



Original Article

Prevalence of Musculoskeletal Disorders like Neck and Back Pain in Ophthalmologists

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ABSTRACT

Background: In the bustling hospitals of Lahore, ophthalmologists navigate the delicate balance between precision and physical strain, attending to the intricate needs of their patient's vision. The long hours, meticulous tasks, and demanding nature of their work expose them to unique occupational hazards, particularly musculoskeletal disorders like neck and back pain. **Objective:** To assess the prevalence, severity, and associated risk factors of neck and back pain among ophthalmologists in Lahore, thereby highlighting the occupational impact on their musculoskeletal health. **Methods:** In this cross-sectional study, data were collected from various hospitals across Lahore over three months following the synopsis approval. The study utilized a convenience sampling technique to select a sample size of 90 participants. Participants were included in the study based on any gender and must have experienced musculoskeletal pain. Individuals with systemic diseases or a history of surgery affecting the musculoskeletal system were excluded from the study. Participation in the study was voluntary, with all participants providing written informed consent before their inclusion. The Oswestry Low Back Pain Disability Index, Visual Analogue Scale and Northwick Park Neck Pain Questionnaire were employed to assess the severity of low back and neck pain respectively. Descriptive statistics were applied to quantify the frequencies and percentages of the various qualitative and quantitative variables identified in the study. The results were then visually represented through pie charts and graphs. **Results:** Among the participants, 36.7% reported neck pain, 32.2% experienced back pain, and 17.8% suffered from both. The age group most affected was 36-45 years (47.8%), with work hours extending beyond 8 hours for 23.3% of respondents. The overall prevalence of these disorders was 68.9%, with most cases classified as mild to moderate in severity. **Conclusion:** The study reveals a substantial prevalence of musculoskeletal disorders among ophthalmologists in Lahore, underscoring the need for ergonomic adjustments and preventive strategies within their work environments. It calls for broader research and interventions to mitigate these risks, ensuring the longevity and health of those dedicated to preserving vision.

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INTRODUCTION

Musculoskeletal disorders (MSDs) encompass a range of conditions that can significantly impair the physical health of affected individuals.¹ These disorders, including carpal tunnel syndrome, ulnar neuropathy, tendonitis, and particularly neck and lower back pain, result from sustained exposure to repetitive motion, force, vibration, or prolonged awkward postures.^{2,3} This exposure can lead to injuries affecting muscles, nerves, joints, and cartilage, often exacerbated by high cognitive loads and mental stress, major contributors to neck pain. Symptoms of MSDs vary but commonly include decreased range of motion, diminished gripping strength, swelling, stiffness, cramping, numbness, and tingling, with severe cases potentially leading to deformity or loss of function.⁴ The significance of these disorders is not merely in their prevalence but also in the impact they have on the quality of life and work efficiency of those affected.⁵

In the realm of ophthalmology, professionals face unique challenges that predispose them to a higher risk of MSDs.⁶ The practice of ophthalmology demands precision and meticulousness, with tasks often requiring repetitive fine motor control and sustained close visual focus.⁷ This can lead to increased muscular tension in the head, neck, upper extremities, and lower lumbar region.^{8,9} Furthermore, the ergonomic environment in which ophthalmologists operate, including the use of various diagnostic and surgical instruments, often necessitates postures that contribute to the development of MSDs.¹⁰ Despite the critical importance of ergonomic practices in mitigating these risks, such practices are frequently overlooked during professional training and clinical practice, leading to significant occupational injuries and illnesses. The literature on the prevalence of MSDs among ophthalmologists

underscores the gravity of the issue.^{11,12} Studies from different regions have reported varying degrees of neck, back, and upper extremity pain among ophthalmologists, attributing these conditions to the physical demands of their work.¹³

Factors such as prolonged surgeries, patient examinations, and the use of specific ophthalmic equipment have been identified as significant risk contributors.¹⁴ However, it is noteworthy that not all risk factors for MSDs are work-related; personal health conditions and lifestyle choices, including lack of exercise, smoking, and pre-existing medical conditions, also play a crucial role. This study aims to delve into the prevalence, severity, and associated risk factors of neck and lower back pain among ophthalmologists in Lahore, employing questionnaires based on validated indices and self-interviews.¹⁵ The strengths of this approach include the use of established tools for assessing MSDs, which provide a reliable measure of the disorders' impact on the quality of life and work of ophthalmologists.^{16,17}

However, the study is not without limitations. The cross-sectional design, while efficient for assessing prevalence at a specific point in time, cannot establish causality between identified risk factors and MSDs.¹⁸ Additionally, the reliance on self-reported data may introduce bias, as participants might underreport or overreport their symptoms.^{18,19} The study of MSDs among ophthalmologists not only highlights the occupational hazards faced by these professionals but also underscores the need for a holistic approach to workplace health that includes ergonomic interventions, lifestyle modifications, and preventive strategies. By fostering awareness and implementing targeted measures, it is possible to mitigate the impact of MSDs on ophthalmologists, thereby enhancing their well-being and the quality of care.

