

# CHAPTER I

## INTRODUCTION

### 1.1 Background and rationale of the study

Work-related musculoskeletal disorder (WMSD) is a collective and descriptive term for symptoms caused or aggravated by work and characterized by discomfort, impairment, disability or persistent pain in joints, muscles, tendons, and other soft tissues, with or without physical manifestation [1-3].

Work-related musculoskeletal disorders are the leading occupational health problem plaguing the nursing workforce. The Bureau of Labor Statistics in the year 2002 reported that nursing aids, orderlies, and attendants ranked second and registered nurses sixth in a list of at-risk occupational for strains and sprains when comparing with other occupations [4].

Nursing often requires heavy physical work activities such as lifting heavy loads, working in awkward posture, transferring patients, operating hazardous equipment, etc. Among nurses, low back pain is known to be most frequently occurring WMSD, with the 12-month prevalence ranging from 30% to 70% [5-10]. The low back pain incidence rate of nurses' aids was higher than more traditional heavy physical occupations such as construction worker and garbage collector [11].

Nurses are also exposed to the risk of WMSD not only in the lower back area but also in other regions of the body. The three highest prevalence rates of WMSD for nurse are neck, shoulder and back, followed by the upper back, hands/wrist and knee/lower legs [12, 13]. Daraiseh et al [13] reported that based on weighted-mean calculations across the existing studies [14-16], the nurses' WMSD prevalence rates for the neck, shoulders and lower back were 40%, 42% and 50%, respectively. Nursing-home nurses in Washington State of the USA ranked second and first in the number and incidence rate of WMSD, respectively [17]. For WMSD in private industry, registered nurses ranked sixth overall [18]. This high prevalence of WMSD indicates that nursing is one of the most physically demanding occupations.

In the past, health service systems in Thailand have evolved from self-reliance to the system of modern medical and public health services by utilizing local wisdom for curative care and health promotion. The new system, which also provides for the procurement and development of health technologies, has produced numerous health personnel in response to demand from various health disciplines. The roles of providers and recipients are clearly defined. The health services system is more effective. In the pluralistic health service system, the main service provision is managed by the public sector, while traditionally the people help themselves in a constantly changing environment involving both the public non-profit and private for-profit sectors. With budgeting system changes in the Thai universal healthcare system, people have more convenient access to care [19].

Nurses as health manpower play critical role in health care system. In 1990, to resolve the shortage problem on a short-term basis, the Ministry of Public Health (MoPH) began to produce technical nurses. However, in 2000, such a program was discontinued and since then only professional nurses have been produced. This is to enhance the efficiency of health services; in 2002, there are 113,718 registered professional nurses, but only 76,578-91,602 nurses are actually practicing. It is estimated that in 2015 there will be 120,197- 173,321 professional nurses, whereas there will be a need for 137,997-142,366 professional nurses, i.e. the supply is close to the demand in the future. However, most professional nurses are clustered in Bangkok and the big cities, which cause an imbalance and shortage in small cities and rural areas [20]. A survey in various regions of the country in 2002 showed that Bangkok had the lowest professional nurse to population ratio of 1:289, followed by the central, southern and northern regions, while those in the northeast had highest ratio of 1:1,278 [21].

Srinagarind Hospital is affiliated to Faculty of Medicine, Khon Kaen University. It is one of the most modern and prestigious hospitals in the country. So far, there are more than 1,400 nursing staffs working in different main 14 units. Being a big teaching hospital in north-east of Thailand, Srinagarind Hospital is providing a wide range of services to the Thai community, especially the responsible area [22, 23].

Despite the high incidence of musculoskeletal disorders worldwide, most epidemiological investigations have been restricted to high-income countries. Few nursing studies appear to have been conducted in Thailand or published in English. For example, Thanet Sinsongsook et al [24] surveyed association of work-related factors and shoulder pain among Thai nursing personnel. Their participants worked in Bangkok, the capital of Thailand, which converted main health manpower [21] for the research results. They found that the prevalence rate of persistent shoulder pain among nursing personnel in previous 12 month was 20.3 percent (95 % CI: 16.0%, 24.0%) and that limited work activities was 14.0 percent (95 % CI: 10.1%, 18.4%). In Nanakorn et al [25], they focused on physical, psychosocial as well as other health complaints on nursing students.

To our knowledge, there have been few detailed studies of registered nurses undertaken in Thailand, so we thought it critical to investigate the prevalence of WMSD so that in the future research can be undertaken to alleviate the causes.

With regard to the report on health resources of population to professional nurses' ratios in 4 regions of Thailand, in central plains, the ratio is 1:285, while in the northeastern area the ratio is 1:968. According to the recent study, it showed that the average national ratio between professional nurses and population in Thailand (2009) is 1:532, which a little slightly lower than the standard of WHO (1:500). Being a big teaching hospital in north-east of Thailand, Srinagarind Hospital is providing a wide range of services to the Thai community, especially north-eastern community [22, 23]. To some extents, we could speculate that professional nurses' shortage in north-eastern Thailand and the work burden among professional nurses working in north-eastern Thailand seemed much harder than the ones working in other regions. Under such circumstance, the prevalence of work-related musculoskeletal disorder symptoms and work-related factors among registered nurses at Srinagarind Hospital should be addressed.

