

ORIGINAL ARTICLE

MUSCULOSKELETAL DISORDERS AMONG OPHTHALMOLOGISTS IN THE KINGDOM OF SAUDI ARABIA: A CROSS-SECTIONAL STUDY

¹Abdulrahman M. Alamri, MD; ²Jaya Shanker Tedla, PT, PhD; ³Irshad Ahmad, PT, PhD; ⁴Abdullah Laftal, MD; ⁵Abdulhamid Al Ghamdi, MD

ABSTRACT

Objective: This study aimed to determine the most common musculoskeletal disorders among ophthalmologists in the Kingdom of Saudi Arabia. **Methods:** Ophthalmologists throughout the Kingdom were contacted by mail or by person. After obtaining their informed consent, we requested them to fill the Health Status Questionnaire. **Results:** Out of the 330 ophthalmologists contacted, 150 of them responded, but 43 provided insufficient data and 15 were practicing abroad and they were excluded. The remaining 92 surveys were analyzed for this study. Most of the ophthalmologists complained of low back pain (48%) and neck pain (40%). Other common areas of pain reported were that of the shoulders (27%), mid back (23%), upper back (16%), knee (16%), and gluteal region (15%). **Conclusion:** The common musculoskeletal disorders among ophthalmologists were found to be low back pain and neck pain. Most of the ophthalmologists believed that abnormal posture during surgery and lack of exercise are the most common reasons for their pain. Many of them reported that pain affected both their professional and personal lives.

Key words: Ophthalmologist, Musculoskeletal disorder, Health questionnaire

INTRODUCTION

Musculoskeletal conditions are the most common cause of chronic disability in adults worldwide.¹⁻³ According to the World Health Organization, the global burden of these conditions has increased by

25% over the past decade.⁴ In addition, these conditions have been recognized as the cause of mortality and morbidity by the United Nations and the health departments scores of countries around the world.

¹Division of Ophthalmology, Department of Surgery, King Khalid University, Abha, Kingdom of Saudi Arabia

²Department of Medical Rehabilitation Sciences, College of Applied Medical Sciences, King Khalid University, Abha, Kingdom of Saudi Arabia

³Department of Radiology, King Abdullah Medical City, Abha, Saudi Arabia

⁴Department of Ophthalmology, Faculty of Medicine, Taif University, Saudi Arabia

Correspondence should be addressed to:

Abdulrahman Mohammed Alamri, MD
College of Medicine, King Khalid University,
P.O. Box 641, Abha 61421, Saudi Arabia
Tel: +966 553755973
Email: amaamri@gmail.com

A longstanding musculoskeletal disorder can affect physical and mental health and lower the quality of life in any occupation.⁵⁻⁸ However, musculoskeletal pain caused by stress, tension, and postural practices proliferates in the health care professions.^{9,10} Ophthalmology is remarkable in that it carries the risks of musculoskeletal problems common to all surgeons as well as other health risks that are unique to its practice.¹¹ In ophthalmology, the practitioners are required to maintain a static posture during certain aspects of patient diagnosis, treatment, and surgery. For example, an ophthalmologist must assume a static posture at the slit lamp and maintain a long, sedentary position at the operating microscope. Many procedures performed by ophthalmologists require them to hold and grip an instrument continuously.

These activities increase static loading, which reduces blood flow because the muscles are not contracting and relaxing. Eventually, this constant muscle tension can lead to muscle fatigue, inflammation, and swelling that may entrap the nerves and cause pain. This type of static positioning increases the susceptibility to a variety of musculoskeletal problems that plague eye care professionals, including neck, lower back, shoulder, hand, and forearm pain.⁹⁻¹³

The human body is not only capable of great movement, but it also relies on it for remaining fit. If we do not move our bodies, it may quickly go for problems.¹⁴ Occupations, which require continuous static posturing, may lead to musculoskeletal strain and pain. It requires a tremendous amount of tolerance for the professional to sustain these problems. Therefore, they cannot concentrate on their professional work.

As expected, there is a significant lack of ophthalmologists available to serve patients in developing countries. Surprisingly, there is also a shortage of ophthalmologists in high-income and industrial countries like Saudi Arabia. The shortfall in developed countries is attributed partially to the fact that the population of patients over 60 years of age is growing more than twice as fast as the number of ophthalmologists, which widens the gap between need and supply worldwide.¹⁵

This shift in demographics presents a dual challenge for ophthalmologists that must be addressed. First, it

puts increasing demands on them to serve more patients, and second, it puts increasing demands on their body that exacerbates their musculoskeletal pain.

Musculoskeletal disorders are very common in ophthalmology professionals despite limited data being available regarding these problems in the Kingdom of Saudi Arabia. The primary objective of our survey was to identify the musculoskeletal disorders that are common in ophthalmologists in our country. The secondary objective of this study is to find out the perception of ophthalmologists regarding the cause of these musculoskeletal disorders and the extent to which these disorders affect their personal and professional life.

