ORIGINAL PAPER

Physiotherapy Quarterly (ISSN 2544-4395)
2025, 33(3), 77–80
© Wroclaw University of Health and Sport Sciences

Associations between generalised anxiety disorder and work-related musculoskeletal problems among medical professionals

DOI: https://doi.org/10.5114/pq/192779

Rimsha Khurshid, Amirah Zafar, Ulfat Zohra, Hira Sarwar Khan, Taleeaa Sabir, Aymen Kashif
Combined Military Hospital Medical College and Institute of Dentistry, Lahore, Pakistan

Abstract

Introduction. Generalised Anxiety Disorder (GAD) and prolonged working hours have negative impacts on the human musculoskeletal system. The study investigated the association between GAD and work-related musculoskeletal disorders (WMSDs) among medical professionals.

Methods. This analytical cross-sectional study used a non-probability convenient sampling technique to collect data from medical professionals at the Combined Military Hospital (CMH) and CMH Medical College and Institute of Dentistry, Lahore, using GAD-7 and the Nordic Musculoskeletal Questionnaire. Inclusion criteria were medical professionals of both genders aged 20–40 years with a history of musculoskeletal disorders (MSDs), anxiety symptoms for more than two weeks, and a willingness to participate. Exclusion criteria were traumatic events, a psychological disease diagnosis other than GAD, pregnancy (2nd and 3rd trimester), and professionals with less than one year of experience. Statistical analysis employed SPSS version 22, with chi-squared (χ^2) and Cramer's rule applied to show the significant associations between GAD and WMSDs in medical professionals ($p > 0.01$).

Results. The association between WMSDs and GAD was statistically significant ($p = 0.01$), and a weak positive association was found (Cramer's $V = 0.22$). The relationship was statistically significant among 174 female participants ($p = 0.043$, $\chi^2 = 8.166$), with 148 (61.40 %) participants with 1–2 years of experience most affected by MSDs and 66 (55.50%) falling into the minimal anxiety category.

Conclusions. Medical professionals had WMSDs, and female medical professionals had a strong association with GAD and WMSDs. Young professionals had more musculoskeletal and anxiety issues.

Key words: generalized anxiety disorder, musculoskeletal diseases, occupational diseases, health personnel

Introduction

Generalised anxiety disorder (GAD) is defined as tension, trepidation, fear, or apprehension arising in response to situations or events that are typically regarded as normal, are difficult for the person to manage, and persist for at least six months [1]. Factors contributing to GAD development are biological (diet, sickness, and neurotransmitter imbalance), psychological (personality characteristics, self-confidence, cognitive discord, unfavourable feelings, interpersonal and intrapersonal conflict, crisis of development), and social (negative life events, stress at work, lack of social skills, lack of social support, altering values, conflict of societal norms, and natural disasters) [2].

Musculoskeletal disorders (MSDs) are a serious global health issue [3], with 11 to 50% of the general population suffering from chronic disease [4]. The term "work-related musculoskeletal disorders" (WMSDs) refer to conditions brought on by or exacerbated by the workplace, including complaints of pain, tingling, swelling, or discomfort in different regions, including the neck, shoulder, back, elbow, wrist, hip, knee, or multiple other joints, within the previous 12 months [5]. WMSDs are caused by applied forces, repetition, vibrations, awkward postures, moving objects, lifting patients, bending, twisting, and abrupt movements [6].

Doctors save lives (protectors), but when they are under physical or psychological strain or some other problem that interferes with their quality of life, their performance suffers, which could have a negative outcome on patients [7]. A population of Asian nurses had an annual MSD prevalence ranging between 40 and 95% in at least one body part and/or region [8]. Furthermore, 90% of physiotherapists have WMSDs, with 50% of cases appearing during the first five years of employment due to uncomfortable positioning, inadequate lifting technique, and poor posture [9].

Since anxiety has a detrimental effect on professional development and reduces patient care quality, it demands more consideration in the medical field [10]. Resident doctors in accident and emergency departments had higher rates of anxiety, with severity levels ranging from moderate to severe [11, 12]. Compared to other diseases, anxiety is the primary cause of absenteeism due to illness. In addition, people spend a large portion of their life at work, which affects their health and risk of disease.

MSDs contribute to the burden of disability and are closely linked to the global ageing process. The current research accounts for occupational risk factors in addition to personal /behavioural risk factors [13]. Many studies have researched the relationship between anxiety and MSDs, and the current study will add to this important topic. The findings will serve the healthcare community by providing information about the association between these two critical factors and the extent to which they affect each other.

