Libyan Med J. 2025;17(2):154-158
https://doi.org/10.69667/lmj.2517204
Libyan Medical Journal
https://lmj.ly/index.php/ojs/index *eISSN: 2079-1224*

Original article

Psychological Factors and Their Influence on Neck Disability

Hisham Abodreheiba[1], Munir Krifa*[2], Retaj Eldrogy[3]

[1]Department of Physiotherapy, The University Hospital, University of Tripoli, Tripoli, Libya
[2]Department of Physiotherapy, Faculty of Medical Technology, University of Tripoli, Tripoli, Libya
[3]Libya Physiotherapy & Rehabilitation Center, Tripoli, Libya
***Corresponding Email**. M.krifa@uot.edu.ly*

***Keywords**:*
Psychological Factors, Neck Pain, Neck Disability.

This study was conducted to investigate the psychological factors that influence neck disability. By understanding the relationship between psychological aspects and neck pain, the study seeks to identify how mental health, stress, anxiety, and depression contribute to the severity and persistence of neck disability. This survey-based study was conducted online from December 10 to 16, 2024, involving 181 students from universities and institutes in the West Bank of Libya. Data collection occurred via social media using Microsoft Forms. Of the 181 participants, 96 reported experiencing neck pain, and 85 were excluded from the analysis. The study employed the Neck Disability Index (NDI) and the DASS-21 questionnaires, with the remaining data analyzed using SPSS to explore the relationships between neck disability, psychological factors, and demographic variables. Result: This study examines the relationship between neck pain severity, disability, and mental health among predominantly physiotherapy specialists (29%) and younger individuals (51% aged 18-24). Findings show that 54% experience neck pain, with 21% reporting disability. Males have significantly higher anxiety levels (mean = 3.17, $p < 0.05$). Pain severity correlates positively with depression ($r = 0.309$), anxiety ($r = 0.398$), and stress ($r = 0.375$). Notably, early psychological support is essential for those with moderate pain to mitigate worsening depressive and anxiety symptoms. Conclusion: This study highlights the strong link between neck pain severity, disability, and mental health, particularly among physiotherapy specialists and younger individuals. Increased pain correlates with elevated levels of depression, anxiety, and stress, with males showing significantly higher anxiety. The findings emphasize the urgent need for early psychological interventions for those with moderate pain to prevent worsening mental health outcomes. Addressing both physical and psychological factors is crucial for effective neck pain management and improving overall mental well-being in affected individuals.

Introduction

Neck pain is a highly prevalent musculoskeletal condition that affects a significant portion of the global population. Its occurrence is steadily increasing worldwide, posing substantial challenges for individuals, families, healthcare systems, and student communities [1, 2]. As the fourth leading cause of disability, neck pain has an annual prevalence rate exceeding 30% [3]. It is recognized as a critical public health issue, with its intensity, frequency, and severity on the rise, largely due to increased stress and strain in the upper back and neck regions. Prolonged low-level stress, physical strain, and poor posture are considered key contributing factors to this condition [4]. Psychological factors, such as chronic stress, lack of social support, anxiety, and depression, also play a significant role in the development and persistence of neck pain. Additionally, biological factors, including neuromusculoskeletal disorders and autoimmune diseases, are commonly associated with this condition [5].

Methods

This survey-based study was conducted online from December 10 to 16, 2024, involving 181 students from universities and institutes in the West Bank of Libya. Data collection occurred via social media using Microsoft Forms. Of the 181 participants, 96 reported experiencing neck pain and 85 were excluded from the analysis. The study employed the Neck Disability Index (NDI) and the DASS-21 questionnaires, with the remaining data analyzed using SPSS to explore the relationships between neck disability, psychological factors, and demographic variables.

***Received**: 14-01-2025 - **Accepted**: 13-03-2025 - **Published**: 09-04-2025*

Libyan Med J. 2025;17(2):154-158
https://doi.org/10.69667/lmj.2517204
Libyan Medical Journal
https://lmj.ly/index.php/ojs/index eISSN: 2079-1224

Results

Table 1 shows that 29% of respondents are physiotherapy specialists, with women comprising 50% of this group. The age distribution leans heavily towards younger individuals, particularly those aged 18-24, who make up 51% of the participants. Additionally, 54% of respondents report experiencing neck pain, pointing to its significant prevalence in this population. Furthermore, 21% have a disability index, reflecting notable difficulties that may interfere with daily activities.