## **1.2 Research objectives**

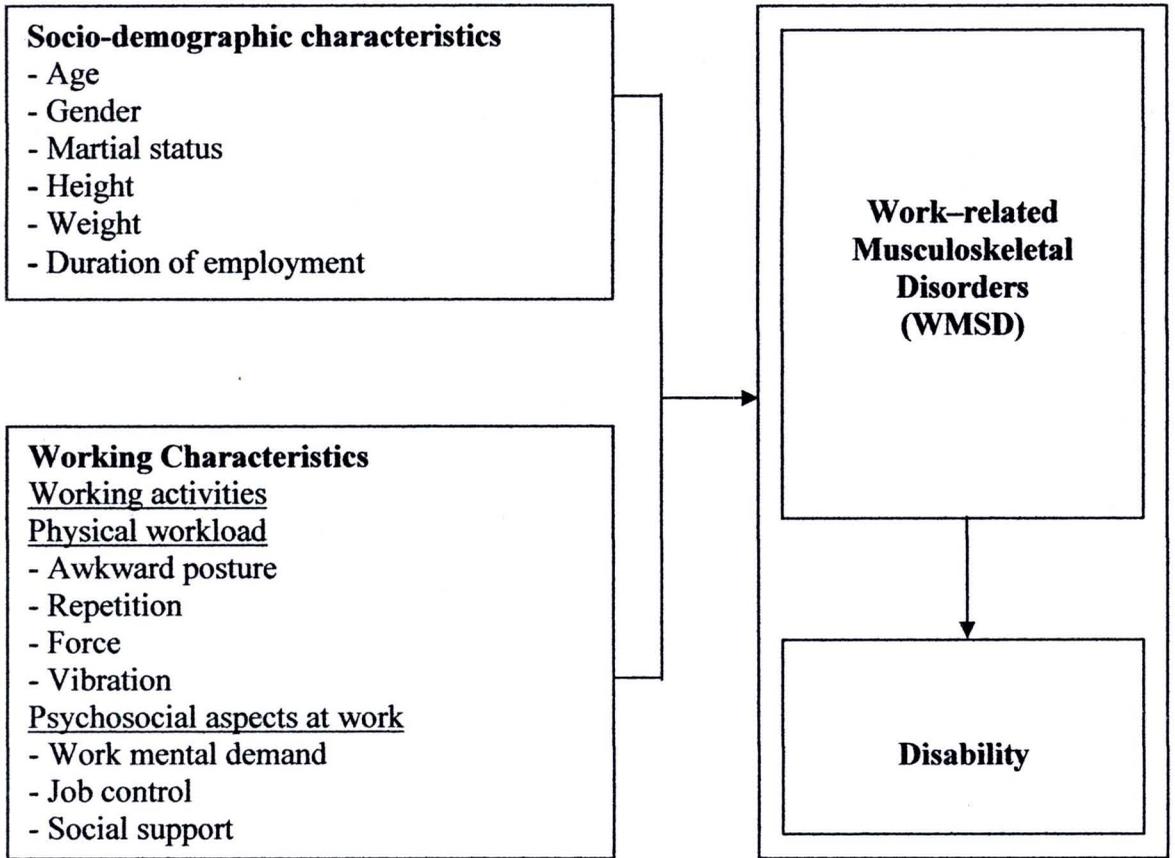
1.2.1 To determine the annual prevalence of work-related musculoskeletal disorders and related disability among registered nurses at Srinagarind Hospital, Khon Kaen University in 2008.

1.2.2 To determine the prevalence, weekly and annually, by nine parts of body regions of the nurses.

1.2.3 To determine demographic characteristics, working activities, working postures, mental demand, job control, social support and working task attitude of the nurses.

1.2.4 To identify socio-demographic and working characteristics of the nurses that may associate with the annual prevalence with disability.

### 1.3 Conceptual framework



#### **1.4 Anticipated outcomes**

The established prevalence of WMSD and its related disability among registered nurses at Srinagarind Hospital would be helpful for various levels of the hospital administrators to plan and act for better health of the nurses which would affect the better quality of the nursing services.

#### **1.5 Limitation of the study**

The tool was based on self-administered questionnaires, and all the participants would recall the events relevant to work-related musculoskeletal disorder symptoms during the previous 12 months and in the past 7 days, which might involved with recall bias. Although the Standardized Nordic Questionnaire [26] had been demonstrated reliability and validity of musculoskeletal-disorder assessment in several studies [27-29], it was a subjective method.

#### **1.6 Operational definitions**

**Awkward Postures:** Working with various parts of the body (e.g., limbs, joints, back) in bent, extended or flexed position rather than in a straight or neutral position. Examples of awkward postures include performing overhead work, bending or twisting to lift an object, typing with bent wrists, and squatting [30].

**Job control:** Perceived authority of a worker to control a job regarding management i.e. dealing with priority job, time management, staff allocation and policy making.

**Registered nurse:** A health care professional responsible for implementing the practice of nursing through the use of the nursing process (in concert with other health care professionals). RNs use the nursing process to assess, plan, implement, and evaluate nursing care of the sick and injured [31].

**Social support:** Perceived physical or emotional comfort regarding the support from supervisor or coworkers in according to their concern, attention, helpfulness, friendliness or competency.

**Work Mental demand:** Perceived psychological stressors requiring completing a work. If working demands good memory, good continuous concentration and strong responsibility, it requires high work mental demand.

**Work-Related Musculoskeletal Disorders (WMSD):** Perceived troubles of muscles, nerves, tendons, ligaments, joints, cartilage or spinal discs that occur during a working period of time. The troubles arising from slips, trips, falls, motor vehicle accidents or similar accidents are not considered WMSD for the purposes of this study [32].