METHODS

This is a cross-sectional survey of practicing ophthalmologists. The study was approved by the ethical committee of King Khalid University. The Ophthalmologists were identified through the Saudi Ophthalmological Society throughout the kingdom and then contacted by e-mail, mail, or by person.

Out of 150 ophthalmologists who responded, 43 provided insufficient data and 15 were practicing abroad. The remaining 92 surveys were analyzed for this study. All were currently involved in active patient care in Saudi Arabia. Individuals with neurological disorders or congenital abnormalities were not included in the study.

After obtaining written informed consent, the respondents were asked to fill out the King Khalid University Health Status Questionnaire for Ophthalmologists. The questionnaire contained a section, which covered demographic data, 2 questions related to clinical practice, and 3 health-related questions.

Questionnaires were analyzed for the study using statistical software SPSS (version 20). Descriptive statistics were used to identify the most common musculoskeletal disorders reported by ophthalmologists, their perception about them, the cause of these disorders, and the extent to which these disorders affected their personal and professional life. The mean, percentage, and frequency were described for age, height, weight, and body area affected by their work.

RESULTS

Out of the 330 ophthalmologists were contacted. Out of them 150 responded and 43 provided insufficient

data and 15 were practicing abroad. Thus, remaining 92 surveys were analyzed for this study. Those who completed the survey had a mean height of 1.73 ± 0.08 meters and weight of 81.5 ± 14.16 Kg (Table 1).

Table 1: Demographics of participating ophthalmologists

Demographics	Values
Ophthalmologists	92
Gender(n [%])	
Men	83(90%)
Women	09(10%)
Mean height (meters)	1.73 ± 8.06 ; range 1.5 – 1.9
Mean Weight (Kg)	81.5 ± 14.16 ; range 52 – 135
Mean BMI (Kg/Mt ²)	27.17 ± 4.19 ; range 20 – 44.44
BMI distribution (n/92)	Participants (n)
Normal BMI	20
Overweight	48
Obese	24

The job characteristics like years of practice, hours of work and surgeries per week of participating ophthalmologist were provided in table 2. The most common musculoskeletal disorders reported by the participating ophthalmologists were low back pain (48%) and neck pain (40%). Other common areas of pain were the shoulders (27%), mid back (23%), upper

back (16%), knee (16%), and gluteal region (15%) [Table 3]. All the common pains are mostly chronic in nature with duration of more than 3 months. 51 out of 92 (55%) ophthalmologists suffered from at least one musculoskeletal problem, which is given in the questionnaire (Table 3).

Table 2: Job characteristics of participating ophthalmologists

Job Characteristics	Values
Years of practice as Ophthalmologist (y)	Participants (n-92)
<5	8
6-10	20
11-15	34
16-20	15
21-25	6
26-30	6
>30	3
Hours of work per week	Participants(n-92)
<5	1
6-10	4
11-15	13
16-20	7
21-25	19
26-30	6
30-35	7
36-40	19
>40	16
Surgeries per week (n)	Participants (n-92)
<10	65
11-20	22
21-30	3
31-40	1
41-50	1
Mean hours in surgery/week	8.31 ± 3.72 ; range 2-23

Table-3: Musculoskeletal problems of ophthalmologists

Area	Occurrence of pain in the past				
	No Pain	Pain			Total Doctors with pain
		1 – 3wks.	3 wks. – 3 mo.	≥3 mo.	
Neck	55	4	12	21	37
Upper back	77	0	4	11	15
Mid back	71	7	4	10	21
Lower back	48	6	8	30	44
Buttock	78	3	4	7	14
Shoulders	67	4	6	15	25
Arm	81	3	5	3	11
Elbow	87	2	1	2	5
Forearm	88	3	0	1	4
Hand	84	3	3	2	8
Thumb	88	1	3	0	4
Hip	88	1	1	2	4
Thigh	84	3	1	4	8
Knee	77	6	1	8	15
Leg	86	2	0	4	6
Ankle	86	4	0	2	6
Foot	86	2	1	3	6
Others	4 ophthalmologist said other pains like migraine (1), cramps (1), fasciitis (1) and meniscus injury (1)				

Of the 92 respondents analyzed, 50% attributed their pain to either an abnormal posture during surgery or lack of exercise. 35% said that the pain affected their professional and personal lives, and 9% wanted to change their profession because of it. A total of 30% of respondents modified their workplace and lifestyle in order to mitigate their pain. The most common

modifications were postural corrections, adding extra supports, and starting an exercise program. 38% of the sample took a rest to decrease their pain, 21% of them took medication to decrease their pain, 13% of them took a rest and medication, rest of them took a combination of remedies like rest, medication, and Physical Therapy.

