

## PREVALENCE OF MUSCULOSKELETAL IMPAIRMENT IN TRAFFIC POLICE OF DISTRICT SWABI, PAKISTAN

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### ABSTRACT

The number of vehicles has been increasing out of proportion for the capacity of road infrastructure in particular in developing countries. The duty of a traffic police officer includes the implementation of daily traffic regulations. This involves long-standing hours and also particular repeated body movements. There is limited literature available on the musculoskeletal disorders develop among traffic police. Therefore this study was designed to include 219 traffic police officers from 23 traffic booths of district Swabi, Pakistan. Data was collected using a structured questionnaire and Cornell Musculoskeletal Discomfort Questionnaires (CMDQ). Informed consent was taken before filling the questionnaire. Age distribution of the participants was grouped as: 20 to 30 years (n=51, 23.4%), 31 to 40 years (n=141, 64.7 %), and over 40 years (n=26, 11.9%). Out of 219, 23% were diabetics, hypertensive participants were 21.9% (n=48), while 54% (n=120) had no history of chronic illness. The majority of traffic cops in district Swabi reported mild discomfort in their shoulders, arms, forearms, thighs, lower legs, knees, and feet, but moderate discomfort in their neck and back. The results of the study indicate that the traffic cops in the district of Swabi suffer back and neck pain, causing them to have moderate difficulty doing their duties.

**Key Words:** Traffic police, CMDQ, musculoskeletal impairments, WRMSDs

### INTRODUCTION

Musculoskeletal dysfunction has been identified as an occupational health issue among working population resulting in reduced working capacity and productivity. Given the pattern and hours of duty, traffic police officers (TPP) are the most vulnerable category, as they are required to manage busy streets for extended periods in difficult conditions(1-2). Traffic cops are required to stand for the whole of their shifts, putting them at risk for significant musculoskeletal ailments. Additionally, being in a static posture exposes them to ergonomic risks. Because of the rising number of automobiles, many cities have experienced traffic congestion, making TPP's job even more difficult and complex. Traffic cops face occupational hazards related to their duties and obligations while managing a complicated traffic system(3). They are also exposed to physical variables such as noise, vibration, and radiation, which pose an additional health risk. While working on a busy and congested road, noise-induced hearing loss is a major health problem among TPP. They are susceptible to heat sensitivity and light-related illnesses as a result of their exposure to heat and light. Carbon oxyhydroxide, sulfur oxyhydroxide, nitrogen oxyhydroxide, lead oxyhydroxide, and benzene oxyhydroxide oxyhydroxide oxyhydroxide oxyhydroxide oxyhydroxide TPP are also subjected to psychological stress as a result of the hurried nature of their employment, lengthy duty hours, traffic congestion, and monotonous nature of their labor. Taking these factors into account, TPPs are at higher risk

of developing cardiovascular problems as well(4-7). A whole spectrum of inflammatory and degenerative cascades start causing pain and functional impairment particularly involving the neck, shoulders, elbows, wrists, and hands, according to the definition of work-related musculoskeletal disorder (WRMSD)(8). The prevalence of WRMSD has been reported to be high among TPP and is linked to work hours, years worked, awkward and static postures, repetitive movements, uncomfortable postures, vibration, manual handling, and other factors. This puts a strain on the joints and causes various musculoskeletal disorders, which is the leading cause of workplace absenteeism(9). WRMSD is characterized by aching, pain, or discomfort in the neck, shoulder, elbow, wrist, upper back, lower back, hips/thigh, knee, and ankle/feet(10-11). Low back pain (LBP) is the most common health problem among WRMSD all over the world (12). According to the World Health Organization (WHO) report from 2013, LBP was the leading cause of time off work and visits to the doctor. Around 70% to 80% of the world's population will have at least one episode of LBP during their lifetime(13). Low back discomfort is the most common ailment among workers due to a lack of information about good posture. It's also a primary cause of sick leave, productivity loss, and long-term occupational disability(14). Given the ever growing traffic congestion in Pakistan, TPPs are also at higher risk of musculoskeletal disorders. However there is limited literature available. Thus this study was conducted to look at the pattern of musculoskeletal disorders reported by TPPs in the district Swabi.

