and Chi-square analysis was performed to determine the association between alexithymia categories and upper trapezius pain-related variables. Results: The participants had a mean age of 21.65 ± 1.86 years. Based on TAS-20 scores, 152 participants (62.0%) were classified as alexithymic and 61 (24.9%) as having possible alexithymia. Significant associations were observed between alexithymia category and shoulder pain/discomfort experience ($p = 0.000$), frequency of upper trapezius pain ($p = 0.026$), and pain interference with daily activities ($p = 0.018$). Conclusion: Alexithymia was significantly associated with upper trapezius latent trigger point-related symptoms among female health sciences students. This research shows that including psychosocial screening within the physiotherapy assessment can help in early detection and management of patients at risk of having musculoskeletal dysfunction. Keywords: Alexithymia; Latent Trigger Points; Upper Trapezius; Female Health Sciences Students; Psychosomatic Pain

INTRODUCTION

The musculoskeletal disorders of the neck and shoulder regions have been observed in university students, especially women, due to prolonged sitting, constant academic exercises, bad posture, psychological stress, and usage of electronic devices. Alexithymia is a multifaceted personality trait that involves difficulty in identifying emotions, difficulty in describing emotions, and externally oriented thinking. People suffering from alexithymia often experience inward emotions, which cause high autonomic arousal, prolonged muscular tension, and inability to understand one's own emotional state (1). Emotional dysregulation has been linked with an impairment in the hypothalamic-pituitary-adrenal axis, lower heart rate variability, and sustained sympathetic tone, which can all lead to myofascial dysfunction and chronic muscle tension (2).

Several studies have documented that there is a significant occurrence of alexithymia among health sciences students who are under immense pressure academically and emotionally. Likewise, latent trigger points have been found among healthy individuals, especially within the upper trapezius muscles (3). The inhibition of emotions related to alexithymia can result in increased autonomic arousal and muscle tension, leading to the formation of latent trigger points. (4)Trigger points which are latent in nature represent hyperirritable spots that occur within taut bands of muscle and stay asymptomatic in nature when at rest but become tender to palpation and can cause impairment in muscle strength and motion of muscles (5). The pathogenesis of these includes increased acetylcholine secretion, prolonged sarcomere contraction, local ischemia, and metabolic stress (6). Chronic psychological stress may further exacerbate these mechanisms, increasing the likelihood of latent trigger point formation and progression to active pain syndromes. (7)Because of gender-related differences in pain perception, musculoskeletal loading, psychological stress, sedentary lifestyle, prolonged screen time, as well as postural demands, female university students represent a particularly vulnerable population (8). Research has shown that women are more likely to experience neck and shoulder

musculoskeletal symptoms, while alexithymia has also been associated with greater psychological distress and increased pain perception (9). Latent trigger point formation in the upper trapezius may be caused by a number of causes, such as poor ergonomics, extended static posture, using digital devices, and emotional dysregulation (10).

Despite growing evidence linking alexithymia with psychosomatic symptoms and myofascial pain, research in Pakistan has largely examined these conditions separately. Limited evidence is available regarding the relationship between alexithymia and latent upper trapezius trigger points pain among female health sciences students. An exploration into this link will enhance knowledge about the bio-psychosocial aspects of musculoskeletal disorders and will also facilitate early psychological screening in physiotherapy (11). This may enhance the comprehension of the biopsychosocial factors involved in musculoskeletal problems, encouraging the early identification of psychological risk factors in the practice of physiotherapy (12).

MATERIALS AND METHODS

This cross-sectional research was conducted at Rashid Latif College of Physiotherapy and some other selected universities in Lahore from 06 October 2025 to 05 January 2026. In addition, ethical approval was sought from the institutional review board of Rashid Latif Medical College Research Ethical Committee (Reference No: IRB/38/2025. Date: 18 September 2025) prior to data collection. The Cross-sectional design was selected for this study due to the need to simultaneously measure alexithymia and latent trigger points and establish their statistical relationship/ The sample size calculated is 245. The sample was calculated using $n=\frac{z^2*p*(1-P)}{d^2}$, where n = sample size, Z= Z statistic for a level of confidence. P= Expected prevalence or proportion. (If the expected prevalence is 20%, then P= 0.20) (13) d= Precision (If the precision is 5%, then d = 0.05). Participants were recruited using a non-probability convenience sampling technique. The study included 245 female health sciences students aged 18–25 years enrolled in Doctor of Physical Therapy (DPT), MBBS, Pharm D, and Nursing programs. Participants were eligible if they were willing to participate and had latent trigger points in the upper trapezius muscle identified during clinical examination. Students with active myofascial trigger points, previous neck or shoulder surgery, traumatic injuries involving the cervical or shoulder region, neurological disorders, congenital or structural musculoskeletal deformities, systemic inflammatory diseases, or other conditions affecting musculoskeletal function were excluded from the study.