Subjects and methods

This analytical cross-sectional study used a non-probability convenient sampling technique to enrol the participants. After receiving ethical approval (ER # 704/ ERC/CMH/LMC) and institutional permission, informed consent was obtained from

Correspondence address: Amirah Zafar, CMH Medical College and IOD, Abdul Rehman Road, Lahore Cantt, Lahore, Pakistan, e-mail: amirahzafar89@gmail.com; https://orcid.org/0000-0003-1362-6830

Received: 24.04.2024
Accepted: 30.08.2024

Citation: Khurshid R, Zafar A, Zohra U, Khan HS, Raza A, Kashif A. Associations between generalised anxiety disorder and work-related musculoskeletal problems among medical professionals. Physiother Quart. 2025;33(3):77–80; doi: https://doi.org/10.5114/pq/192779.

the participants before data collection. The targeted population was medical professionals from different hospitals in Lahore. Inclusion criteria were aged 20–40 years, male or female gender, medical professionals (including physicians, surgeons, dentists, physical therapists, pharmacists, radiologists, and nurses), a history of musculoskeletal problems, anxiety symptoms for more than two weeks, and a willingness to participate. Exclusion criteria were traumatic events, such as road traffic accidents, fractures, ligament injuries, and nerve injuries, a psychological disease diagnosis other than GAD, pregnancy (2nd and 3rd trimester), and less than one year of professional experience. Data analysis employed SPSS version 22.0, with frequencies and percentages calculated for quantitative and qualitative variables and results expressed using figures (bar charts and pie charts). Chi-squared (X^2) and Cramer's rule assessed the association between GAD and WMSDs. The sample size was calculated using the formula:

$$n = \frac{z^2_{1-a/2}\, P(1-P)}{d^2}$$

The study sample size was 260 [14].

Results

Figure 1 shows the occupation of male participants and the prevalence of MSDs, which were most prevalent among physicians and least among radiologists. Table 1 shows the weak positive association between MSDs and GAD among the 260 participants ($p = 0.01$, Cramer's $V = 0.22$).

Table 2 shows the association between MSDs and GAD, which was not significant among the 86 male participants. However, the relationship was statistically significant among the 174 female participants ($p = 0.043$, $X^2 = 8.166$).

Discussion

Medical professionals were shown to experience significant musculoskeletal pain incidence, which resulted in depression and anxiety. A severe workload, fear of contracting an infectious disease, stress, and other factors might make healthcare personnel less focused and negatively impact their performance. Therefore, assessing preventative practices and the mental health and musculoskeletal systems of healthcare personnel is crucial [14]. This study aimed to identify the association between GAD and WMSDs among medical professionals and determine whether all were affected in the same way or whether others were more vulnerable due to their field.

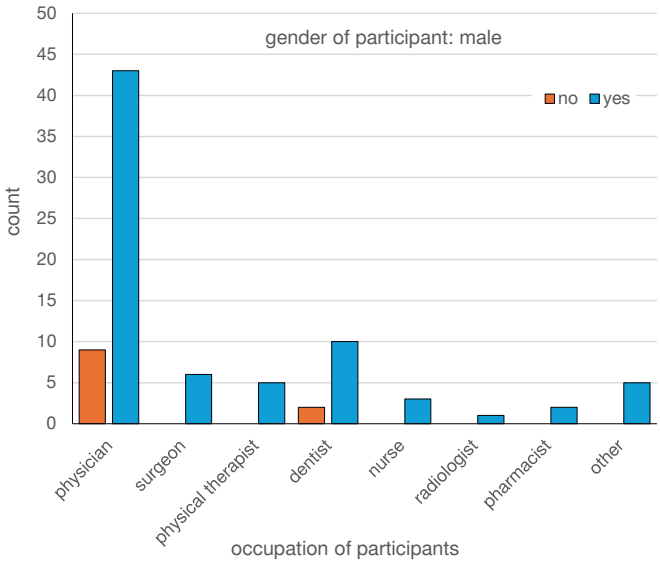

Figure 1. The medical profession of participants

GAD is one of the most prevalent anxiety disorders and can cause significant issues, such as extreme mental distress and depression. To rule out this problem and improve daily living, early detection is essential. In previous articles [15], the GAD-7 scale evaluated GAD, and the Nordic musculoskeletal questionnaire detected MSDs [16]. Healthcare workers had a high proportion of work-related musculoskeletal discomfort, with the neck, lower back, and upper back areas being most affected, and a mean GAD score of 6.36 ± 5.42.