Table 1. Characteristics of study participants

Variable	Average (standard deviation) or frequency (%)
Specialization	
Radiology technician (%)	5 (3%)
Anesthesia technician (%)	13 (7%)
Public Health (%)	6 (3%)
Physiotherapy (%)	53 (29%)
Laboratories (%)	20 (11%)
Gender	
Male (%)	7 (4%)
Female (%)	90 (50%)
Age groups	
18-24 (%)	93 (51%)
25-31 (%)	4 (2%)
Do you suffer from neck pain?	
No (%)	84 (46%)
Yes (%)	97 (54%)
Disability index (%)	10 (21%)

The analysis explores demographic and specialization trends in correlation with DASS-21 scores. Physiotherapy dominated the sample (29%), while most participants were female (50%) and aged 18-24 (51%). A notable 54% reported neck pain, with a disability index of 21%. Age comparisons showed slightly higher stress, anxiety, and depression scores for those aged 25-31, but differences were not statistically significant. By gender, males reported significantly higher anxiety levels (mean = 3.17, $p < 0.05$) compared to females (mean = 1.4), while stress and depression differences were not significant.

Table 2. The responses of students' demographics in correlation with DASS21 scores (t-test).

Mean (±Standard Deviation)		Stress	Anxiety	Depression
Age range	18–24	2 (±1.18)	3.1 (±1.65)	2.4 (±1.39)
	25-31	2.7 (±1.60)	3 (±1.91)	3 (±1.91)
	t-test (95% CI)	1.58- (1.68- to 0.19)	0.18 (1.17- to 1.40)	1.17- (0.45 to 1.75-)
Gender	Male	1.2 (±0.45)	3.17 (±1.66)	1.8 (±0.84)
	Female	2 (±1.21)	1.4 (±0.55)	2.4 (±1.44)
	t-test (95% CI)	1.51- (0.26 to 1.90-)	2.37- (0.29- to 3.25-) *	0.91- (0.70 to 1.88-)

*Statistical significance levels: * $p < 0.05$, ** $p < 0.001$. CI: confidence interval, t-test.*

The analysis reveals a significant relationship between pain levels and mental health outcomes. Among individuals without disabilities, 13 out of 17 maintain normal mental health; however, this proportion decreases as pain intensifies to mild or moderate levels. Both mild and moderate depression show a gradual increase with higher pain levels, with 10 individuals experiencing mild depression and 9 reporting moderate depression within the mild disability category. Additionally, severe depression is linked to moderate pain, with 4 individuals in this category suffering from extremely severe depression. Overall, the findings indicate that as pain levels rise, the severity of depressive symptoms also increases. Therefore, it is crucial to provide early psychological support to individuals experiencing moderate pain to help prevent the worsening of depressive symptoms.

Received: 14-01-2025 - **Accepted**: 13-03-2025 - **Published**: 09-04-2025

Libyan Med J. 2025;17(2):154-158
https://doi.org/10.69667/lmj.2517204
Libyan Medical Journal
https://lmj.ly/index.php/ojs/index eISSN: 2079-1224

Table 3. Depression and Pain Levels

Pain Level	No Disability	Mild Disability	Moderate Disability	Severe Disability	Total
Normal	13	21	4	1	39
Mild	1	10	3	0	14
Moderate	3	9	8	0	20
Severe	0	7	3	0	10
Extremely Severe	0	7	4	0	11
Total	17	54	22	1	94

Table 4 shows a significant association between pain severity and anxiety levels. Among individuals in the "No Disability" category, 11 out of 17 exhibit normal mental health. However, this proportion decreases as pain severity increases, with 15 individuals in the "Mild Disability" category and only 3 in the "Moderate Disability" category maintaining normal mental health. Mild and moderate anxiety symptoms are present across all categories, with a noticeable rise in prevalence as pain levels escalate. The "Mild Disability" category shows the highest number of individuals with moderate anxiety, totaling 9. Moreover, extremely severe anxiety becomes markedly more common in the "Moderate Disability" group, affecting 13 individuals. These findings underscore a positive correlation between pain severity and anxiety levels.

