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PSYCHOSOCIAL RISK FACTORS AND MUSCULOSKELETAL SYMPTOMS AMONG NURSES IN HOSPITAL SULTANAH BAHIYAH,KEDAH

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ABSTRAK

FAKTOR RISIKO PSIKOSOSIAL DAN GEJALA OTOT KERANGKA DI KALANGAN JURURAWAT DI HOSPITAL SULTANAH BAHIYAH,KEDAH

SITI MASTURA BINTI BALYA

Pengenalan: Sejak beberapa tahun yang lepas, terdapat banyak bukti yang mengatakan risiko factor psikososial berkaitan dengan kerja dan persekitaran kerja telah meningkatkan masalah otot kerangka. European Community Risk Observatory menjangkakan gabungan pendedahan kepada masalah otot kerangka dan faktor risiko psikososial merupakan antara top 10 daripada risiko yang meningkat dalam keselamatan dan kesihatan pekerjaan. **Objektif:** Untuk menentukan perkaitan antara faktor risiko psikososial dan gejala otot kerangka di kalangan jururawat. **Metodologi** : Satu kajian hirisan lintang telah dijalankan di sebuah hospital di Kedah,Malaysia. Seramai 143 jururawat dari wad perubatan dan wad pembedahan telah disoal. Data mengenai faktor sosio-demografik, faktor risiko psikososial, dan gejala otot kerangka telah dikumpulkan menggunakan borang kaji selidik yang di standardkan dan diakukan iaitu Job Content Questionnaire (JCQ) dan Nordic Musculoskeletal questionnaire (NMQ). **Hasil kajian**: Min umur responden adalah 30.9 (6.7), 62.9% responden adalah dari wad perubatan dan 37.1% adalah dari wad pembedahan. Prevalen gejala otot kerangka di kalangan responden ialah 76%. Prevalen gejala otot kerangka yang tertinggi adalah di bahagian belakang atas (70.6%) diikuti dengan bahagian bawah belakang (58%) dan bahu (55.9%). Perkaitan antara pendapatan bulanan dan sokongan sosial adalah signifikan dengan sakit bahu (χ^2= 10.886, ρ< 0.05; χ^2= 10.200, ρ< 0.05). Perkaitan antara jenis wad juga signifikan dengan sakit belakang bawah (χ^2= 17.223, ρ< 0.05), perkaitan antara latitud keputusan (χ^2= 4.549, ρ< 0.05) dan pikologikal permintaan pekerjaan (χ^2= 5.481, ρ< 0.05) signifikan dengan sakit bahu. Perkaitan antara sokongan sosial juga signifikan dengan sakit leher (χ^2= 8.669, ρ< 0.05) dan rasa pekerjaan tidak terjamin signifikan dengan sakit belakang atas. (χ^2= 8.943, ρ< 0.05) dan sakit belakang bawah (χ^2= 8.951, ρ< 0.05) **Kesimpulan:** Faktor risiko psikososial mempengaruhi gejala otot kerangka. Strategi pencegahan spesifik memfokus kepada faktor risiko psikososial perlu dicadangkan untuk mengurangkan risiko aduan daripada mana – mana bahagian otot kerangka.

