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ASSOCIATION OF NECK PAIN WITH SCAPULAR DYSKINESIA: CROSS SECTIONAL STUDY

Waleed Khan
Assistant Professor, Abasyn University, Peshawar, Pakistan.
Email: *waleed.ibs@suit.edu.pk*

Dr Toufail Ahmad
Doctor of physical therapy sarhad institute of allied health sciences sarhad university of science and information technology peshawar.
Email: *Toufail70@gmail.com*

Alia Misbah
Doctor Of Physiotherapy Ahmad Medical Institute Peshawar (KMU).
Email: *aaliakhan2255@gmail.com*

Saadullah
MS Scholar, Department of Sport Science and Physical Education, Sarhad University of Science And Information Technology, Peshawar, Pakistan.
Email: *maliksaadkhan58@gmail.com*

Abstract

This comprehensive study delves into the intricate landscape of neck pain, particularly focusing on individuals aged 50 and above, a demographic where this condition is notably prevalent. The global point prevalence of neck pain is documented at 4.9%, positioning it as the fourth leading cause of disability. The disability-adjusted life years associated with neck pain have shown a noteworthy increase from 23.9 million to 33.6 million between 1990 and 2010. To unravel the nuances of this condition, the study employs a robust correlational cross-sectional design and strategically takes place across several esteemed institutions, including the University of Peshawar, Iqra National University, Sarhad University, HMC, and KTH, over a span of six months, from November 2022 to April 2023. The participant pool consists of 200 individuals, revealing a gender distribution of 41 females and 159 males. The findings underscore the substantial impact of neck pain, with a staggering 94% prevalence among the study population. Furthermore, a significant facet explored is scapular dyskinesis, where 74% of

individuals exhibit alterations in scapular position and motion patterns during scapulohumeral movements. Importantly, the study establishes a statistically significant association between neck pain and scapular dyskinesis, evidenced by a p-value <0.05. These nuanced insights contribute to a deeper understanding of the complex interplay between neck pain and scapular dyskinesis, offering valuable implications for targeted management and intervention strategies in clinical practice.

Keywords: *Neck pain, Scapular dyskinesia, females and males, Peshawar.*

INTRODUCTION

Neck pain is a prevalent condition, especially in individuals over 50, with a global point prevalence of 4.9%. It ranks as the fourth highest cause of disability, witnessing an increase in disability-adjusted life years from 23.9 million to 33.6 million between 1990 and 2010 (1). In Saudi Arabia, the estimated prevalence of neck pain among patients with a neck disorder was 35.8% in 2011-2013 (2). Treatment modalities encompass both conservative and surgical interventions. Conservative care involves medication and non-medication interventions, with the treatment plan guided by accumulating evidence that indicates no advantages of surgery over conservative approaches or one medication over another (3)(4). Physical therapy includes various interventions such as neck and/or scapulothoracic range of motion exercises, stretching, strengthening, endurance exercises, aerobic training, dry needling, laser therapy, intermittent mechanical/manual traction, patient education, reassurance, and manual therapy primarily applied to the cervical and/or thoracic spine (5).Neck pain is increasingly prevalent globally, impacting individuals, families, communities, healthcare systems, and businesses. There is significant heterogeneity among epidemiological studies on neck pain, making data comparison challenging. The estimated 1-year incidence of neck pain ranges between 10.4% and 21.3%, with higher rates noted in office and computer workers. Although some studies report recovery rates of 33% to 65% at 1 year, neck pain often follows an episodic course throughout a person's lifetime, leading to frequent relapses. The overall prevalence of neck pain in the general population ranges between 0.4% and 86.8% (mean: 23.1%); point prevalence ranges from 0.4% to 41.5% (mean:14.4%); and 1-year prevalence ranges from 4.8% to 79.5% (mean:25.8%). Prevalence is generally higher in women, high-income countries compared with low- and middle-income countries, and urban areas compared with rural areas (6).Scapular dyskinesis, defined as alterations in the normal position of the scapula and patterns of scapular motion during scapulohumeral movements (7(8), is reported in 68% of patients with rotator cuff problems, 94% with glenoid labral lesions, and 100% with glenohumeral instability.