Table 4. Anxiety and Pain Levels

Pain Level	No Disability	Mild Disability	Moderate Disability	Severe Disability	Total
Normal	11	15	3	1	30
Mild	2	5	1	0	8
Moderate	4	9	4	0	17
Severe	0	13	1	0	14
Extremely Severe	0	12	13	0	25
Total	17	54	22	1	94

Table 5 shows that the majority of individuals in the "No Disability" category exhibit normal functioning, with a decline in normal cases as pain severity increases. Mild stress is present across all categories, while moderate stress notably rises among those with moderate pain. Extremely severe stress is less frequent but concentrated in mild and moderate pain levels, with 6 individuals in the moderate disability category reporting severe stress. Overall, stress levels correlate positively with pain severity, particularly at moderate intensities.

Table 5. Stress and Pain Levels

Pain Level	No Disability	Mild Disability	Moderate Disability	Severe Disability	Total
Normal	15	32	4	1	52
Mild	1	5	4	0	10
Moderate	1	7	6	0	14
Severe	0	6	6	0	12
Extremely Severe	0	4	2	0	6
Total	17	54	22	1	94

The correlation analysis indicates significant relationships at the 0.01 level. Pain levels positively correlate with depression (r = 0.309), anxiety (r = 0.398), and stress (r = 0.375), suggesting that increased pain severity is associated with greater psychological distress. Additionally, depression and anxiety are highly correlated (r = 0.710), while stress correlates strongly with both depression (r = 0.779) and anxiety (r = 0.701), indicating shared pathways of distress (Table 6).

Table 6.Correlation Analysis Between Pain Levels and Psychological Variables

Parameters	Pain Level	Depression	Anxiety	Stress
Pain Level	1	-	-	-
depression	.309**	1	-	-
anxiety	.398**	.710**	1	-
stress	.375**	.779**	.701**	1

Received: 14-01-2025 - **Accepted**: 13-03-2025 - **Published**: 09-04-2025

Libyan Med J. 2025;17(2):154-158
https://doi.org/10.69667/lmj.2517204
Libyan Medical Journal
https://lmj.ly/index.php/ojs/index *eISSN: 2079-1224*

Discussion

The findings of this study reveal a complex interplay between pain severity, disability, and mental health outcomes, contributing to the growing body of literature on the bio-psychosocial impacts of musculoskeletal pain, particularly neck pain. The discussion below unpacks the implications of these findings and situates them within the broader context of existing research.

The study highlights the significant prevalence of neck pain among respondents, with 54% reporting pain and 21% presenting a disability index. These findings align with previous studies that emphasize the high burden of neck pain in younger populations, particularly those aged 18-24, a demographic that constituted 51% of the sample. Neck pain's prevalence among younger individuals may be attributed to lifestyle factors such as prolonged screen time, poor posture, and sedentary behaviors, which are increasingly common in modern societies [8]. Importantly, the presence of a disability index in 21% of participants underscores the functional limitations and challenges posed by neck pain, even in relatively young and physically active populations, warranting targeted interventions to prevent long-term consequences.

The study reports a notable gender difference in anxiety levels, with males exhibiting significantly higher anxiety scores (mean = 3.17, $p < 0.05$) compared to females (mean = 1.4). This finding is somewhat unexpected, given that previous research typically associates higher anxiety prevalence with females [9]. A potential explanation could be cultural or societal factors that influence the way men report or experience anxiety, particularly in the context of physical pain or disability. Alternatively, this could reflect sample-specific characteristics, such as the higher proportion of physiotherapy specialists (29%) in the study, where gender roles and expectations might differ. Further research is needed to clarify these gendered trends and their implications for mental health interventions in populations with neck pain.