METHODS

In this cross-sectional study, data were collected from various hospitals across Lahore over three months following the synopsis's approval. The research aimed to assess the prevalence, severity, and associated risk factors of MSDs, specifically neck and back pain, among ophthalmologists.²⁰ The study utilized a convenience sampling technique to select a sample size of 90 participants, ensuring a confidence level of 95% with an anticipated population proportion of 50.6% and an absolute precision requirement of 5%. This sample size was deemed sufficient to achieve the study objectives, considering the expected prevalence of MDs within the target population. Participants were included in the study based on the following criteria: they could be of any gender and must have experienced MSK pains. Individuals with systemic diseases or a history of surgery affecting the musculoskeletal system were excluded from the study to minimize confounding variables that could influence the results. Participation in the study was voluntary, with all participants providing written informed consent before their inclusion. This consent process ensured ethical compliance and respected the autonomy of the participants.

The methodology encompassed the distribution of questionnaires to collect data on the prevalence and severity of MSK disorders. The Oswestry Low Back Pain Disability Index (ODI), the Visual Analogue Scale (VAS), and the Northwick Park Neck Pain Questionnaire (NPQ) were employed to assess the severity of low back and neck pain respectively. Additionally, self-interviews were conducted to gather qualitative insights into the participants' experiences, enhancing the depth of data collected. Data analysis was performed using SPSS version 21, a statistical software package that facilitated

comprehensive analysis of the collected data. Descriptive statistics were applied to quantify the frequencies and percentages of the various qualitative and quantitative variables identified in the study. The results were then visually represented through pie charts and graphs, allowing for an intuitive understanding of the findings. This approach to data analysis enabled the research team to effectively summarize the prevalence and severity of MSDs among the participating ophthalmologists, offering valuable insights into the ergonomic and occupational risks associated with their profession. Overall, the study adhered to rigorous methodological standards, incorporating both quantitative and qualitative measures to explore the complex phenomenon of MSDs in the medical profession. By focusing on a specific population of healthcare professionals and employing standardized assessment tools, the research provided a detailed snapshot of the challenges faced by ophthalmologists in Lahore, contributing to the growing body of knowledge on occupational health in the medical field.

RESULTS

The results of this cross-sectional study, involving 90 ophthalmologists from various hospitals in Lahore, provide insightful data on the prevalence and distribution of MSDs, particularly neck and back pain, within this professional group. The age distribution of participants showed a higher concentration in the middle-age groups, with 47.8% falling within the 36-45 age range, followed by 31.1% in the 30-35 age group, and 21.1% in the 46-60 age range, indicating that the majority of respondents were at a stage in their career likely characterized by high professional activity. Regarding work hours, a significant majority (68.9%) reported working between 5 to 8 hours per day, while 23.3% worked more than 8 hours, highlighting a potential risk factor for the

Table 1: Age of Participants

Age (years)	Frequency	Percentage
30 - 35	28	31.1
36 - 45	43	47.8
46 - 60	19	21.1
Total	90	100.0

development of MSDs due to prolonged periods of work. Only a small fraction (7.8%) worked less than 5 hours. Pain occurrence data revealed that 36.7% of participants experienced neck pain, 32.2% reported back pain, and 17.8% suffered from both neck and back pain, underscoring the substantial impact of musculoskeletal issues. Notably, 13.3% of participants did not report any pain, pointing to a subset of the population potentially employing effective preventive or mitigation strategies against MSDs. These findings highlight the critical need for addressing ergonomic and occupational factors contributing to MSDs among ophthalmologists.

This table presents the age distribution of the 90 ophthalmologists who participated in the study aimed at assessing the prevalence, severity, and associated risk factors of musculoskeletal disorders, specifically neck and back pain. The participants were divided into three age groups: 30-35 years, 36-45 years, and 46-60 years. The data reveal that the largest group consisted of participants aged 36-45 years, accounting for 47.8% of the total sample. The next largest age group was those between 30-35 years, representing 31.1% of the participants. The smallest group comprised individuals aged 46-60 years, making up 21.1% of the sample. Overall, the distribution indicates a predominance of middle-aged professionals within the study, providing a comprehensive overview of the

Table 2: Statistics for Working Hours

Working Hours	Frequency	Percentage
<5	7	7.8
5-8	62	68.9
>8	21	23.3
Total	90	100.0

age-related prevalence of MSDs among ophthalmologists in Lahore. The calculated BMI table for ophthalmologists in the study reveals an average BMI within the normal range for both height groups, 5'5-5'7 and 5'8-6'1, with mean values of 21.84 and 19.47, respectively. These findings indicate a generally healthy weight status among the participants, aligning with the study's objective to assess musculoskeletal disorders' prevalence and associated factors. The standard deviations suggest a moderate variation in body mass among ophthalmologists, which could be relevant when considering the ergonomic and physical demands of their profession.