The data were gathered through a structured assessment instrument that was made up of demographic and clinical parameters. The demographic parameters consisted of age, academic field, and year in college, body mass index, and dominant hand, among others. Alexithymia was assessed using the Toronto Alexithymia Scale-20 (TAS-20), a validated self-administered questionnaire comprising 20 items that evaluate difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking. Twenty items total, divided into three subscales: Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) are scored on a five-point Likert scale (1 being strongly disagree and 5 being strongly agree). Greater alexithymia qualities are indicated by higher total scores, which range from 20 to 100. The typical cut-off values are: 20-51 (non-alexithymia), 52-–60 (Possible/borderline alexithymia) and 61-100 (alexithymia) (14).

The latent trigger point in bilateral upper trapezius verified via manual palpation served as inclusion criteria and all 245 subjects were eligible based on this criterion. The diagnosis of latent trigger points in both the bilateral upper trapezius muscles was carried out by palpation based on the Delphi consensus guidelines of diagnosing a trigger point which includes a taut band, a hypersensitive tender spot in the taut band, and pain upon palpation but no pain at rest. These standards, which were established by Delphi agreement, continue to be the gold standard in clinical practice for differentiating between latent and active trigger points. (15) Therefore, the presence of trigger points is not analyzed as the dependent variable. Independent variable included was alexithymia (TAS-20). Pain-related characteristics, including shoulder pain or discomfort, frequency of pain, pain intensity, duration of symptoms, and interference with daily activities, were also recorded using the standardized assessment form. The primary independent variable was alexithymia, measured by the TAS-20 total score and categorical classification. The primary outcome variable was the presence of pain caused by latent trigger points in upper trapezius.

The required clearance was acquired from the concerned authorities of the respective universities, and all participants were asked to provide written informed consent prior to participation in the study. All participants were made aware of the aims of the study and the fact that their participation is voluntary. Ethical principles, including voluntary participation, confidentiality of participant information, informed consent, and the use of collected data solely for research purposes, were maintained throughout the study. The data was entered and analyzed using IBM SPSS version 25.0. Descriptive statistics were employed to give a brief description of the demographic and clinical variables.

Percentages and frequencies were determined for categorical variables while means and standard deviation for continuous variables. The Chi-square test was used to establish an association between alexithymia groupings and clinical variables associated with latent trigger points. Statistical significance was set at p value of less than 0.05.

RESULTS

A total of 245 female health sciences students participated in the study. The mean age of participants was 21.65 ± 1.86 years, where most participants were enrolled in the Doctor of Physical Therapy (DPT) program (75.5%). The findings indicate an exceptionally high prevalence of alexithymia traits among female health sciences students, which was 152 (62.0%), (Table 1).

Table 1: Classification of Participants (N=245)

Category*	Frequency	Percentage
No significant Alexithymia (20-51)	32	13.1%
Possible Alexithymia (52-60)	61	24.9%
Alexithymia (61-100)	152	62.0%
Total	245	100%

A statistically significant association was observed between alexithymia category and shoulder pain/discomfort experience (p< 0.001). Participants with higher alexithymia reported shoulder discomfort more frequently than those with lower scores. The relationship between alexithymia and frequency of upper trapezius pain was statistically significant p= 0.026. The Participants classified as alexithymia reported pain more frequently compared with non-alexithymia participants. (Table 2).

Table 2: Association of Alexithymia and pain and discomfort (N=245)

TASCAT	Never	Rarely	Sometimes	Often	Always	Total	P-Value
No significant Alexithymia (20-51)	4	12	6	3	7	32	0.026
Possible Alexithymia (52-60)	18	13	10	9	11	61	
Alexithymia (61-100)	36	47	48	11	10	152	
Total	58	72	64	23	28	245	

Notes: The results state that higher alexithymia scores are associated with greater reported upper trapezius discomfort. (Table 3)

Table 3: Upper Trapezius pain and categories (N=245)

TASCAT	0	Never	Rarely	Sometimes	Often	Always	6	7	8	9	Total	P value
No significant Alexithymia (20-51)	3	3	0	7	0	13	4	2	0	0	32	0.018
Possible Alexithymia (52-60)	4	4	7	3	8	4	5	9	17	0	61	
Alexithymia (61-100)	9	4	13	7	28	16	17	30	8	20	152	
Total	16	11	20	17	36	33	26	41	25	20	245	

Notes: On a scale from 0 to 10, how severe is the pain/discomfort in your upper trapezius?