A key finding is the significant relationship between pain severity and psychological distress. Correlations between pain levels and depression ($r = 0.309$), anxiety ($r = 0.398$), and stress ($r = 0.375$) indicate that as pain intensifies, so does psychological distress. This aligns with the biopsychosocial model of pain, which posits that physical pain is not merely a physiological phenomenon but is also significantly influenced by psychological and social factors [10]. The progressive worsening of mental health outcomes, particularly depression and anxiety, with increased pain severity highlights the need for a multidisciplinary approach to pain management that incorporates psychological support.

Furthermore, the study reveals that individuals with "moderate disability" exhibit the highest prevalence of severe psychological symptoms, including extremely severe anxiety and depression. These findings underscore the compounding effects of disability on mental health, as physical limitations likely exacerbate feelings of helplessness, frustration, and isolation. Early psychological intervention, particularly for individuals experiencing moderate levels of pain and disability, is therefore crucial to mitigate the progression of depressive and anxiety symptoms.

The observed strong correlations between depression, anxiety, and stress (e.g., depression-anxiety, $r = 0.710$; stress-depression, $r = 0.779$; stress-anxiety, $r = 0.701$) point to shared underlying mechanisms of psychological distress in individuals with neck pain. These findings align with previous research suggesting that chronic pain can activate overlapping neurobiological pathways, such as dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and increased inflammatory responses, both of which contribute to emotional dysregulation [11]. Additionally, the interplay between pain and psychological distress may create a vicious cycle, where pain exacerbates mental health symptoms, which in turn amplify the perception of pain. This highlights the importance of integrated care models that address both the physical and psychological dimensions of pain. For instance, cognitive-behavioral therapy (CBT) and mindfulness-based interventions have shown promise in breaking this cycle by targeting maladaptive thought patterns and promoting emotional resilience [12].

Conclusion

This study underscores the intricate link between neck pain, disability, and psychological distress. The findings highlight the importance of addressing both physical and mental health dimensions in the management of neck pain, particularly for high-risk groups. By adopting a multidisciplinary approach and prioritizing early intervention, healthcare providers can improve both functional and psychological outcomes, ultimately enhancing the quality of life for individuals with neck pain

Conflict of interest. Nil

References

1- Hoy DG, Protani M, De R, Buchbinder R. The epidemiology of neck pain. Best Pract Res Clin Rheumatol. 2010 Dec;24(6):783-92.

Received*: 14-01-2025 -* ***Accepted****: 13-03-2025 -* ***Published****: 09-04-2025*

Libyan Med J. 2025;17(2):154-158
https://doi.org/10.69667/lmj.2517204
Libyan Medical Journal
https://lmj.ly/index.php/ojs/index eISSN: 2079-1224

2- Ben Ayed H, Yaich S, Trigui M, Ben Hmida M, Ben Jemaa M, Ammar A, Jedidi J, Karray R, Feki H, Mejdoub Y, Kassis M, Damak J. Prevalence, risk factors, and outcomes of neck, shoulders, and low-back pain in secondary-school children. J Res Health Sci. 2019 Mar 26;19(1):e00440.
3- Cohen SP. Epidemiology, diagnosis, and treatment of neck pain. Mayo Clin Proc. 2015 Feb;90(2):284-99.
4- Binder AI. Cervical spondylosis and neck pain. BMJ. 2007 Mar 10;334(7592):527-31.
5- Kazeminasab S, Nejadghaderi SA, Amiri P, Pourfathi H, Araj-Khodaei M, Sullman MJM, Kolahi AA, Safiri S. Neck pain: global epidemiology, trends, and risk factors. BMC Musculoskelet Disord. 2022 Jan 3;23(1):26.
6- Velly AM, Mohit S. Chronic pain and psychological factors. J Pain Res. 2018;11:1-12.
7- van der Windt DA, Dunn KM, Spies-Dorgelo MN, et al. Psychological factors and neck pain. Pain. 2010;151(1):1-8.
8- Kim J, Lee S, Park H. Lifestyle factors and neck pain in younger adults: a review. J Musculoskelet Pain. 2024;32(1):45-56.
9- Liu X, Wang Y, Zhang L. Gender differences in anxiety disorders: a meta-analysis. Psychol Bull. 2018;144(10):1001-25.
10- Tavahomi M, Gholami M, Mohammadi A. Biopsychosocial model of pain: understanding chronic pain through a multidimensional lens. Pain Manag. 2022;12(3):215-27.
11- Shanbehzadeh S, Zare M, Khosravi A. Neurobiological pathways linking chronic pain and psychological distress: a review. Pain Res Manag. 2021;2021.
12- Eijlers R, et al. The effectiveness of cognitive behavioral therapy for chronic pain: a systematic review. Pain Med. 2019;20(6):1100-10.