ABSTRACT

PSYCHOSOCIAL RISK FACTORS AND MUSCULOSKELETAL SYMPTOMS AMONG NURSES IN HOSPITAL SULTANAH BAHIYAH,KEDAH

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Background: During the past years, there is increasing evidence that psychosocial risk factors related to the job and work environment play a role in development of work- related musculoskeletal disorders. The European Community Risk Observatory forecasted that the combined exposure to musculoskeletal disorders and psychosocial risk factors are amongst the top ten emerging risks to occupational health and safety. **Objectives**: To determine the association between psychosocial risk factors and musculoskeletal symptoms (MSS) among nurses **Methods and materials**: A cross sectional study was conducted in a hospital in Kedah, Malaysia. A total of 143 nurses from medical ward and surgical ward were recruited. Data on socio-demographic factors, psychosocial risk factors and musculoskeletal symptoms were obtained using standardized, validated questionnaire (Job Content Questionnaire and Nordic questionnaire) which were self- administered. **Results**: The mean age of respondents were 30.9 (6.7), 62.9% respondents were from medical-based and 37.1% were from surgical ward. Prevalence of MSS among respondents was 76%. The highest prevalence of musculoskeletal symptoms were upper back (70.6%) followed by lower back (58% and shoulder (55.9%). Monthly income and social support were significantly associated with shoulder pain (χ^2= 10.886, ρ< 0.05). Type of wards was significantly associated with low back pain (χ^2= 17.223, ρ< 0.05), social support (χ^2= 10.200, ρ< 0.05), decision latitude (χ^2= 4.549, ρ< 0.05) and psychological job demand (χ^2= 5.481, ρ< 0.05) were significantly associated with shoulder pain. Social support was also significantly associated with neck pain (χ^2= 8.669, ρ< 0.05) and job insecurity was significantly associated with upper back pain (χ^2= 8.943, ρ< 0.05) and lower back pain (χ^2= 8.951, ρ< 0.05) **Conclusion:** Psychosocial risk factors significantly affect musculoskeletal symptoms. Specific prevention strategies focused on psychosocial risk factors is recommended to minimize the risk of any musculoskeletal complaint.

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LIST OF ACRONYMS AND ABBREVIATIONS

WRMSD	Work- related Musculoskeletal disorders
MSS	Musculoskeletal symptoms
WHO	World Health Organization
HSE	Health Safety Executive

CHAPTER 1

INTRODUCTION

1.1 Introduction

Musculoskeletal symptoms are increasing from among workers globally. Work-related musculoskeletal disorder (WRMSD) is a collective and descriptive term for symptoms caused by work and characterized by discomfort, impairment, disability or persistent pain in joints, muscles, tendons, and other soft tissues, with or without physical manifestations (Kroemer, 1989; Polanyi *et al.,* 1997). World Health Organization(WHO) has characterized "work-related" diseases as multifactorial to indicate that a number of risk factors for example physical, work organizational, psychosocial, individual, and sociocultural contribute to causing these diseases. The Social Security Organization of Malaysia reports that the number of cases involving musculoskeletal injuries is very high at 10 000 per year.

Organizational Mental Healthcare define psychosocial risk factor are elements that impact employees' psychological responses to work and work conditions, potentially causing psychological health problems. Psychosocial risk factors include the way work is carried out such as deadlines, workload, work

methods and the context in which work occurs including relationships and interactions with managers and supervisors, colleagues and coworkers, and clients or customers. The importance of psychosocial factors such as limited work-support from superiors, low mood and poor job satisfaction has also been demonstrated as associated with musculoskeletal complaint in recent years Shift work,long hours at work, and the stress related to managing ill or end-stage patients are some of the suspected sources of stress in this occupation. During the past years, the relationship between psychosocial work environment and musculoskeletal disorders has come increasingly into focus.

In 2006, The European Community Risk Observatory forecasted that the combined exposure to musculoskeletal disorders and psychosocial risk factors are amongst the top ten emerging risks to occupational health and safety. Prevalence of musculoskeletal complaints and their risk factors among nurses have been documented by different studies (Trinkoff *et al.*, 2002; Smith *et al.,* 2003) but the association between these two variables were unclear because of complex linkage and also influenced by other factors.

American Nurses Association defines nursing as the protection, promotion, and optimization of health and abilities; prevention of illness and injury; alleviation of suffering through the diagnosis and treatment of human responses; and advocacy in health care for individuals, families, communities, and populations. Musculoskeletal disorders are common among health care workers, with the nursing population that constitutes about 33% of the hospital workforce at particularly high risk and accounting for 60% of the reported occupational injuries (Stubbs, 1983).

Nurses are one of the highest rates of back and other musculoskeletal injury among all occupations. Epidemiological studies have shown that hospital nursing is a high-risk occupation for developing work-related musculoskeletal disorders. Nurses work in a large variety of specialties where they work independently and as part of a team to assess, plan, implement and evaluate care. Nursing often requires heavy physical work activitiessuch as lifting heavy loads, working in awkward posture, transferring patients and operating hazardous equipment.