Prior studies have demonstrated that altered scapular movements are detrimental to shoulder function (9)(10). Studies investigating scapular dysfunction in painful neck disorders typically evaluate the scapula at rest in upright postures or during upper-limb activities, such as arm elevation or typing. Initial evidence suggests that scapular position at rest and scapular motion during upper limb elevation may be altered in some individuals with neck pain compared to a healthy population (11)(12) (13).A study on neck pain reported a global point prevalence of 4.9%, with an increase in disability-adjusted life years from 23.9 million in 1990 to 33.6 million in 2010. Neck pain ranked 4th highest in disability among 291 conditions studied, emphasizing its significant impact (14).Neck pain is prevalent, with women experiencing it more than men. Scandinavian countries report higher 1-year prevalence estimates. Study quality varies, highlighting the need for standardization. Prevalence types include 1-year (39%), point (13%), lifetime (13%), 6-months (11%), 1-month (10%), and 1-week (10%). Children report less pain for 1-month and 1-year but more for 6-months prevalence (15).Neck pain poses a substantial burden, ranking within the top five for disability rates in the US. While most cases resolve within three months, some individuals experience persistent or recurrent symptoms. Differentiating between neuropathic and non-neuropathic neck pain is crucial for effective management (16).A study on upper extremity function and neck pain treatment found significant improvements in the GPR group compared to the SE group. GPR showed superior improvement in pain severity and quality of life. No adverse events were reported (17).In exercises with and without added weight, the neck pain group exhibited significant differences in muscle activity. For instance, the side-lying external rotation showed lower MT activity. The study highlights variations in muscle activity during different exercises in individuals with neck pain (18).The scapula's role in shoulder and neck stability is well-established. However, studies on the connection between neck pain and scapular dysfunction are recent. Despite acknowledgment of the importance of restoring normal scapular kinematics, comprehensive rehabilitation guidelines for shoulder and neck issues are lacking (19).A case-control study on primary school teachers revealed significant differences in scapular position between those with and without neck pain. Teaching, predominantly a female profession, often leads to physical health issues, emphasizing the need for targeted interventions (20).Evaluating scapular dyskinesis (SD) and its association with abnormal neck posture, a study included 90 chronic neck patients with forward head posture and 90 with normal posture. SD tests and assessments using NDI and VAS indicated an association between postural abnormalities and neck-related issues (21).

METHODOLOGY

The methodology of the study is meticulously outlined. The research adopts a

co-relational cross-sectional study design, conducted across prestigious institutions including the University of Peshawar, Iqra National University, Sarhad University, HMC, and KTH. The study duration spans six months, from November 2022 to April 2023. The determination of the sample size, crucial for the study's statistical power, is derived using the infinite population formula, with parameters such as the anticipated population (P), confidence interval (Z^2), and margin of error (e^2). In this case, the calculated sample size is established at 200 participants. The sampling technique employed is a non-probability convenience sample. The inclusion criteria specify participants aged 18 years or older, possessing orientation to persons, time, and place, and demonstrating effective communication skills. Both male and female individuals willing to participate are encompassed. Conversely, exclusion criteria involve individuals below 20 or above 40 years of age, comatose patients, and those with additional comorbidities. These stringent criteria contribute to refining the study's focus and ensuring the relevance of collected data.

DATA COLLECTION PROCEDURE

Each feature of the research study were a promising assurance about the confidentiality and privacy After approval of the topic from the research committee of our institute (suit, Peshawar), a cross- sectional survey were conducted to determine the association of neck pain with scapular dyskinesia at general population of Peshawar. Every aspect of the ethical issue related to the current research survey was thoroughly reviewed by the responsible member of the research committee of the suit University System, Department of Physical Therapy and Rehabilitation. of the participants. The consent form was taken from all the participants of the study. Data was collected through visual analogue scale (VAS) and lateral scapular slide test (LSST) for neck pain and scapular dyskinesia respectively.

DATA ANALYSIS PROCEDURE

Data was analyzed through statistical package for social sciences (SPSS) version 25.0 for quantitative variables (age, gender, occupation etc.) mean, standard deviation etc. Descriptive statistics were calculated and categorical variables (gender etc.) were showed in graphs and tables (frequency and percentage)

Result

Age statistics

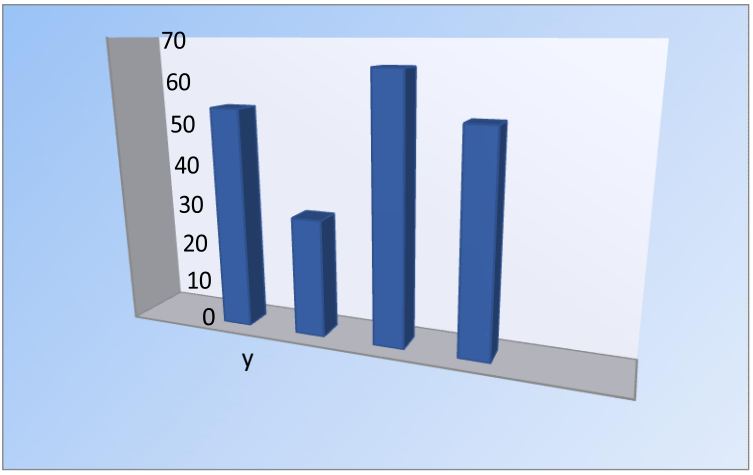


Figure:4.2 Age statistics Age

year	*Frequency*	*Percentage*
20-25	*54*	*27.0*
26-30	*29*	*14.5*
31-35	*64*	*32.0*
36-40	*53*	*26.5*
Total	*200*	*100.0*

According to the figure 4.1, there were 54 individuals categorized between age 20-25 years, 29 individuals between 26-30 years, 64 individuals between 31-35 years and 53 individuals inbetween 36-40 years.

