



Prevalence of Neck, Shoulder and Low Back Pain between Secondary School Teachers of Age 25-45 Years in Mandian Abbottabad, Khyber Pakhtunkhwa, Pakistan

Mian Waleed Ahmed¹, Irrij Javed Jadoon², Salma Khalil², Faryal Khalil³, Khadija Khalil⁴, Arooj Saqlain⁵, Mian Awais Ahmed^{2*}

¹Islamabad Diagnostic Center, Abbottabad, Khyber Pakhtunkhwa, Pakistan

²Women Institute of Rehabilitation Sciences, Abbottabad, Khyber Pakhtunkhwa, Pakistan

³Athar Jan Medical Center, Abbottabad, Khyber Pakhtunkhwa, Pakistan

⁴Women Medical College, Abbottabad, Khyber Pakhtunkhwa, Pakistan

⁵Al-e-syed Medical Center.



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Abstract

Secondary school teachers represent middle-vocational groups that appear to have a high prevalence of neck and shoulder pain (NSP) and low back pain (LBP). Epidemiological data for NSP and LBP among secondary school teachers are limited. The purpose of this study was to investigate the prevalence of NSPs and LBPs among secondary school teachers. The study was directed towards the prevalence of neck, shoulder, and low back pain among secondary school teachers of age 25 to 45 years in Mandian, Abbottabad. In a cross-sectional study of teachers in seven secondary schools in Mandian, Abbottabad, information was gathered on participants through demographics, work characteristics, occupational factors, and musculoskeletal symptoms and pain. A demographic scale was used to collect data regarding demographics. The responses from the patients were recorded, stored, and then analyzed on IBM SPSS version 25.

Keywords Neck, Shoulder, Low Back Pain and Secondary School Teachers.

1. Introduction

Secondary school teachers in health were developed to promote occupational injury and disease prevention. According to the National Occupational Research Agenda (NORA), the expense of the main symptoms of musculoskeletal disorders (MSD) is what drives work-related illnesses in other nations. The most prevalent and expensive occupational health issue is MSD, in both developed and developing nations. MSD is one of the main reasons for poor health in retirement among secondary school teachers, and secondary school teachers represent the work group in between. Musculoskeletal complaints, especially those of the lower back, neck, and shoulder, are common (1, 2). Neck, shoulder, and lower back pain represent one of the most common diseases among the diverse population of

employees worldwide (3). The study analyzed the prevalence of all these pain-dependent relationships with population variables among physically active secondary school teachers. These pains have become more prevalent in society these days. About 67% of individuals are estimated to suffer from this pain at some point in their lives. Suina and Pornnapa are local upper extremities, neck, shoulder, and lower extremities that directly affect the type of MSDs and, unless extended by secondary school teachers, including cadastral teachers, impose a repetitive burden of detailed, static work and recurring causes. According to the data collected in accordance with the safety and health of European institutions, nearly 24 percent of employees at work suffer from complaints from the European Union and 25 countries. The human bone is a large rear area of the human body that occurs under the neck and shoulders,

Corresponding author at: Mian Awais Ahmed
Email address: dr.mianawaispt@gmail.com

