

Work Related Musculoskeletal Symptoms among Traffic Police: Cross Sectional Survey Using Nordic Musculoskeletal Questionnaire

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Abstract: Developing countries like ours where the growth in the number of vehicles is almost in a geometrical progression while the requisite infrastructure to cater to this tremendous growth is not developed. Traffic Police constable job involves daily traffic regulation. Development of work related musculoskeletal disorder (WRMSDs) in this population may have substantial impact on city traffic regulation. To the best of our knowledge, no studies have explored the occurrence of different musculoskeletal complaints in traffic police. Therefore the aim of this study was to evaluate the frequency of WRMSDs in Traffic Police population. A cross-sectional design was adopted; The Nordic musculoskeletal questionnaire was used to assess self reported musculoskeletal complaints. Traffic Police working in Navi Mumbai area (n=270) formed the population of this study. Quantitative data were analyzed in percentage form. We concluded from study back pain is most common symptom. Decreasing shift durations or offering health educational programs may be suitable solutions. However, further studies are required to assess the relationship between WRMSDs and workload- related factors.

Keywords: Nordic Musculoskeletal Questionnaire, Work related musculoskeletal disorders, Traffic Police.

I. INTRODUCTION

Disorder is work related when work procedures, equipment, or environment contribute significantly to the cause of the disorder (WHO, 1985). The work related musculoskeletal disorders (WRMSDs) describe a wide range of inflammatory and degenerative disease conditions that result in pain and functional impairment affecting the neck, shoulders, elbows, wrists, and hands¹. Health is not something that one possesses as a commodity, but connotes rather a way of functioning within one's environment. Occupational environment plays an important role in health of exposed. The health hazard gets more severe when the duration of exposure increases. The Traffic Police constable plays a significant role to keep traffic moving where the population is Dense. Traffic police undergo lots of physical strain by environment polluted by fumes and exhaust of moving vehicles. The aforementioned factors pose as a health risk. To the best of our knowledge, no studies have exposed the occurrence of different musculoskeletal complaint in traffic police working in Navi Mumbai. Therefore the aim was to evaluate the frequency of WRMSDs in traffic police population. The Nordic musculoskeletal questionnaire was adopted in this study to assess self-reported musculoskeletal complaints with respect to nine body part areas such as neck, shoulder, elbows, wrist/hands, hips, knee, lower back, upper back, ankles/feet. The occurrence of these symptoms over the past week (weekly prevalence) and over the past year (annual prevalence) were noted.

II. METHODOLOGY

The data for this study was collected by cross sectional survey method. A pre validated questionnaire (Nordic musculoskeletal pain questionnaire) used through direct interview method. Study setting was Navi Mumbai traffic police department, sample size n=270. Other branches of police were excluded.

Questionnaire was divided into three parts, the first part collected the demographic data such as age, gender and also their duration of work, total hours spends during duty. This factor may contribute to develop WRMSDs. The second part we defined WRMSD as work related symptoms (pain, numbness, tingling, aching) that result from a work related illness, excluding others injuries experienced during last one year this indicated chronicity of pain, other question was does this pain was the reason for you to prevent doing normal work (at home or away from home) this indicated sick leave. The last phase include pain in last seven days this indicates acute pain.

III. DATA ANALYSIS

Table I. Gender Distribution

Total number of subjects	270
Number of Male	268
Number of Female	02

Table II. AGE DISTRIBUTION

Age in years	No. Of Traffic Police
20-30	56
31-40	90
41-50	100
50-60	24

Table III. Regions affected with chronic pain

Body region	Percentage
Lower back	38%
Upper back	36%

Table IV. Regions affected with acute pain

Body region	Percentage
Lower back	15%
Upper back	13%

Table V. Regions causing Activity loss due to pain

Body region	Percentage
Lower back	16%
Upper back	15%
Neck	14%

IV. DISCUSSION

This survey study documented work related musculoskeletal pain symptoms in Traffic Police. 270 Traffic Police participated out of which 268 were of male and two females this clearly indicates it is a male dominating profession. The average age of traffic police in this study was 39.18 years. Thus physiological degenerative changes were excluded.

Their Average Work experience was 15 years in this field, so their pain can be associated with their work. Work related Musculoskeletal Disorders can be define as Disorders of the Muscles, Skeleton system and related tissue which have

been empirically shown or are suspected to have been caused by a work place. The term Repetitive strain injury is some time used to describe Work related Musculoskeletal Disorders.