DISCUSSION

The present study investigated the relationship between alexithymia and latent trigger point-related upper trapezius pain among female allied health sciences students. A high prevalence of alexithymia was observed, with 62.0% of participants classified as alexithymic and 24.9% as possibly alexithymic. These findings indicate that emotional processing difficulties are common in this population and may be influenced by academic stress, emotional burden, and the demands of health-related professional education (16).

The prevalence of alexithymia identified in the present study was higher than that reported in many Western student populations but was consistent with findings from regional studies conducted in Pakistan and other Middle Eastern countries. Sociocultural factors limited emotional expression and academically demanding environments, may contribute to the higher prevalence observed among health sciences students. Furthermore, the relatively young mean age of the participants (21.65 ± 1.86 years) and the predominance of Doctor of Physical Therapy students may have influenced these findings (17). An important finding from the current research was the relationship between high TAS-20 scores and increased pain or discomfort in the upper trapezius muscle despite the absence of severe pain or self-reported pain. Although most of the subjects had only mild pain or no pain at all, the presence of latent trigger points indicates that the inability to cope with emotions could cause subclinical muscle problems. In the literature, it has been established that latent trigger points are common in postural muscles such as the upper trapezius among healthy young individuals and can lead to local tenderness and stiffness (18). These results confirm the hypothesis on the interconnection between psychological characteristics and latent myofascial dysfunction and highlight the need to consider both in clinical evaluation.

Another study investigated the relationship between alexithymia and somatization in patients with chronic pain using the TAS-20. Patients who were experiencing somatization had significantly higher alexithymia scores (19). The relationship between alexithymia and cervical and peri cranial muscular soreness in 42 female migraine sufferers was examined. Standardized palpation was used to measure cervical and peri cranial muscle tenderness, and the TAS-20 was used to measure alexithymia. The study discovered a strong and independent positive correlation between muscle tenderness and TAS-20 scores, suggesting that higher levels of alexithymia were linked to more cervical and peri cranial muscle soreness. These results add to the evidence supporting the link between musculoskeletal soreness and emotional processing issues (20). These findings make another point for considering a biopsychosocial approach in the framework of physiotherapy treatment. Besides the physical examination, the screening of disorders in the process of emotional information processing (for instance, alexithymia) could allow us to identify people predisposed to the occurrence of chronic neck and shoulder pain in advance. It could help to prevent the problem using physiotherapeutic interventions, including ergonomic training, postural improvement, and stress management.

Nevertheless, there are some limitations that need to be considered. First, due to the cross-sectional design, it was not possible to prove the causal effect of alexithymia on the development of pain in the upper trapezius with latent trigger points. Also, the self-reported scales may introduce response biases, and the high percentage of Doctor of Physical Therapy students makes it difficult to generalize the results to students studying in other disciplines. It is necessary to conduct longitudinal studies and intervention trials to explore the mechanisms of such relationships and to test emotional awareness and stress management techniques. Besides, regular screening for alexithymia, education on ergonomics, and the assessment of latent trigger points in physiotherapy should be recommended to detect musculoskeletal problems at an early stage and prevent their progression to chronic pain. Overall, the present study reveals a high incidence of alexithymia and a significant relationship between difficulty in the processing of emotions and pain in the upper trapezius due to latent trigger points in women studying allied health sciences. The results indicate the need for the integration of psychological and musculoskeletal evaluation in physiotherapy treatment and university healthcare programs.

CONCLUSION

The current study states that alexithymia was found to exist among the subjects under investigation, and higher scores for alexithymia were found to be related to increased pain, more pain intensity, and interference with daily activity. The present research has established a strong association between alexithymia and the occurrence of pain in the upper trapezius muscle that is caused by latent trigger points in female health sciences students. This evidence proves the need for incorporating assessment of emotional wellbeing into physiotherapy practice.

DECLARATIONS

Author Contributions:	Concept: FH, TM; Design: RY, AW; Data Collection: NA FH; Analysis: TM, AW; Drafting: FH, TM, RY, AW, NA.
Ethical Approval:	IRB/38/2025, Rashid Latif Khan University, Lahore, Pakistan
Informed Consent:	Written informed consent was obtained from all participants before enrolment.
Conflict of Interest:	The authors declare no conflict of interest.
Funding:	No external funding was received for this study.
Data Availability:	De-identified data may be available from the corresponding author on request, subject to participant consent and institutional confidentiality requirements.
Acknowledgments:	None.
AI Declaration:	Generative AI tools were used solely for language and grammatical refinement. The authors verified the final manuscript and remain fully responsible for its accuracy, integrity, and scientific content.

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