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from the top of the buttocks. The human back consists of bones and muscles. Generally, this pain is observed more frequently in women than in men. About 40%–70% of secondary school teachers, compared to 48.7% of secondary school teachers, have suffered from lower back pain. Excessive load and stress on secondary school teachers because of more painful cans. These factors are static posture, high blood pressure, excessive loading, computer use, stress, and psychological problems. As neck, shoulder, and low back pain increases day by day, secondary school teachers experience industrial and physiological disorders that result in over 45 musculoskeletal disorders of professional, mental, and physical disabilities (4). Neck pain, shoulder pain or pain resulting in discomfort and anxiety from their workplace as secondary school teachers occurred. Musculoskeletal pain is a little pain, discomfort, and dizziness that starts, but if not treated in time, a serious condition will occur. In extreme situations, musculoskeletal pain and damage do not fully heal. Any blockage, damage, or trauma arising from these muscles causes neck, shoulder, and deep back diseases. Deep cervical gluteal muscles offer stability and protect these muscles in the neck and important muscles of the head. Neck, shoulder, and low back discomfort are becoming an issue for young people as well, not just the elderly (5). A frequent condition that affects the muscles, nerves, and bones is low back pain (LBP). A sudden acute feeling might be experienced in addition to a slow, aching pain (6, 7). There are three types of low back pain: acute (lasting longer than six weeks), sub-chronic (lasting between six and twelve weeks), and chronic (lasting more than 12 weeks). According to the underlying etiology, the ailment can also be divided into mechanical, non-mechanical, and pain-related categories (8). When low back pain first starts, its symptoms often get better within a few weeks, with 40 to 90 percent of sufferers seeing total recovery. This thesis is founded on the idea that when multiple muscles and tissues are together, it is difficult to separate them. It is considered in case reports for the discomfort of the lower back region either independently or jointly (9). In a study of secondary school teachers in Hong Kong, the lifetime prevalence of neck pain was 69.3%, and the 12-month prevalence was 66.7%. Similar results have been demonstrated in other Chinese studies that reported neck pain prevalence after secondary school teachers became teachers of lifelong neck pain 68.2%, shoulder pain 64.4% and low back pain 56.8% for the

duration of 12 months (10, 11). The goal of this study is to determine the frequency of work-related musculoskeletal disorders such as neck, shoulder and low back pain in secondary school teachers.

2. Methodology

This was a descriptive (cross-sectional) study. This study was completed in an estimated 6 months after the approval of the synopsis from the Research Committee of FIMS. This study was conducted in the secondary schools of Mandian, Abbottabad. The sample was calculated using

<https://www.openepi.com/SampleSize/SSPropor.htm>, which appeared to be 154 out of 254 in the population. This study used the convenience sampling technique. The data collection procedure was based on a cross-sectional study to find out the prevalence of neck, shoulder, and low back pain among secondary school teachers in Mandian, Abbottabad. A total of one hundred and fifty-four secondary school teachers participated in the study out of two hundred and fifty-four from the population by random sampling method. An informed consent form and questionnaire was given to each Participant randomly. Approximately 20 minutes had been given to the participants to fill out the questionnaire forms. Filled questionnaires had been collected and analyzed by the group members of this research. Two variables, the frequency distribution and the percentage value, were calculated. An informed consent was taken from the participants. Participants Rights: The ethical approval was taken by the FIMS. There is no negative consequence to this research. The data was analysed using SPSS 25. Inclusion criteria include teachers (both male and female) between the ages of 25 and 45. Exclusion criteria include physical or traumatic pain of the neck, shoulder, and low back in secondary school teachers.

3. Results

A research survey study was conducted on secondary school teachers who are suffering from neck, shoulder, and low back pain. Following are the tables and graphs that show the results gathered from the filled-out questionnaires.

Table 1 shows the age of participants in the total sample size. Out of a total 154 secondary schoolteachers, 49 (31.8%) were between 25 and 27 years of age; 29 (18.8%) were between 28 and 30 years of age; 16 (10.4%) were

between 31 and 33 years of age; 18 (11.7%) were between 34 and 36 years of age; 11 (7.1%) were between 37 and 39 years of age; 12 (7.8%) were between 40 and

42 years of age; and 18(11.7%) were between the age of 43 and 45.

Table 1: Age of the participants with mean age

Age	Frequency	Percent	Mean Age	Cumulative Percent
25-27	49	31.8	31.8	31.8
28-30	29	18.8	18.8	50.6
31-33	16	10.4	10.4	61.0
34-36	18	11.7	11.7	72.7
37-39	11	7.1	7.1	79.9
40-42	12	7.8	7.8	87.7
43-45	18	11.7	11.7	99.4
Total	154	100.0	100.0	

According to Table 2, in males, 17 were suffering from pain in the neck region, 21 were suffering from pain in the shoulder region, and 20 were suffering from pain in the low back region. On the other side, in females, 20 were suffering from pain in the neck region, 40 were suffering from pain in the shoulder region, and 36 were suffering from pain in the low back region.