Table – 4: Comparison of ophthalmologists' musculoskeletal problems with other studies

Author	Year	Country	Subjects' specialty	Number of subjects surveyed	Results
Chatterjee et al ⁹	1994	United Kingdom	Ophthalmologist	325	Low back pain – 54%
Chams et al ¹¹	2004	Iran	Ophthalmologist	162	Infectious Conjunctivitis – 49.4% Contact Dermatitis – 43.2% Low back pain – 80% Chronic Headache – 54.9% Laser or operating microscope related visual disturbances – 15%
Dhimitri et al ¹³	2005	United States of America	Ophthalmologist	697	Low back pain – 39% Upper extremity pain – 32.9% Neck pain – 32.6% Limitation in work – 15% Overall musculoskeletal disorders – 51.8%
Sivak-Callcott et al ¹²	2011	United States of America	Ophthalmic Plastic Surgeons	130	Pain associated with operation – 72.5%
Kitzmann et al ¹⁰	2012	United States of America	Ophthalmologist, Optometrists	186	Neck pain – 46% Low back pain – 26% Hand and wrist pain – 17%
Tedla et al (Current study)	2015	Kingdom of Saudi Arabia	Ophthalmologist	92	Low back pain – 48% Neck pain – 40%

DISCUSSION

Our study found that the most common musculoskeletal disorders among ophthalmologists in the Kingdom of Saudi Arabia were back, neck, shoulder, knee, and gluteal pain. Of the 92 ophthalmologists included in the study, 48 were overweight, 24 were obese, and only 38 had normal BMI levels (Table-1).

Our results were in line with the several previous studies.^{9-11,13} A survey on ophthalmologists in the United Kingdom⁹ found that 54% of the ophthalmologists who responded had significant attacks of back pain, and more than half of them used analgesics for pain.⁹ In another survey¹⁰ conducted in the Mayo Clinic, it was found that ophthalmologists and optometrists reported a higher prevalence of neck, hand and wrist, and lower back pain as compared with family physicians. They named prolonged, repetitive, and cramped tasks like bending and twisting as contributory factors for this pain.¹⁰ Most of these eye care physicians classified their job as more strenuous than family physicians (31% vs. 20%).¹⁰

In all these studies, they concluded that back pain is a major problem faced by ophthalmologists. However, the percent of back pain that they reported differed (range 26–54%). More details of comparison of various studies are provided in Table 4.

The most common reasons for musculoskeletal pain given by the ophthalmologists were abnormal posture during surgery and lack of exercise. Many of the participants in our study were overweight or obese (n=72, 78%) (Table 1). It is well known that obesity can change the mechanical back alignment, which could lead to musculoskeletal problems of the spine.¹⁶ This may be a contributing factor to the pain experienced by ophthalmologists. Many ophthalmologists can avoid musculoskeletal problems by simply correcting their posture while performing surgery and examining patients, and by adding exercise to their life. But this is easier said than done! The findings of our survey have convinced us that the prevention and mitigation of musculoskeletal pain among ophthalmologists require a comprehensive approach.¹⁷

Correcting the posture in a simple biomechanical way is advised; for example, by tucking/pulling the stomach and chin every 5 minutes of continuous posture. By doing this, the body gets a normal alignment and activates core postural muscles, resulting in a decrease in undue stress on the affected structures. As an ergonomic specialist, we can do a workplace analysis and modify the environment; for example, by adjusting the desk height as per the individual anthropometric parameters, adding a foot rest, etc. We have many electrotherapy modalities that can decrease acute pain, muscle spasms, and other symptoms of musculoskeletal disorders. Along with treatment, assessing the person provides us with the cause of the pain like muscle weakness, muscle tightness, decreased range of motion, etc. For decreasing muscular imbalance, exercise programs for strengthening of core muscles will be more useful in preventing recurrences of musculoskeletal disorders.¹⁸

There are articles^{17, 18} offering solutions for problems faced by ophthalmologists. The ophthalmology professionals should seriously consider using some of these alternatives for decreasing their musculoskeletal problems like ergonomic modifications to the work environment¹⁰, activity-specific exercises, and modifications to ophthalmologist's posture, etc.

Future studies need to be done with intervention programs like ergonomic alterations, exercise therapy, Electrotherapy interventions, and postural correction alleviate the musculoskeletal problems in ophthalmologists.

CONCLUSIONS

The common musculoskeletal disorders among ophthalmologists were found to be low back pain and neck pain. Most of the ophthalmologists believed that abnormal posture during surgery and lack of exercise are the most common reasons for their pain. Many of them reported that pain affected both their professional and personal lives.

Conflict of Interest: None

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