1.2 Problem statement

The Health and Safety Executive (HSE) in United Kingdom conducted several worker health surveys between 2002 and 2007 and consistently found musculoskeletal disorders to be the largest contributor to work related illnesses, accounting for between 42% and 58%. This shows the big picture of MSS problems globally. Besides, the problems mostly cause the absenteeism of the workers and reduce the productivity. Thus, it will cost a lot of loss when production and services level reduced. Nursing personnel were the one profession with highest prevalence of musculoskeletal complaint. They have to work according to shift provided and follow the schedule. Nurses are often required to lift heavy loads, work in awkward postures, and transfer patients (Brulin C. *et al,,* 1998). Thus, the profession is known to be a stressful and physically difficult job, causing it to be a high-risk job for MSDs (Feyer *et al.,* 2000; Trinkoff *et al.*, 2002).

Nurses constantly experience a stressful environment because of the complex nature of patient's health problems requiring an extensive use of very sophisticated technology (Robinson & Lewis 1990). Causes of stress also have been briefly explained in study done by Blair and Littlewood which emphasized that work relationship are potential stressors. Two sources of stress in this field are the conflicts with co-workers and the lack of staff support. Thus, indicating the existence of psychosocial risk factors among nurses. In recent years, the complicity of psychosocial factors such as job stress, monotonous tasks, high perceived workload, and time pressure, have also emerged among nurses.(Bongers *et al.,* 2002)

1.3 Study justification

Nursing is one of the most strenuous occupation compare to others (Jensen *et al.,* 1998). They are doing repetitive movement when lifting and handling patient. By continuing on putting pressure on their musculoskeletal part, they will experience some discomfort and pain around that area. Work related musculoskeletal disorders among nurses have been reported to have associations with tasks involved in handling patients, in particular lifting patients, and have been studied from both the physical and ergonomic viewpoints. (Dehlin O.*et al.,* 1976). There were also increasing of psychosocial risk factors among nurses (Jason, D., 1999) Eventhough, there are several study done in order to investigate the problems, still the association were not strong enough and unclear. So, it is hoped that the findings from this study

can help in improving the outcome of similar study. Several recommendation can be proposed to minimize this problems.

1.4 Conceptual framework

Nurses are exposed to occupational risk factors (physical, psychological, chemical, biological) and non-occupational risk factors (socio-demographics factors, personal factors). Psychological risk factors such as psychosocial problem are increasing among nurses due to increase workload, lack of job control, high demand of job, lack of support from supervisor and peer. These may lead to absenteism, stress and burnout. Nurses are the occupational group that give highest complain on musculoskeletal symptoms.

