

PREVALENCE OF UPPER CROSS SYNDROME IN WORKING FEMALE PHYSIOTHERAPISTS A CROSS-SECTIONAL SURVEY

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Abstract: Upper crossing syndrome is a common postural dysfunction resulting from the muscles in the body's shoulder girdle/cervicothoracic region having a deficient tone. The muscles typically affected are the upper trapezius and the levator scapula, which is extremely common in physiotherapists. Poor posture is the main driver of UCS. Researchers have long seen the syndrome, whose work demands much bending and twisting. A cross-sectional study assessed the Upper Cross Syndrome in working female physiotherapists. Two hundred female physiotherapists completed The Oswestry Neck Pain and Disability Questionnaire, administered to individuals aged 23-38 who met the inclusion and exclusion criteria. Significant factors for the prevalence of upper cross syndrome in female physiotherapists were Age, gender, and working hours, all of which posed serious risks for the emergence of UCS. UCS was, nevertheless, very common among female physiotherapists. It was determined that 27% of practicing physiotherapists had Upper Cross Syndrome (UCS). The study found that pain intensity, headache, driving, and work were all significantly associated, with P-values of 0.000, 0.005, and 0.002, respectively, as determined by the chi-square test. This indicates that the results were statistically significant. Additionally, the study revealed that upper cross syndrome was highly prevalent among working physiotherapists, with a prevalence rate of 27%. The prevalence was directly related to the duration and hours of work. Furthermore, there was a strong correlation between work-related musculoskeletal disorders and upper cross syndrome.

Keywords: Upper Cross Syndrome, Oswestry, Musculoskeletal

Introduction

The defective tone of the muscles in the shoulder girdle/cervicothoracic area of the body is referred to as upper crossing syndrome, a frequent postural dysfunctional pattern. An "X," or a cross, can be drawn across the upper body, hence the disorder's name (Siddique et al., 2023). The muscles that are normally tight or overly facilitated are represented by one arm of the cross, while the muscles that are typically weak or overly inhibited are represented by the other arm of the cross. The rounded forward shoulder girdle and arm posture, a feature of the upper crossed syndrome, are frequently referred to as rounded shoulders (Mubashir, 2021).

Improper posture and bad ergonomics exert pressure and stress on the cervicothoracic and upper back, leading to Upper cross syndrome (UCS). Prolonged sitting and standing with disturbed biomechanics and stoop position is the main culprit for this syndrome. This alters the muscle balance system, resulting in short neck flexors and lengthened neck extensors. The muscle imbalance causes repetitive stress on musculoskeletal structures around the upper back that may also travel down the spine. Poorly constructed chairs for sitting and overuse of faulty positions are burdening, causing the rise in WRMSDs. Using a mobile phone while supine lying, operating a computer with incorrect angle positions, and watching television with neck

extension are some of the basic factors leading to Upper cross syndrome (Naseer and Tauqeer, 2021).

Upper cross syndrome exaggerates muscle tone and muscle activation. The overall impaired kinematics leads to poor movement patterns. The overhead activities start getting affected, resulting in increased shoulder joint stress. The tightness of muscles becomes prevalent. Poor posture and chronic muscle imbalances force spine curvature to lead away from the normal path. (Jacquier-Bret and Gorce, 2023). Consequently, with prolonged impairment, upper cross syndrome develops into kyphosis, scoliosis, and hyperlordosis if not treated timely. (Jacquier-Bret and Gorce, 2023). In working physiotherapists and manual therapists, work-related musculoskeletal disorders are quite common, with 54.8%, because of altered patient handling and inaccurate application of manual techniques. (Mubeen et al., 2016).

In this postural complexity, accessory muscles are prone to increased activity that disturbs abdominal and respiratory muscles. The continuous pressure exerted on the rib cage makes breathing difficult for a patient due to the compression of respiratory muscles. The upper cross syndrome is aligned with tight pectoralis and sternocleidomastoid muscles. The shortening of neck flexors results in forward head posture because of increased craniovertebral angle. FHP further contributes to joint

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dysfunction of the atlanto-occipital junction (Ali et al., 2017).

Weakness of upper back muscles because of this deformity causes balance issues. The delayed inactivation of muscles against gravity forces causes an altered center of gravity, and the risk of fall rises. The hyperactivity of muscles results in atrophy. This, in return, triggers a compensatory mechanism where stabilizing muscles start acting as mobilizing muscles, and roles are reversed (Syed et al., 2018). 10% of the population typically suffers from neck pain, a frequent societal problem. The ailment causing the discomfort is the source of the pain. The area becomes structurally delicate. According to the National Center for Health Statistics of the United States, from 1976 to 1980, neck pain affected 7.4% of men and 9.4% of women (Anyfantis and Biska, 2018).

