

CHAPTER V

DISCUSSION AND CONCLUSION

This cross-sectional descriptive study was conducted to gain more insight into the annual prevalence rates of work-related musculoskeletal disorders and its related disability among registered nurses at Srinagarind Hospital, Khon Kaen University, north-east, Thailand. The weekly and yearly prevalence rate of various body regions including working activities, working postures, mental demand, job control and social support of the nurses as well as factors that might associate with the disability were also determined. The potential risk factors were grouped as socio-demographic characteristics and working characteristics (working activities, physical workload and psychosocial aspects at work).

In this study, self-administered questionnaires were used for data collection. The detected musculoskeletal disorders were undoubtedly measured in subjective manner. Definition of work-related musculoskeletal disorders might be varied between countries and between occupational groups. The recall bias was potentially existed as well. From cross-sectional descriptive design being used in this study, the associations which were found in the study would be for hypothesis generation only. No causal inference concerning the associations could be made.

The annual prevalence of WMSD, for at least one body region, among registered nurses at Srinagarind Hospital, Khon Kaen, Thailand was 91.7% (95% CI: 86.8%, 94.9%). It was higher than other studies including American study (72.5%), Chinese investigation (70%) and Swedish nurses (84%). The top three affected regions of Khon Kaen study were shoulder, low back and upper back (64.4%, 58.5% and 44.9% respectively). Concerning the 12 months period-prevalence of WMSD at low back which was 58.5%, it was more than a previous study of Thai nursing personnel (33.6%) [61], mainland China (40.6%) [62] and England (45%) [52] but lower than Japanese study (73%) [63] due to the differences in populations studied, the time periods used in the period prevalence calculations or the criteria used for defining the WMSD.

The annual prevalence of WMSD with disability in this study was 53.7% (95% CI: 46.6%, 60.6%). We found from bivariate analysis that 3 factors associated significantly with the annual prevalence of WMSD with disability. They were social support, frequent documenting nursing records and frequent making bed when client in it (p-value 0.007, 0.026 and 0.036 respectively). Another 3 marginal significant factors were also determined. They were frequent preparation of equipment, job control and cumulative duration of employment (p-value 0.057, 0.092 and 0.096 respectively). From multivariate analysis, multiple logistic regression, only one factor had statistical significant association with the annual prevalence of WMSD with disability. It was job control with the adjusted odds ratio of 2.22 (95% CI: 1.13, 4.38).

The association between age and the prevalence of symptom of WMSD has not been found which is not in line with other studies. When taking the marital status into account, a significant relationship between neck symptoms with married variable (OR=1.40, 95% CI: 0.69-2.85) and this is in agreement with the other studies [14, 61, 63].

In this study, the variables of weight, height, smoking and exercise haven't shown any clear association with any the symptom of WMSD. At the same time, the variables, such as, duration of employment and years of working in present ward/unit have not found any significant association with symptoms of work-related musculoskeletal disorder, which is different from other finding in China, Japanese and Greek countries [62, 63].

Different studies have taken physical factors into account when studying complaints of musculoskeletal disorders. The current study showed that among the work-related physical factors significant associations were found between working postures and the symptoms of low back, shoulders, neck and elbows. The awkward posture was identified as either sitting with a twisted trunk or in a symmetrical position or with the back and neck held in bent position. In the scientific literature there seem to be some consensus on poor ergonomic conditions as working contributing to musculoskeletal complaints or disorders. Aiens et al indicated that bending & twisting waist, holding neck in a forward bent posture for a prolong period and repeatedly working in the same position for a long time were both significantly

associated with low back and neck pain. Other studies showed that the odds ratio for neck pain increased with the time spent working in a sitting position, suggesting a dose response relation between sitting posture and neck pain.

According to Ortiz hernandez et al, remaining seated for long periods, usually accompanied by bent curvature of the spine, increases pressure on vertebral discs, stress ligaments and provokes muscle pain. The association found with low back, shoulders, neck and elbows symptoms indicated that the work related physical factors predicated the presence of symptoms of musculoskeletal disorders in this study population.

In this study, association was found between symptom of musculoskeletal disorders and the nursing activities. In several studies, transferring patient has been reported to be associated with low back pain symptom. Owen et al showed that transferring patients from an origin to a destination was ranked the most stressful task among nursing assistants. To reduce the stress task among nurse's back, Garg et al [56] tried biomechanical and ergonomics evaluation of manual handling techniques and mechanical hoists for transferring patients. However, mechanical hoists for transferring patients are not broadly available in general hospital in Japan, perhaps due to the long operating time and the costs of hoists.

Working posture is one of the factors which have been reported as having an association with symptoms of low back, shoulders and neck in some previous studies, especially for the predictors of low back symptom research. Hignett [64] reported that in wards of elderly people a significantly greater percentage of harmful postures than in task not handling patients.

Psychosocial factors have been discussed as predictors in previous studies. In a systematic review it has been found that high job demands and low social support were suggested as risk factors for upper extremities musculoskeletal disorders. In the current study, 6 variables adapted from Karasek model were tested (i.e. mental demand (task difficulty and work pressure), job control (decision authority and skill discretion) and social support (support between coworkers and supervisors). The results found support for the association between task difficulties and symptoms in the neck and elbows. This finding is consistent with other prospective studies of neck pain which also found that job demands were risk factors.

The psychosocial factors (psychological workload, decision latitude and social support) were related to musculoskeletal symptoms in one or two, but not all, of the body regions (neck, shoulder, low back) included in the present study. These findings correspond well with the review by Bongers et al [65] where it was concluded that high work demands and low job control often are related to such symptoms. But this relationship is neither very strong nor very specific. These findings also correspond with other reviews on neck and shoulder symptoms, e.g. Palmer and Smedley who found limited evidence for high job demands, low job control, low job support and job strain as risk factors for chronic neck pain with physical findings, and with Ariëns et al., G.A. Ariëns, W. van Mechelen, P.M. at the same time. Bongers et al [65] found some evidence for high job demands, low job control and low coworker social support and inconclusive evidence for high job strain and low supervisory support as risk factors for neck pain. However, when looking at the combined effects of these variables (by forming an eight cell matrix of the psychosocial work environment), a clear pattern of increased risk can be seen. It highlighted the importance of the combined effects of psychosocial stressors.

It may be concluded that WMSD and related disability were common among the registered nurses at Srinagarind Hospital, Khon Kaen University, Thailand. Low job control might associate significantly with the annual prevalence of WMSD with disability after adjusting effect of other factors. Further studies are needed to proof causations and to find out solutions.