4.3 Gender statistics

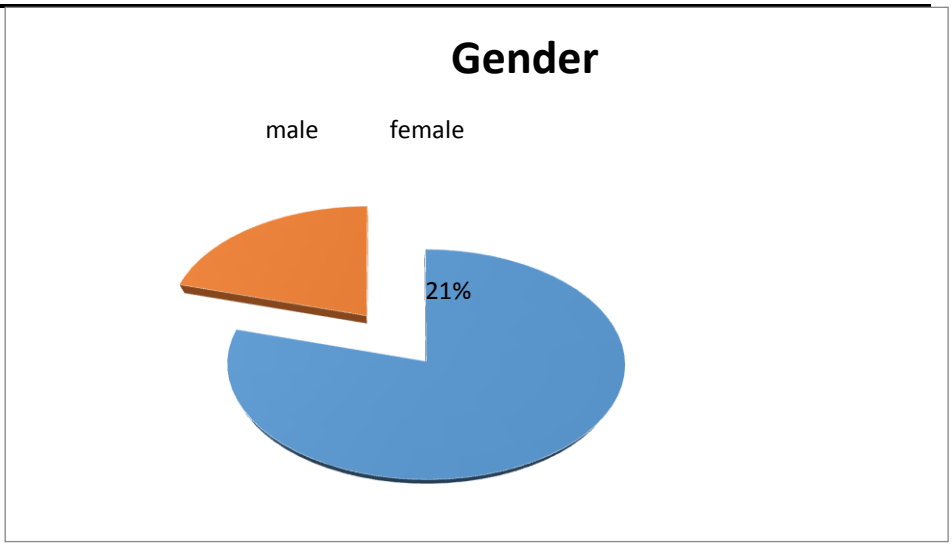
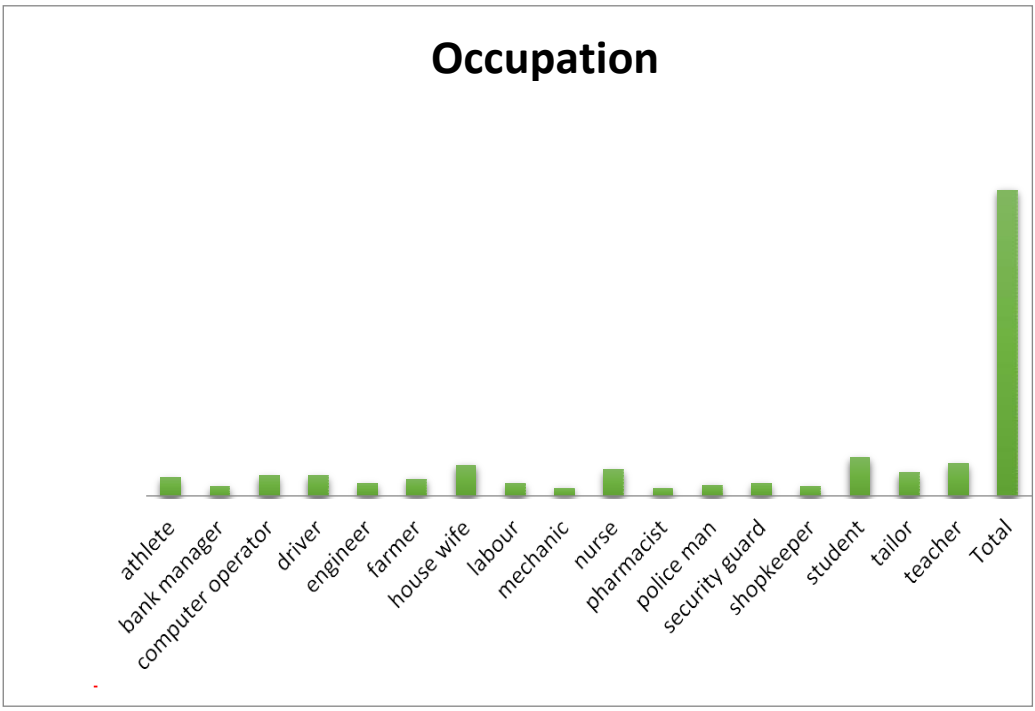


Figure 4.3 Gender statistics

Gender		
	Frequency	*Percentage*
male	*159*	*79.5*
female	*41*	*20.5*
Total	*200*	*100.0*

Figure 4.3 shows that there were 79% male and 21% female total of 200.