## METHODOLOGY

After receiving ethical approval, this cross-sectional study was conducted. Data was acquired from a total of 219 traffic police of district Swabi, KPK, using a non-probability convenient sampling. The sample size was computed using a 95% confidence level. Work-related musculoskeletal pain, male, road traffic police, 20 to 60 years old were the inclusion criteria. Infection, tumor, trauma, recent fracture, and female were all ruled out. A questionnaire including past medical history chart and Cornell Musculoskeletal Discomfort Questionnaires (CMDQ) were used to collect data after getting informed consent. Participants completed the questionnaire whether or not they were in pain. The pain was separated into the following body areas: shoulder, arm, forearm, wrist, neck, lower back, leg, knees, and foot. Statistical Package for Social Sciences (version 23,0) was used for data analysis.

## RESULTS

A total of 219 males were included in the study. Ages of 20 to 30 years were represented by 51 (23.4%), 31 to 40 years by 141 (64.7 %), and over 40 years by only 26. (11.9) (Figure 1). The majority of the participants were between the ages of 31 and 40 years. Past medical history mainly focused on three categories including diabetics, hypertension, and none of these chronic medical conditions (Figure 2). Diabetic participants made up 23% (n=51), hypertensive participants made up 21.9 percent (n=48), and those with no prior history of disease made up 54.8 percent (n=120). Mild discomfort was reported by 28 (12.8%), moderate discomfort by 118 (54.1%), and severe discomfort was reported by 72 (33%). Table 1 presents summary of the pain distribution among participants.

**Table 1. Summary of pain distribution reported by traffic Police Officers**

	N	Mean	Standard deviation
Neck	219	2.2018	2.2018
Right Shoulder	219	1.2156	1.2156
Left Shoulder	219	1.2523	1.2523
Upper Back	219	1.4587	1.4587
Right Upper Arm	219	1.0000	1.0000

Left Upper Arm	219	1.0000	1.0000
Lower Back	219	2.0917	2.0917
Right Forearm	219	1.2569	1.2569
Left Forearm	219	1.1284	1.1284
Right Wrist	219	1.0000	1.0000
Left Wrist	219	1.0000	1.0000
Hip/ Buttocks	219	1.0000	1.0000
Right Thigh	219	1.0000	1.0000
Left Thigh	219	1.0000	1.0000
Right Knee	219	1.1147	1.1147
Left Knee	219	1.0872	1.0872
Right Lower Leg	219	1.0367	1.0367
Left Lower Leg	219	1.0000	1.0000
Right Foot	219	1.2248	1.2248
Left Foot	219	1.1468	1.1468