This table outlines the distribution of work hours among the 90 ophthalmologists participating in the study, which seeks to explore the prevalence and factors associated with musculoskeletal disorders. A majority, 68.9%, reported working between 5 to 8 hours daily, indicating a standard workday for most. A smaller group, 23.3%, worked more than 8 hours, suggesting extended periods of potential exposure to ergonomic stressors that could contribute to musculoskeletal discomfort. Only 7.8% worked less than 5 hours, indicating a minimal representation of part-time schedules. Understanding these work hours is crucial for assessing the relationship between occupational demands and the development of neck and back pain among ophthalmologists.

Table 3: Pain Type in Different Regions of Body

Pain Type	Frequency	Percentage
No pain	12	13.3
Neck pain	33	36.7
Back pain	29	32.2
Neck & back pain	16	17.8
Total	90	100.0

This table illustrates the distribution of pain occurrence in specific regions among the 90 ophthalmologists surveyed in the study focused on musculoskeletal disorders. Notably, 36.7% of the participants reported experiencing neck pain, while 32.2% indicated back pain. A combination of both neck and back pain was reported by 17.8% of the participants, highlighting the significant prevalence of these musculoskeletal issues within the profession. Interestingly, 13.3% of the ophthalmologists did not report any pain, suggesting variability in the impact of occupational factors on musculoskeletal health. These findings are integral to understanding the specific areas most affected by musculoskeletal disorders among ophthalmologists, aligning with the study's objective to assess the prevalence and severity of such conditions.

DISCUSSION

In the realm of medical health, MSK pain, notably in the neck and back, emerges as the prevalent complaint among the general population, arising from either occupational activities or lifestyle factors.²¹ This study, focusing on ophthalmologists, shed light on the occupational hazards inherent in their profession that predispose them to such discomforts.²² Musculoskeletal pain, as delineated, results from a confluence of factors including repetitive motion, force,

vibration, and prolonged engagement in awkward postures.²³ These activities, inherent in the daily routines of ophthalmologists, exert excessive workload on musculoskeletal structures, leading to increased compressive, shear, and tensile forces on sensitive soft tissues.²⁴ Beyond occupational risks, lifestyle choices and physical conditions such as lack of exercise, smoking, and pre-existing medical conditions also contribute to the risk profile for MSK pains.²⁵ The clinical practice of ophthalmology, characterized by tasks demanding fine motor control and prolonged visual focus, places significant stress on the head, neck, and upper extremities.²⁶ Such strain is exacerbated by the necessity for precision and accuracy in movements, which often require awkward postures that are not naturally conducive to physical well-being.²⁷ This study, through a convenience sampling of 90 ophthalmologists comprising both genders, aimed to delineate the prevalence of neck and back pain and its correlation with professional practices, work hours, and personal health practices.

Participants reported their experiences via questionnaires and self-interviews, revealing that 36.7% suffered from neck pain, 32.2% from back pain, and 17.8% experienced both, indicating a significant prevalence of MSK pains within this professional community.²⁸ The study highlighted that extended work hours, particularly those between 5 to 8 hours, were associated with a higher incidence of MSK pains, suggesting a direct link between occupational demands and musculoskeletal health. Furthermore, the age group of 36-45 years was identified as being particularly susceptible, underscoring the influence of age as a determinant in the prevalence of such conditions. The discomfort reported ranged from mild to moderate, affecting not only the professional capabilities of the individuals but also their personal lives, including sleep, travel, and social activities. This underscores

the pervasive impact of MSK disorders on overall quality of life.²⁹ Consequently, the study concluded with a prevalence rate of 68.9% for neck and back pain among ophthalmologists, attributed to a combination of professional activities and personal health factors. Given the limitations of this study, including its small sample size and the confined geographical scope to Lahore, recommendations for future research include broadening the participant base to encompass a more diverse and extensive demographic. This would not only enhance the generalizability of the findings but also provide a more comprehensive understanding of the ergonomic and occupational risks faced by eye care professionals at large. The insights garnered from this study underline the imperative need for integrating ergonomic assessments and interventions into the routine practices of ophthalmology, aimed at mitigating the risk and prevalence of musculoskeletal disorders among these professionals.

CONCLUSION

The study conclusively found a significant prevalence of musculoskeletal disorders, specifically neck and back pain, among ophthalmologists, with a combined prevalence rate of 68.9%. These findings underscore the occupational hazards associated with the practice of ophthalmology, highlighting the critical need for ergonomic interventions and awareness. The data suggests that the physical demands of ophthalmic practice, coupled with lifestyle factors, significantly contribute to the development of these conditions.

DECLARATIONS

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines and regulations.

Availability of data and materials: Data will

be available on request. The corresponding author will submit all dataset files.

Competing interests: None

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