Table 2: Region wise pain on the chart of cross tabulation

Gender	Neck	Shoulder	Low back	Total
Male	17	21	20	58
Female	20	40	36	96
	37	61	56	154

Table 3: Have you ever experienced pain in neck, shoulder, or low back region?

Gender	Yes	No	Total
Male	42	16	58
Female	81	15	96
	123	31	154

According to table 3, out of 58 males, 42 experienced pain in the neck, shoulder, or low back region, and 16 never experienced it. Out of 96 females, 81 experienced pain in the neck, shoulder, or low back region, and 15 never experienced it. This shows that females are more prone to NSP and LBP as compared with males.

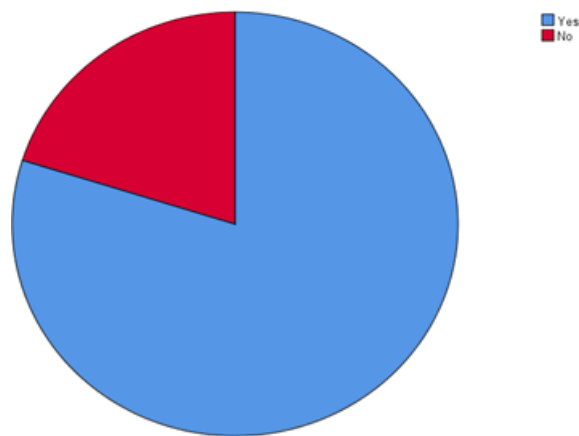


Figure 1: Male were 58 in total, 42 had pain and 16 had no pain on other side female were 96 in total, 81 had pain and 15 had no pain

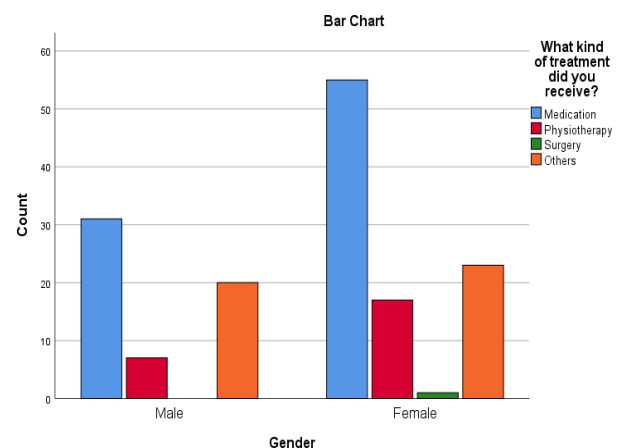


Figure 2: Female used more medication as compared to male

Table 4: What kind of treatment did you receive?

Gender	Medication	Physiotherapy	Surgery	Others	Total
Male	31	7	0	20	58
Female	55	17	1	23	96
	86	24	1	43	154

According to Table 4, in males out of 58, 31 received medication, 7 received physiotherapy, no one received surgery, and 20 received others like homoeopathic treatment, while in females out of 96, 55 received medication, 17 received physiotherapy, 1 went through surgery, and 21 did not receive other treatments e.g. homoeopathic treatment.

4. Discussion

According to the study's findings, NSP and LBP are widespread among the secondary school teachers in Mandian, Abbottabad. Estimating the prevalence of NSPs and LBPs among secondary school teachers in Mandian, Abbottabad, was the primary objective of this study. Our research demonstrated that among secondary school teachers, NSP and LBP prevalence rates were respectively 48.7% and 45.6%. Parallelism was found in 42.5–479% and 43.8–74.9% of Turkish secondary school teachers respectively, where they may feel neck discomfort and back pain, while 28.7–55.9% had MSD symptoms in the shoulder region (23).