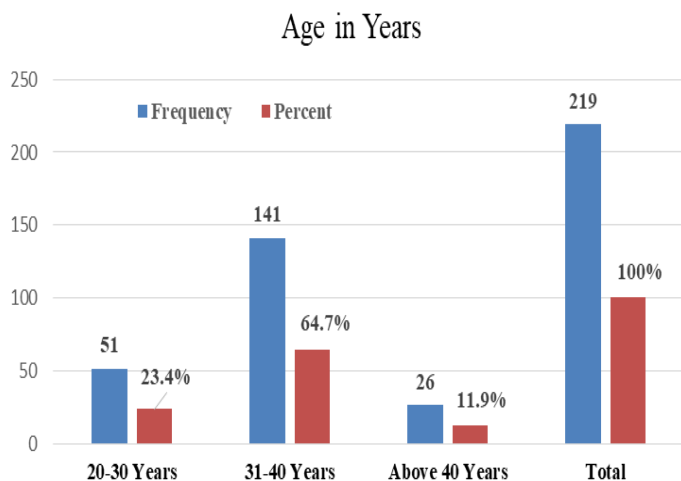


Figure 1. Age group distribution of the participants

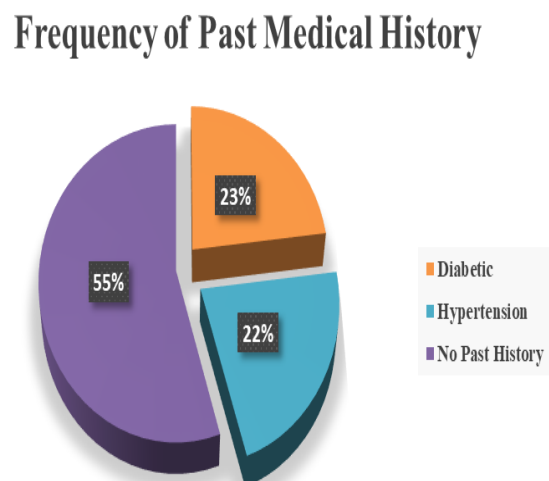


Figure 2. Distribution of the chronic health issues reported by Traffic Police officers

## DISCUSSION

Musculoskeletal disorders are a frequent health concern that affects people from all walks of life(15). These illnesses have resulted in enormous human misery, as well as diminished working ability and production(16). Research conducted in 1995 A.D. in one of China's main cities estimated that 1.2 million men and women were suffering from work-related musculoskeletal complaints. Lower back, neck, shoulder, and upper back were the most commonly affected areas, with prevalence rates of 28.0 percent, 24.0 percent, 18.6 percent, and 15.5 percent, respectively. About half of workers with MSD reported pain or discomfort in less

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than a month.(17) Physical stress was identified by Burton et al. in 1996 as one of the occupational risk factors for poor LBP among police officers controlling traffic, which often resulted in higher sickness and absenteeism(18).

As a result, stress can cause a variety of physical symptoms, such as muscle strain and back pain. In 2014 a study was conducted including 353 participants, the rate of pain was 44.2% in the shoulder, 41.4 percent in the waist, 31.2 percent in the neck, 26.1 percent in the legs/foot, 16.7 percent in the hands/wrist/fingers, and 14.7 percent in the arms/elbows, indicating that the global burden of pain was 44.2 percent in the shoulder, 41.4 percent in the waist, 31.2 percent in the neck, 26.1 percent in the legs/foot Furthermore, the shoulder had a 4.87 times higher risk in police lieutenants compared to those under the rank of corporal, and a 1.78 times higher risk in people with chronic diseases compared to those without chronic diseases, according to the comparative risk of the relevant part that was analyzed(19). In a recent study, 384 traffic cops in Pakistan were interviewed. 69 percent felt discomfort in their upper extremities, while 54 percent had pain in their lower extremities felt pain radiating to other parts of the body. In this study, the participants' pain was caused by their long working hours(20). The results of this study show that the prevalence of WMSDs varies significantly between participants with varying years of job experience. Participants with >30 years of job experience had the highest prevalence of neck, back and foot pain discomfort followed by those with 20–30 years of work experience. This finding suggests that having more years of work experience is linked to a higher prevalence of WMSDs, which is consistent with findings from a previous study(21), which found that having more years of work experience was a predisposing factor to the development of WMSDs. Furthermore, service length is linked to musculoskeletal problems(22). According to official Swedish statistics, MSK disorder accounts for roughly 74 percent of occupational diseases (23). The most painful areas in this study were the neck and back. According to one study, MSK pain is very common among Ibadan drivers, and the most common MSK pain region is the low back,(24) which is similar to a study in Mumbai, India.(25)

The current study suggests that the district Swabi, KPK traffic police are affected moderate discomfort of pain in neck and back but they are just mild discomfort of the shoulder, arm, forearm, thigh, knee, lower leg, and foot. Which concluded that the traffic police of District Swabi are feeling discomfort because of neck and back pain.

## CONCLUSION

The majority of traffic cops in district Swabi reported mild discomfort in their shoulders, arms, forearms, thighs, lower legs, knees, and feet, but moderate discomfort in their necks and backs, according to the survey. This indicates that the traffic cops in the district of Swabi are suffering from back and neck pain, causing them to have moderate difficulty doing their duties..

**Ethical Consideration:** This study was approved by research Ethics Committee

**Conflict of Interest:** There is no conflict of interest.

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