When any individual is exposed to Risk factors they begins to experience fatigue when fatigue outruns their Body recovery System, They Develop a Musculoskeletal Imbalance, Over a time as fatigue Continues to outrun recovery, leads to Musculoskeletal Disorder. Two categories of Risk factors are present in any Work related Musculoskeletal Disorders, 1. Work environment related Ergonomic Risk Factor, 2. Individual – Related Risk Factor. In this study, we tried to analyse Type 1 Risk factors explored.

According to data analysis major body region affected in Traffic Police is Lower back. When we tried to explore reasons for the same we could gist following points.

The Major working Posture for Traffic Police is Standing. During standing the Centre of Gravity is usually in the hip and Waist Area, This means that when standing Hip carries most of the body weight, Prolong standing may cause fatigue of muscles around the hip. As a Result The lower back assume a severely arched position to allow the weight to be distributed on the back, resulting into lumbar strain causing back pain². The other causes of back pain can be enumerated as: Reduced efficiency of base of Support - base of support is located on the feet as they stand for long period feet becomes tensed and have reduced ability to support the whole body to avoid a loss of balance. The muscles Trend to contract more, Thus leading Back pain. Altered lumbar Angle - Deviation of The Normal lumbar Angle and pelvic tilt plays a significant role in back pain. Higher percentage of Traffic police falls in obese category². The anterior tilting of pelvis may be due to protruding Abdomen, Tight low back Muscles, Tight hip flexors, Weakness in the abdominal muscles when present it puts excessive pressure on the posterior Aspect of the vertebral bodies and the facets , Exaggerate lumbar lordotic curve giving rise to low back pain.

In addition excessive bike riding is seen in this community, which leads to Compressive forces on spine. Degenerative changes in intervertebral disc accelerate due to whole body vibration during bike ride.

Other most commonly affected region was upper back, reasons for the same could be repetitive isometric contraction of shoulder girdle muscles especially in peak traffic hours. Leads to, Tightness of the upper trapezium and levator scapula on the dorsal side crosses with tightness of the Pectoralis Major and minor, Weakness of deep cervical flexors ventral crosses with weakness of middle lower Trapezium. This pattern of Imbalance creates a joints Dysfunction particularly Atlanto – occipital joint, C4-C5 segment & glenohumeral Joint. This is referred as upper cross syndrome, proximal or shoulder girdles cross syndrome.³

Thus root cause for work related musculoskeletal disorders in Traffic Police is their working conditions. Effective worksite health promotion programs will help to eliminate these musculoskeletal disorders.

Further studies require exploring individual related risk factors for work related musculoskeletal disorders in Traffic Police.

V. CONCLUSION

Prevalence of musculoskeletal disorders in Traffic Police community is as follows , Region to cause chronic pain are Lower Back 38 % and Upper Back 36 %, Region to cause activity loss due to pain are Lower Back 16 %, Upper Back 15% & Neck 14%, Region to cause acute pain are Upper Back 14%, Lower Back 13% & Knee / Neck 11%.

IV. CLINICAL IMPLICATION

In traffic police to prevent work related repetitive strain injury of muscles, regular muscular fitness training program which include endurance and flexibility of trunk and lower limb musculature should be incorporated in daily duty schedule.

ACKNOWLEDGEMENT

The authors thank Navi Mumbai Traffic police department for giving permission to carry out the study and to the traffic police personnel for giving their consent to participate in the study. And we will like to acknowledge **Mr. P Bankar**,

administrative, Traffic Police Navi Mumbai, for all planning and coordination. And Special thanks to **Dr. Sujata Yardi**, former Director , & **Dr. Unnati Pandit**, Director, Department Of Physiotherapy, D.Y.Patil University, Nerul, Navi Mumbai, to give all hearted cooperation for this study. Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

REFERENCES

- [1] Arun Vijay: Work- related Musculoskeletal health disorders among the information technology Professionals in INDIA: A prevalence Study. Int. J. Mgmt Res.& Bus. Strat. Vol.2,No.2, April 2013.
- [2] Shweta S.D Phadke, Dr. Hasmeet Sandhu et.al ,Prevalence of obesity in Navi Mumbai Traffic police and Associated changes in lumbar curvature Angle, Journal of International Academic Research For multidisciplinary volume 2 Issue 3, April 2014.
- [3] David Magee, Orthopaedic Physical Assessment, 4th edition, pg.131.
- [4] C E Dickinson et.al. Questionnaire development: an examination of the Nordic Musculoskeletal Questionnaire. **Applied Ergonomics, Vol 13, No. 3, June 1992.**

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Ethical clearance: The study was approved by ethical committee, in D.Y.Patil University, Navi Mumbai.

Source of funding - Self-funded by authors.

Conflict of Interest - Nil