Primary school teachers in Brazil and Malaysia reported back discomfort at rates of 41.1 and 40.4 percent, respectively. Estimating the prevalence of NSPs and LBPs among secondary school teachers in Mandian, Abbottabad, was the primary objective of this study. Our research demonstrated that among secondary school teachers, NSP and LBP prevalence rates were respectively 48.7% and 45.6%. Parallelism was found in 42.5–479% and 43.8–74.9% of Turkish secondary school teachers, respectively, where they may feel neck discomfort and back pain, while 28.7–55.9% had MSD symptoms in the shoulder region.

Primary school teachers in Brazil and Malaysia reported back discomfort at rates of 41.1 and 40.4 percent, respectively. Another research conducted in Brazil revealed that 52.5 percent of primary school teachers had discomfort in the trapezius muscle area, where data were acquired, and that 50.6 percent of them had pain in the neck. According to another survey, back discomfort was reported by 34.8 percent of French teachers and 40.0

percent of Chinese primary school teachers. Secondary school instructors in China and Hong Kong discovered that 66.7 percent of people had shoulder discomfort and 64.4 percent had neck pain (23). The condition appears to affect the neck, shoulder, and low back the most frequently in secondary school teachers. The majority of our findings are in agreement with these earlier studies on school teachers, particularly secondary school teachers. In order to create preventative methods, it is crucial to identify hazards. NSP and LBP are mostly caused by a variety of individual characteristics, including age, gender, and body weight. Our findings indicated a connection between gender, exercise, and NSP. In trials that were consistent with earlier data, women had a much greater frequency of NSPs than males (51.7%). (42.7 %) (20).

Women appear to consistently report more neck, shoulder, and low back pain than men. In our study, although males are overweight or obese, longer employment than women, NSP risk was disproportionately high for females. Many things may be used to explain gender inequalities, one of which might be the fact that female secondary school teachers are more prone than male counterparts to experience emotional exhaustion (18). The fact that women have lower pain tolerances than men can also help explain some of this. Men's isometric neck muscular strength implies that the fold was present in 1.2–1.7 women (20). Compared to primary and secondary school levels, secondary school teachers report the highest frequency of NSPs and LBP, which is consistent with prior findings. Secondary school teachers were substantially more likely to develop NSPs and LBPs than other teachers. One of the causes might be that secondary school instructors face more tests and are more pressured by secondary school students. Therefore, they work more and are under greater mental stress than other people (10).

Comparing their workloads to those of instructors at other levels of education, secondary school teachers in this research had the greatest workloads. Heavy lifting, uncomfortable body positions, bending, twisting, or

stooping at work, as well as prolonged periods of sitting or standing, can all lead to MSD (30). Secondary school teachers are more likely to experience upper extremity discomfort, particularly neck or shoulder pain, due to their prolonged sitting, frequent reading, assignment marking, and standing during class in front of computers and above writing on the board. The study also indicated that sitting for more than three hours each day might be a risk factor for LBP. Lis and colleagues discovered in a systematic review that although sitting alone did not raise the risk of LBP, sitting for more than half of the working hours when combined with whole-body vibration and/or uncomfortable posture does increase the chance of developing LBP and is most probable in LBP (31).

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A substantial correlation between unpleasant back support and LBP has been shown in epidemiological research. Furthermore, these results were further supported by our study among secondary school instructors. In this study, NSP and LBP were strongly correlated with prolonged sitting, static posture, and unpleasant lumbar support. Additionally, NSP alone was directly associated with long-term commitment. Our data reveals considerable disparities in NSP and LBP experience at the school level (32). Additionally, information is provided for secondary school instructors who must research the causes of workload stress and develop suitable preventative and response strategies. Our research has certain limitations (33). Due to the manner of self-reporting and the nature of this retrospective survey, it is impossible to rule out the potential for recall bias that may be excessive or subsequent. Information on musculoskeletal complaints and related variables was acquired. Underestimation. Additionally, because this was a cross-sectional study, causal conclusions could not be drawn; only correlations could be formed (34).

5. Limitation

Limitations of our study include selecting limited secondary schools as the research setting. We had to select the sample on the basis of convenient sampling so that secondary school teachers from different schools were different in number, and the number of secondary school teachers could be divided equally so that the impact of musculoskeletal disorders (MSDs) such as neck, shoulder, or low back pain could be studied more accurately.