Alharthy et al. [11] found that 52% of emergency medical professionals experienced anxiety to varying degrees. Indeed, 48% reported being in good health after completing the GAD-7,

Table 1. Cross tabulation of generalised anxiety disorder and musculoskeletal disorder prevalence ($n = 260$)

Association		Musculoskeletal disorders			χ^2	*p*-value	Cramer's *V*
		no [*n* (%)]	yes [*n* (%)]	total [*n* (%)]			
Generalised anxiety disorder	minimal (0–4)	16 (84.20)	103 (42.70)	119 (45.80)	12.59	0.01	0.22
	mild (5–9)	2 (10.50)	69 (28.60)	71 (27.30)			
	moderate (10–14)	0 (0.00)	40 (16.60)	40 (15.40)			
	severe (15–21)	1 (5.30)	19 (12.00)	30 (11.50)			
Total		19 (100.00)	241(100.00)	260 (100.00)			

Table 2. Cross tabulation of generalised anxiety disorder and musculoskeletal disorder prevalence among genders

Association		Male ($n = 86$)					Female ($n = 174$)				
		musculoskeletal disorders			χ^2	*p*-value	musculoskeletal disorders			χ^2	*p*-value
		no [*n* (%)]	yes [*n* (%)]	total [*n* (%)]			no [*n* (%)]	yes [*n* (%)]	total [*n* (%)]		
Generalised anxiety disorder	minimal (0–4)	9 (81.80)	38 (50.70)	47 (54.70)	4.83	0.18	7 (87.50)	65 (39.20)	72 (41.49)	8.16	0.043*
	mild (5–9)	2 (18.20)	16 (21.30)	18 (20.90)			0 (0)	53 (31.90)	53 (30.50)		
	moderate (10–14)	0 (0)	13 (17.30)	13 (15.10)			0 (0)	27 (16.30)	27 (15.50)		
	severe (15–21)	0 (0)	8 (10.70)	8 (9.30)			1 (12.50)	21 (12.70)	22 (12.60)		
Total		11 (100.0)	75 (100.0)	86 (100.0)			8 (100.0)	166 (100.0)	174 (100.0)		

and 23.7% reported mild anxiety symptoms. Meanwhile, 20.7% with a moderate score were likely to receive an anxiety diagnosis, and 7.4% of participants with significant anxiety were more likely to develop an anxiety disorder [11]. A correlation between gender and anxiety was also discovered, with anxiety scores higher in women than men and females more likely to develop GAD, similar to the current study.

Most male and female participants fell into the minimal anxiety category, and it appears that lower back (27%) and neck (26%) pain prevented normal work the most in the last 12 months. Arca et al. [14] concluded that neck and lower back pain affected everyday activities the most (42%), with pain and incapacity to work influencing diverse anatomical regions over a range of occupational categories and time intervals [17]. Other researchers showed that 68.4% of the general population with neck pain were dealing with stress, while 55.7% were diagnosed with depression [18].

We found that female medical professionals with musculoskeletal problems were more prone to GAD than male medical professionals, which is in line with other studies showing that women experience depression more than males [19]. A plausible explanation for this finding is that the longer reproductive life of females compared to males contributes to their increased risk of depression [20].

Limitations

The non-probability convenient sampling technique used increased the risk of bias, while the use of self-reported data introduced the potential for recall bias. Furthermore, limited data was collected from senior medical professionals and surgeons with 10–15 years or more experience, with most responses collected from professionals with 1 to 2 years of experience.

Conclusions

Medical professionals experienced WMSDs, and female medical professionals had a strong association with GADs and WMSDs. Young professionals had more musculoskeletal and anxiety problems.

Acknowledgements

I would like to thank our supervisor, Dr Amirah Zafar, co-supervisor Mr Asim Raza, our worthy SAHS Director (Brig. Fayyaz Mahmoud Chaudhary), and Dr Wajida Perveen for their support and guidance in this research thesis.

Ethical approval

The research related to human use complied with all relevant national regulations and institutional policies, followed the tenets of the Declaration of Helsinki, and was approved by the CMH ethical review committee of CMH Medical College (approval No.: 704/CMH/ERB/LMC).

Informed consent

Informed consent has been obtained from all individuals included in this study.

Disclosure statement

No author has any financial interest or received any financial benefit from this research.

Conflict of interest

The authors state no conflict of interest.

Funding

This research received no external funding.

