

ABSTRACT

Garment industry and its workers have become the driving force in the Sri Lankan economy. Published literature shows an elevated prevalence of musculoskeletal disorders (MSDs) among the garment workers of the developed world. Though female garment workers are of paramount importance for our economic growth only very few Sri Lankan researchers have shown interest to study this essential occupational health problem in great detail. Hence this research addresses the existing knowledge gap in the field of occupational health in relation to neck and upper limb musculoskeletal disorders among Sri Lankan female garment workers in export processing zone. The study determined the prevalence of neck and upper limb musculoskeletal disorders with special reference to its anatomical regions; neck, shoulder, elbow and wrist. It also investigated the task performance related ergonomic stressors and other factors that female garment workers are exposed to and their role in the association of work related neck and upper limb MSDs. In achieving this objective the following study methodology was used; a new operational definition for work related MSD was formulated, also a new instrument; Neck and Upper Limb Musculoskeletal Disorder Questionnaire (NULMSDQ) was developed, and validated to assess the prevalence of occupation related neck and upper limb MSDs. It was used in the cross sectional study and prevalence and correlates of neck and upper limb MSDs among the female garment workers were determined. A Quick Exposure Check (QEC) was adopted, modified, validated and was used as a tool in the case control study to quantify the task performance related ergonomic risk factors for neck and upper limb MSDs.

The reviewed literature showed that most of the other researchers who studied MSDs presented their results only in the form of crude MSDs prevalence and odds ratios. In

contrast, adjusted prevalence rates and adjusted odds ratios were presented here as more accurate estimates of prevalence and correlates.

A representative sample of one thousand and eighty three female garment workers of export processing zone, Biyagama, were studied, the response rate was 98.5%. The prevalence of work related neck and upper limb MSDs 54.9% (95% CI, 54.8-54.92). The adjusted prevalence of work related neck, shoulder, elbow and wrist MSDs among the female garment workers were 29.3% (95%CI, 29.2-29.33), 38.5% (95%CI, 38.4-38.52), 22.1% (95%CI, 22.08-22.12) and 4.1% (5%CI, 3.09 – 4.12) respectively. The adjusted prevalence of specific work related syndromes such as thoracic outlet, tension neck, rotator cuff, epicondylitis, deQuarions and carpal tunnel syndromes were 24.0% (95%CI, 29.2-29.33) 19.2% (95%CI, 19.1-19.22), 16.4% (95%CI, 16.3-16.42), 2.7% (95%CI, 22.08-22.12), 0.9% (95%CI,0.8-0.91), and 0.7% (95%CI, 0.69-0.71) respectively.

The correlates of developing work related MSDs among different categories of garment workers, where referent group was helpers showed that those employed as machine operators (OR, 1.78 95% CI, 1.07-3.2) were at a higher risk of developing work related neck and upper limb MSDs and the packers also had a high risk (OR 1.63, 95% CI, 1.02-2.61).

This study also assessed the influence of personal life, work life and task performance risk factors in the development of neck and upper limb MSD morbidity among female garment workers. Their marital status, more time spent for light home based activities was significant personal life risk factors. The job categories, total working hours per week, duration of work and residence also were identified as significant work life risk factors.

The duration of time spent with extended posture of relevant anatomical region, duration of visual demand, weight handled by the relevant anatomical region, its height

related to the handled weight and work stress were identified as significant task performance risk factors for the development of work related neck and upper limb MSDs.

In conclusion NULMSDQ is a valid (sensitivity was above 78.6% and specificity was above 58.3% for all disease conditions in the four anatomical regions) and reliable (Cronbach's alpha exceeding Nunnally's criteria of 0.7) instrument to study work related neck and upper limb MSDs, and to ascertain its prevalence. The modified and validated version of QEC questionnaire has proved to be valid and reliable instrument in assessing task performance related ergonomic risk factors among female garment workers in Sri Lanka.

Conclusions are also drawn in this study regarding the differences of prevalence and risk factors between female garment workers namely; machine operators, packers, cutters and helpers. The study findings and recommendations would be valuable for future researchers and used in making informed decisions upon preventive strategies by the safety and health professionals, policy makers, and relevant authorities.