Some secondary schools didn't show welcoming gestures, so the data could not be collected from them. Another issue was that some secondary school teachers didn't take the questionnaire seriously and filled it out with the least attention, which could yield some fake information.

6. Conclusion and Recommendations

In Mandian Abbottabad, the prevalence of NSPs and LBPs among secondary school teachers is high and equivalent to that in other nations. Important relationships between NSPs and LBPs also included individual, ergonomic, and occupational variables. Therefore, an effective prevention strategy should address this area. In addition, research on other intervention models is required to develop effective prevention strategies for this relatively common and underestimated problem.

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Conflict of Interest There is no conflict of interest

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References

1. Nursing practice theories related to cognition, bodily pain, and man-environment interactions |

- WorldCat.org. Worldcat.org. 2023.
2. Melzack R, Torgerson WS. On the language of pain. *Anesthesiology*. 1971;34(1):50-9.
 3. Linton SJ. A review of psychological risk factors in back and neck pain. *Spine*. 2000;25(9):1148-56.
 4. Loeser JD, Melzack R. Pain: an overview. *Lancet* (London, England). 1999;353(9164):1607-9.
 5. Walker-Bone K, Reading I, Coggon D, Cooper C, Palmer KT. The anatomical pattern and determinants of pain in the neck and upper limbs: an epidemiologic study. *Pain*. 2004;109(1-2):45-51.
 6. Aas RW, Thingbø C, Holte KA, Lie K, Lode IA. On long term sick leave due to musculoskeletal diseases and disorders. Experiences of work demands. *Work* (Reading, Mass). 2011;39(3):233-42.
 7. Bin Homaid M, Abdelmoety D, Alshareef W, Alghamdi A, Alhozali F, Alfahmi N, et al. Prevalence and risk factors of low back pain among operation room staff at a Tertiary Care Center, Makkah, Saudi Arabia: a cross-sectional study. *Annals of occupational and environmental medicine*. 2016;28:1.
 8. Hunt IM, Silman AJ, Benjamin S, McBeth J, Macfarlane GJ. The prevalence and associated features of chronic widespread pain in the community using the 'Manchester' definition of chronic widespread pain. *Rheumatology* (Oxford, England). 1999;38(3):275-9.
 9. Yoshimura E, Fjellman Wiklund A, Paul P, Aerts C, Chesky K. Risk Factors for Playing-related Pain among Piano Teachers. *Medical problems of performing artists*. 2008;23:107-13.
 10. Bamji AN, Erhardt CC, Price TR, Williams PL. The painful shoulder: can consultants agree? *British journal of rheumatology*. 1996;35(11):1172-4.
 11. Temesgen MH, Belay GJ, Gelaw AY, Janakiraman B, Animut Y. Burden of shoulder and/neck pain among school teachers in Ethiopia. *BMC musculoskeletal disorders*. 2019;20(1):18.
 12. Erick PN, Smith DR. *JBMd*. Low back pain among school teachers in Botswana, prevalence and risk factors. 2014;15(1):1-13.
 13. Alipour A, Ghaffari M, Shariati B, Jensen I, Vingard E. Occupational neck and shoulder pain among automobile manufacturing workers in Iran. *American journal of industrial medicine*. 2008;51(5):372-9.
 14. Marras WS, Cutlip RG, Burt SE, Waters TR. National occupational research agenda (NORA) future directions in occupational musculoskeletal disorder health research. *Applied ergonomics*. 2009;40(1):15-22.
 15. Erick PN, Smith DR. A systematic review of musculoskeletal disorders among school teachers. *BMC musculoskeletal disorders*. 2011;12:260.
 16. Maguire M, O'Connell T. Ill-health retirement of schoolteachers in the Republic of Ireland. *Occupational medicine* (Oxford, England). 2007;57(3):191-3.
 17. Hagberg M, Wegman DH. Prevalence rates and odds ratios of shoulder-neck diseases in different occupational groups. *British journal of industrial medicine*. 1987;44(9):602-10.
 18. Harcombe H, McBride D, Derrett S, Gray A. Prevalence and impact of musculoskeletal disorders in New Zealand nurses, postal workers and office workers. *Australian and New Zealand journal of public health*. 2009;33(5):437-41.
 19. Harreby M, Neergaard K, Hesselsøe G, Kjer J. Are radiologic changes in the thoracic and lumbar spine of adolescents risk factors for low back pain in adults? A 25-year prospective cohort study of 640 school children. *Spine*. 1995;20(21):2298-302.
 20. Chiu TW, Lau KT, Ho CW, Ma MC, Yeung TF, Cheung PM. A study on the prevalence of and risk factors for neck pain in secondary school teachers. *Public health*. 2006;120(6):563-5.
 21. Tuomi K, Ilmarinen J, Eskelinen L, Järvinen E, Toikkanen J, Klockars M. Prevalence and incidence rates of diseases and work ability in different work categories of municipal occupations. *Scandinavian journal of work, environment & health*. 1991;17 Suppl 1:67-74.
 22. Cetisli Korkmaz N, Cavlak U, aslan telci E, Tedavi F, Yüksekokulu R, Kampüsü K, et al. Musculoskeletal pain, associated risk factors and coping strategies in school teachers. *Scientific Research and Essays*. 2011;6:649-57.
 23. Jin K, Sorock GS, Courtney TK. Prevalence of low back pain in three occupational groups in Shanghai, People's Republic of China. *Journal of safety research*. 2004;35(1):23-8.
 24. Treaster DE, Burr D. Gender differences in prevalence of upper extremity musculoskeletal disorders. *Ergonomics*. 2004;47(5):495-526.
 25. Santana Â, De Marchi D, Junior LC, Girondoli YM, Chiappeta A. Burnout syndrome, working conditions, and health: a reality among public high school teachers in Brazil. *Work* (Reading, Mass). 2012;41 Suppl 1:3709-17.
 26. Temesgen MH, Belay GJ, Gelaw AY, Janakiraman B, Animut Y. Burden of shoulder and/neck pain among school teachers in Ethiopia. *BMC musculoskeletal disorders*. 2019;20(1):18.
 27. Chiu TT, Lam PK. The prevalence of and risk factors for neck pain and upper limb pain among secondary school teachers in Hong Kong. *Journal of occupational rehabilitation*. 2007;17(1):19-32.
 28. Torgén M, Swerup C. Individual factors and