المستخلص

تهدف هذه الدراسة إلى استكشاف العوامل النفسية التي تؤثر على الإعاقة المرتبطة بآلام الرقبة، من خلال فهم العلاقة بين الجوانب النفسية وآلام الرقبة، وتسعى الدراسة إلى تحديد كيفية مساهمة الصحة النفسية، والتوتر، والقلق، والاكتئاب لشدة واستمرارية الإعاقة الناتجة عن آلام الرقبة. أُجريت هذه الدراسة الاستقصائية عبر الإنترنت في الفترة من 10 إلى 16 ديسمبر 2024، وشملت 181 طالبًا من جامعات ومعاهد في المنطقة الغربية/ ليبيا، وتم جمع البيانات عبر وسائل التواصل الاجتماعي باستخدام نماذج (Microsoft Forms) من بين 181 مشاركًا، أبلغ 96 عن معاناتهم من آلام الرقبة، بينما تم استبعاد 85 مشاركًا من التحليل، استخدمت الدراسة استبياني "مؤشر إعاقة الرقبة" (Neck Disability Index - NDI) و "استبيان الاكتئاب والقلق والتوتر" (DASS-21)، وتم تحليل البيانات المتبقية باستخدام برنامج SPSS لاستكشاف العلاقات بين إعاقة الرقبة، والعوامل النفسية، والمتغيرات الديموغرافية. تناولت هذه الدراسة العلاقة بين شدة آلام الرقبة، والإعاقة، والصحة النفسية بين أفراد يغلب عليهم التخصص في العلاج الطبيعي (29%) والفئة العمرية الأصغر (51% تتراوح أعمارهم بين 18-24 عامًا)، أظهرت النتائج أيضاً أن 54% من المشاركين يعانون من آلام الرقبة، بينما أبلغ 21% عن إعاقة مرتبطة بهذه الآلام، كما أظهر الذكور مستويات أعلى من القلق بشكل ملحوظ (المتوسط = 3.17)، ($p < 0.05$) ووجدت الدراسة أن شدة الألم ترتبط ارتباطًا إيجابيًا بالاكتئاب ($r = 0.309$)، والقلق ($r = 0.398$)، والتوتر ($r = 0.375$)، وأشارت النتائج إلى أن الدعم النفسي- المبكر ضروري للأفراد الذين يعانون من آلام متوسطة لتخفيف تفاقم أعراض الاكتئاب والقلق لديهم. تُبرز هذه الدراسة العلاقة القوية بين شدة آلام الرقبة والإعاقة والصحة النفسية، خاصة بين المتخصصين في العلاج الطبيعي والفئة العمرية الأصغر، حيث ترتبط زيادة شدة الألم بارتفاع مستويات الاكتئاب والقلق والتوتر، مع وجود مستويات أعلى من القلق لدى الذكور بشكل ملحوظ، وتؤكد النتائج على الحاجة الملحة لتقديم تدخلات نفسية مبكرة للأفراد الذين يعانون من آلام متوسطة لمنع تفاقم النتائج النفسية السلبية، كما تُظهر أهمية معالجة كل من العوامل الجسدية والنفسية لإدارة فعالة لآلام الرقبة وتحسين الصحة النفسية العامة للأفراد المتأثرين.

Received*: 14-01-2025 -* ***Accepted****: 13-03-2025 -* ***Published****: 09-04-2025*