Functional muscle imbalances result from complicated movement pattern adaptation, such as an imbalance in the strength or flexibility of opposing muscle groups (Yi et al., 2022). Common cause of neck pain is muscle stress or tension, which may be due to having poor posture while watching TV or reading, bending over the desk for hours, having a computer monitor positioned too high or too low, sleeping in an uncomfortable position, twisting and harshly turning the neck while doing exercise (Kompal et al., 2022). The structural approach focuses on actual damage to musculoskeletal structures, such as rotator cuff tendonitis or a ligament injury. The functional approach examines factors that contribute to structural lesions. This approach is most useful for physical therapy management of chronic 'dysfunctions' such as persistent joint pain and tendonitis (Rana et al., 2020).

Increased upper trapezius activity causes the scapula to tilt and elevate anteriorly, decreasing the subacromial space and raising the risk of shoulder disease (Rayjade et al., 2020). A forward head posture (FHP), hunching of the thoracic spine, altered function of the shoulder girdle, elevated and prolonged shoulders, scapular winging, and reduced mobility of the thoracic spine are all signs of upper crossing syndrome (Risalda et al., 2021).

The study found that, for persons with mechanical neck discomfort, the muscle energy approach was superior to stretching to reduce pain and functional disability (Dehdilani et al., 2019).

Often, during washing clothes, housemaids and housewives tend to flex their bodies in a forward flex posture for a prolonged period, and the large quantity of clothing exerts heavy pressure on a person's body. Similarly, ironing involves repetitive tasks and consistent work, emerging as a risk factor for UCS (Desai and Jain, 2020). Today, physiotherapists face the exact situation while treating a patient. Improper manual handling and inaccurate therapist positioning while handling a client can cause concern for the

therapist's body alignment. This makes them prone to upper cross syndrome and multiple work-related musculoskeletal disorders. (Ahmed et al., 2021).

Methodology

The study was a cross-sectional study aimed to explore the prevalence and severity of neck pain and disability among female physiotherapists in Lahore, Pakistan. The ethical committee of GC University Faisalabad approved the study, ensuring that all ethical considerations were met. The survey was conducted at Services Hospital Lahore, Gulab Devi Hospital, PSRD, and Hamza Hospital. The sample size was determined using G Power, with a 5% margin of error and 0.8 power of study, and 200 participants were recruited based on the inclusion criteria. The inclusion criteria included female physiotherapists with at least one year of experience working 6 to 8 hours per day and aged between 23 and 38 years.

To collect the data, the Oswestry Neck Pain and Disability Questionnaire was used for all 200 participants. The questionnaire was designed to assess the severity of neck pain and disability among the participants. The data was collected from female physiotherapists in four hospitals: PSRD, Gulab Devi Hospital, Hamza Hospital, and Services Hospital Lahore. The collected data was analyzed using the Statistical Package for the Social Sciences (SPSS), version 25.0 (IBM Corp., Armonk, NY). Descriptive statistics were used to describe the data, and the Chi-square test was applied to determine the association between neck pain and disability among the participants. Overall, the study provides valuable insights into the prevalence and severity of neck pain and disability among female physiotherapists in Lahore, Pakistan. The study results could be used to develop interventions and programs to reduce the prevalence and severity of neck pain and disability among physiotherapists, thereby improving their quality of life and work performance.

Results

Among the total sample of 200 participants, Table 1 indicates that 41.5% fall within the age range of 23-26, while 35% were between 27-30 years old. Additionally, 20% of the participants were aged 31-34, and another 35% were between 35-38 years old. Table 2 reveals a significant association between pain intensity and headache, with a p-value of .000. Similarly, Table 3 highlights the significant correlation between pain intensity and driving, with a p-value of 0.005. Table 4 shows a significant association between pain intensity and work and a p-value of 0.