References

[1] Torpy JM, Burke AE, Golub RM. Generalized anxiety disorder. JAMA. 2011;305(5):522; doi: 10.1001/jama.305.5.522.
[2] Shri R. Anxiety: causes and management. J Behav Sci. 2010;5(1):100–18.
[3] Ng YM, Voo P, Maakip I. Psychosocial factors, depression, and musculoskeletal disorders among teachers. BMC Public Health. 2019;19:234; doi: 10.1186/s12889-019-6553-3.
[4] Nakamura K, Takachi R, Kitamura K, Saito T, Kobayashi R, Oshiki R, Watanabe Y, Kabasawa K, Takahashi A, Tsugane S, Iki M, Sasaki A, Yamazaki O. The Murakami Cohort Study of vitamin D for the prevention of musculoskeletal and other age-related diseases: a study protocol. Environ Health Prev Med. 2018;23:28; doi: 10.1186/s12199-018-0715-2.
[5] Benard PB (ed.). Musculoskeletal disorders and workplace factors. A critical review of epidemiologic evidence for work-related musculoskeletal disorders of the neck, upper extremity, and low back. National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services; 1997.
[6] Khudhir KM, Saleh KK, Qadir MS, Mahmood KA, Ariffin AA. Association between work-relate musculoskeletal disorder and ergonomic risk factors among nursing professionals in ranya and qaladiza districts. Kurdistan J Appl Res. 2017;2(2):65–70; doi: 10.24017/science.2017.2.25.
[7] Das SK, Mukhopadhyay S. Effect of altered body composition on musculoskeletal disorders in medical practitioners. Int J Res Eng Tech. 2016;5(16).
[8] Stolt M, Suhonen R, Virolainen P, Leino-Kilpi H. Lower extremity musculoskeletal disorders in nurses: a narrative literature review. Scand J Public Health. 2016;44(1):106–15; doi: 10.1177/1403494815602989.
[9] Vieira ER, Schneider P, Guidera C, Gadotti IC, Brunt D. Work-related musculoskeletal disorders among physical therapists: a systematic review. J Back Musculoskelet Rehabil. 2016;29(3):417–28; doi: 10.3233/BMR-150649.
[10] Quek TT-C, Tam WW-S, Tran BX, Zhang M, Zhang Z, Ho CS-H, Ho RC-M. The global prevalence of anxiety among medical students: a meta-analysis. Int J Environ Res Public Health. 2019;16(15):2735; doi: 10.3390/ijerph16152735.
[11] Alharthy N, Alrajeh OA, Almutairi M, Alhajri A. Assessment of anxiety level of emergency healthcare workers by generalized anxiety disorder-7 tool. Int J Appl Basic Med Res. 2017;7(3):150; doi: 10.4103/2229-516X.212963.
[12] Al Atassi H, Shapiro MC, Rao SR, Dean J, Salama A. Oral and maxillofacial surgery resident perception of personal achievement and anxiety: a cross-sectional analysis. J Oral Maxillofac Surg. 2018;76(12):2532–9; doi: 10.1016/j.joms.2018.06.018.
[13] Blyth FM, Briggs AM, Schneider CH, Hoy DG, March LM. The global burden of musculoskeletal pain – where to from here?. Am J Public Health. 2019;109(1):35–40; doi: 10.2105/AJPH.2018.304747.
[14] Arca M, Dönmezdil S, Durmaz ED. The effect of the COVID-19 Pandemic on anxiety, depression, and musculoskeletal system complaints in healthcare workers. Work. 2021;69(1):47–54; doi: 10.3233/WOR-205014.

[15] Williams N. The GAD-7 questionnaire. Occup Med. 2014; 64(3):224; doi: 10.1093/occmed/kqt161.
[16] Crawford JO. The Nordic musculoskeletal questionnaire. Occup Med. 2007;57(4):300–1; doi: 10.1093/occmed/kqm036.
[17] Macaluso F, Macaluso M, Daraiseh NM. The psychosocial work environment, musculoskeletal disorders and their functional consequences among pediatric healthcare providers. Ann Epidemiol. 2021;58:76–82; doi: 10.1016/j.annepidem.2021.02.015.
[18] Elbinoune I, Amine B, Shyen S, Gueddari S, Abouqal R, Hajjaj-Hassouni N. Chronic neck pain and anxiety-depression: prevalence and associated risk factors. Pan Afr Med J. 2016;24(1); doi: 10.11604/pamj.2016.24.89.8831.
[19] Al-Ghamdi S, Shubair MM, Angawi K, Al-Zahrani J, Khormi AAM, Alshammari RF, Alshammari NS, Aldahash R, Otayf BY, Al-Zahrani HS, Aleshaiwi MS, Aldossari KK. Combined'neck/back pain and psychological distress/morbidity among the saudi population: a cross-sectional study. Front Psychol. 2022;13:870600; doi: 10.3389/fpsyg.2022.870600.
[20] Albert KM, Newhouse PA. Estrogen, stress, and depression: cognitive and biological interactions. Annu Rev Clin Psychol. 2019;15:399–423; doi: 10.1146/annurev-clinpsy-050718-095557.

Copyright: © 2025 Wroclaw University of Health and Sport Sciences. This is an Open Access journal distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) (https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode), allowing third parties to download and share its works but not commercially purposes or to create derivative works.