- physical work load in relation to sensory thresholds in a middle-aged general population sample. *European journal of applied physiology.* 2002;86(5):418-27.
29. Spyropoulos P, Papathanasiou G, Georgoudis G, Chronopoulos E, Koutis H, Koumoutsou F. Prevalence of low back pain in greek public office workers. *Pain physician.* 2007;10(5):651-9.
 30. Erick PN, Smith DR. Low back pain among school teachers in Botswana, prevalence and risk factors. *BMC musculoskeletal disorders.* 2014;15:359.
 31. Maguire M, O'Connell T. Ill-health retirement of schoolteachers in the Republic of Ireland. *Occupational Medicine.* 2007;57(3):191-3.
 32. Tomás CC, Oliveira E, Sousa D, Uba-Chupel M, Furtado G, Rocha C, et al. Proceedings of the 3rd IPLEiria's International Health Congress : Leiria, Portugal. 6-7 May 2016. *BMC health services research.* 2016;16 Suppl 3(Suppl 3):200.
 33. Roquelaure Y, Ha C, Rouillon C, Fouquet N, Leclerc A, Descatha A, et al. Risk factors for upper-extremity musculoskeletal disorders in the working population. *Arthritis and rheumatism.* 2009;61(10):1425-34.
 34. Werner RA, Franzblau A, Gell N, Hamann C, Rodgers PA, Caruso TJ, et al. Prevalence of upper extremity symptoms and disorders among dental and dental hygiene students. *Journal of the California Dental Association.* 2005;33(2):123-31.