Table 1: Demographic Data (Age or Gender) frequency:

Variables	Constructs	Frequency	Percent
Age	23-26	83	41.5
	27-30	70	35.0
	31-34	40	20.0
	35-38	7	3.5
	Total	200	100.0
Gender	Female	200	100.0

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Table 2: Association between pain intensity and headache

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-square	128.371	25	0.000
Likelihood ratio	101.127	25	0.000
Linear -by- linearassociation	68.892	1	0.000

Table 4: Cross-tabulation between pain intensity and work

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-square	180.846	25	0.002
Likelihood ratio	147.773	25	0.002
Linear -by- linearassociation	86.296	1	0.000

Discussion

The current study was conducted to determine the prevalence of upper cross syndrome among working physiotherapists. It was a cross-sectional survey. Combining weakness of shoulder, neck, and chest muscles results in muscle tightness and weakness across the upper back and trunk, resulting in UCS. It forms the shape of an X, a cross that suggests muscle imbalances on both sides of the body. Oswestry neck pain and NDI were data collection tools to measure pain and disability. A sample of 200 participants were recruited in the study. A probability convenience sampling technique was used. Females with diagnosed musculoskeletal disorders were excluded from the study.

In prior studies, it was noted that UCS was quite frequent in people with a load of work, such as laborers, carpenters, and computer users. However, one such study was conducted on healthcare workers who postulated a high prevalence of this syndrome (Ali et al., 2023). It is caused by shifting frequently while seated, using a computer, or watching television, driving challenges brought on by discomfort or tight muscle tightness, and a lower back ache aching in the shoulder blade Area. The current study also suggests a significant frequency of upper cross syndrome with foremost complaints of pain in the cervical region and upper back (Fatima et al., 2022).

The faulty posture and mal-alignment of the spine due to poor work environment and bad ergonomics are culprits for initiating back issues. WRMSDs are significantly higher in the working population if they are not taking preventive measures. Prolonged sitting with the head bent down and consistent round shoulders can cause improper kinetics throughout the spine (Murali). In this research study, we chose the female working physiotherapist population. We selected it because it was the least-done research topic. In my study, 41.5% of participants were 23-26, 35.0% belonged to the age group of 27-30, 20.0% belonged to 31-34, and 3.5% belonged to the age group of 35-38. The prevalence of UCS in female physiotherapists and functional capacity was investigated using the Chi-Square Test. (Naseer and Tauqeer, 2021).

This is in comparison to a cross-sectional study in Pakistan that aimed to evaluate the prevalence of UCS in working manual therapists and its association with MSDs. The prior study had a sample size of 148 subjects. Forty-five of them were male, and 103 subjects were female. Results concluded that based on the experience level of the said population, 75, 51.7%, had forward head posture, and 49.3% of professionals showed moderate deformity. The p-value <

0.005 illustrated a significant correlation with the duration of working posture. Females were found to be more prone to UCS than males. It was concluded that 29% of the overall prevalence was recorded in physiotherapists in Pakistan. However, this study estimated a 27% prevalence (Mubashir, 2021).

According to the present study, only Females were chosen to study the Effects of upper cross syndrome, while in the above study, they chose a population of physiotherapists, including males and females.

The results showed that Pain affects 31% of Female physiotherapists. All have mild pain and early symptoms of UCS, like headache and difficulty in concentration, and 27% of Females have been affected with UCS and have moderate pain and face difficulty and extra pain in performing ADLs, affecting their performance in their field. Fairly severe pain by 9.0%, severe pain by 2.5%, and worst pain by 2.0% of the working female physiotherapist.

The significance value of the pain intensity headache was (P=0.000), the significance value of pain intensity driving was (P= 0.005), and the significance value of pain intensity work was (p=0.002), which showed the current studies' chi-square test was significant. In contrast to a study conducted among DPT students of the University of Lahore, 244 physiotherapy undergraduate students were selected as a sample. Fifty-seven subjects, 23.4%, reported neck pain and stress. Sixty respondents, 24.6%, reported thoracic pain. According to this study, patients have rounded shoulders and decreased ROM and cannot perform the Active Range of motion (Anyfantis and Biska, 2018). The study was conducted on a small population before the COVID-19 epidemic. Hence, a larger population should be used for the same investigation. Our results only apply to female physiotherapists between 23 and 38. The inclusion of older populations who are on the ground is also part of this study.

Conclusion

The study concluded a significant prevalence of upper cross syndrome in female physiotherapists. Variables like working hours posed serious risks for initiating UCS among professionals. Upper Cross Syndrome (UCS) prevalence was 27% in working physiotherapists; however, females and people who work long hours were more likely to develop Upper Cross Syndrome (UCS). It was also discovered that there is a strong correlation between Upper Cross Syndrome and Work-Related Musculoskeletal Disorders (WRMDs).

Declarations**Data Availability statement**

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned.

Consent for publication

Approved

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Conflict of interest

The authors declared an absence of conflict of interest.

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