4.4 Occupation



According to this figure we categorized the 200 individuals in to their job places. there were 12 athletes, 6 bank managers, 13 computer operators, 13 drivers, 8 engineers, 11 farmers, 20 house

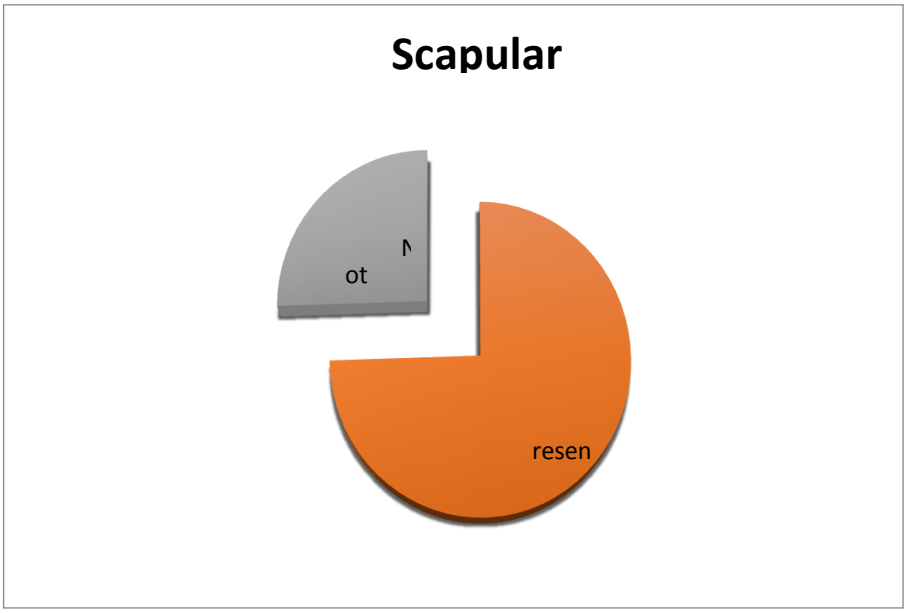
wives, 8 labours, 5 mechanics, 17 nurses, 5 pharmacists, 7 police men, 8 security guards, 6

shopkeeper, 25 students, 15 tailors, and 21 teachers

Neck pain prevalence

Neck Pain			
Respondent Responses		*Frequency*	*Percentage*
	present	*188*	*94.0*
	not present	*12*	*6.0*
	Total	*200*	*100.0*

This figure shows the prevalence of neck pain. the prevalence of neck pain is 94%, and only 6% individuals says that they have no neck pain.



Scapular dyskinesia statistics

Figure 4.6 Scapular Dyskinesia Prevalence

Scapular Dyskinesia			
		Frequency	*Percentage*
	Present	*149*	*74.5*
	not present	*51*	*25.5*
	Total	*200*	*100.0*

According to this figure in 74% individuals scapular dyskinesia was present, and in 26% individuals scapular dyskinesia was not present.

Association between neck pain and scapular dyskinesia

Descriptive Statistics			
	Mean	*Std. Deviation*	*N*
Neck Pain	*1.06*	*.238*	*200*
Scapular Dyskinesia	*1.26*	*.437*	*200*

This tables shows the mean and standard deviation of neck pain and scapular dyskinesia. The mean and standard deviation of neck pain is 1.06 and 1.26 respectively and the mean and standard deviation of scapular dyskinesia is .238 and .437 respectively.

Chi-Square Tests

	Value	*Df*	*Asymp. Sig. (2-sided)*
Pearson Chi-Square	*.524[a]*	*1*	*.003*
Continuity Correction[b]	*.146*	*1*	*.000*
Likelihood Ratio	*.571*	*1*	*.001*
Fisher's Exact Test			
Linear-by-Linear Association	*.522*	*1*	*.000*
N of Valid Cases	*200*		

This table illustrates that there is association of neck pain and scapular dyskinesia because the p value is <0.05 that is Pearson Chi-Square .003 and likelihood ratio is .001

DISCUSSION

The aim of the current research study was to find out the relationship between neck pain and scapular dyskinesia. In this study there were total 200 individuals including male and female, there were 21% female and 79% male. The participants aged between 20-40 years. according to this study in 94% individuals neck pin was present while in 6% individuals there was no neck pain and there were 74% individuals that they had scapular dyskinesia while in 26% individuals there were no scapular dyskinesia. there was association between neck pain and scapular dyskinesia because the p value of chi square test was <0.005.

Conclusion

This study concluded that there is association between neck pain and scapular dyskinesia because the value of P were less than 0.05 as our alternate hypothesis were that there is association between neck pain and scapular dyskinesia. In this study there were 37% association between neck pain and scapular dyskinesia.

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