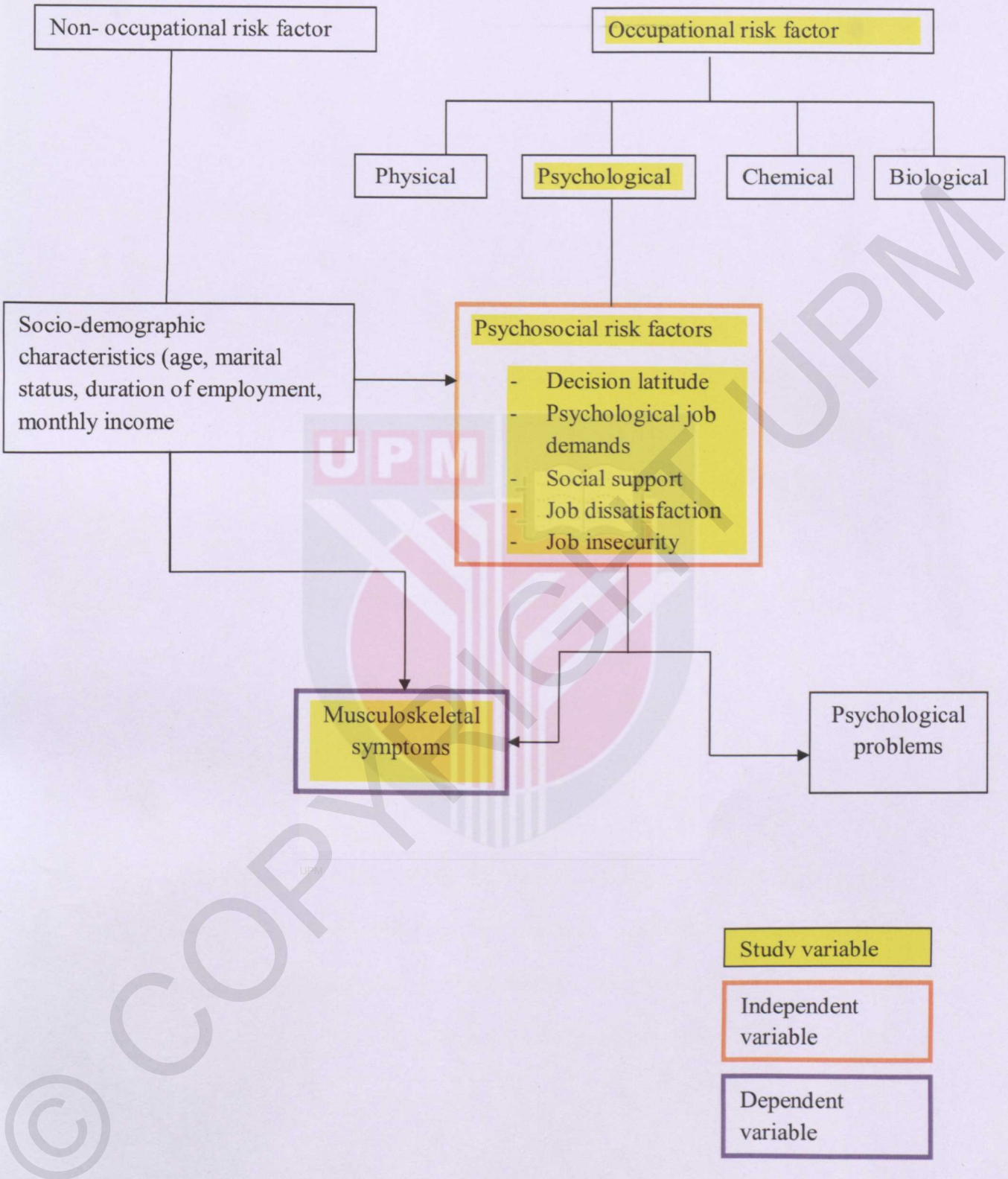

Figure 1: Conceptual Framework

1.5 Definition

1.5.1 Conceptual Definition

Psychosocial risk factors

Psychosocial risk factors refers to individual's perception of the job characteristics which can promote positive feedback such as motivation or satisfaction and stress. (Lanfranchi and Duveau, 2008) .The main emphasis of this model is the psychosocial work environmental,with the occupational environment as the starting point and the cause of health problems. Later social support was added to the demand–control model as a third dimension (Karasek & Theorell, 1990).

Musculoskeletal symptoms

Musculoskeletal symptoms refers to the wide range of inflammatory and degenerative conditions affecting the muscles, tendons, ligaments, joints, peripheral nerves and supporting blood vessels. Musculoskeletal symptoms that were investigated in this study include neck, shoulder, wrist, upper back and lower back pain.

Nurses

A nurse is whom that focused on caring for individuals, families, and communities, ensuring that they attain, maintain, or recover optimal health and functioning. Nurses are capable of assessing, planning, implementing, and evaluating care independently of physicians, and they provide support from basic triage to emergency surgery.

1.5.2 OPERATIONAL DEFINITION

Psychosocial risk factors

Psychosocial risk factors items are to be assessed using validated and nationally standardizable Job Content Questionnaire (JCQ) (Karasek, 1998). The scales include decision latitude, psychological demands, job dissatisfaction and social support and job insecurity.

Musculoskeletal symptoms

Musculoskeletal symptoms will be assessed using modified Nordic Musculoskeletal Questionnaire. The Nordic Musculoskeletal Questionnaire (NMQ) was developed from a project funded by the Nordic Council of Minister.

(Kurionka I *et al.,* 1987). The NMQ used as standardized questionnaire for assessing musculoskeletal symptoms such as low back, neck, shoulder and etc.

Nurses

Nurses including female staff nurses and head nurses from medical and surgical-based wards.

1.6 Research objective

1.6.1 General objective

To determine the association between psychosocial risk factors and musculoskeletal symptoms among nurses in medical and non medical wards at Hospital Sultanah Bahiyah.

1.6.2 Specific objectives

1. To determine the socio-demographics characteristics among nurses in Hospital Sultanah Bahiyah
2. To determine the prevalence of musculoskeletal symptoms among nurses in Hospital Sultanah Bahiyah

3. To determine the psychosocial risk factors among nurses in Hospital Sultanah Bahiyah.
4. To determine association between socio-demographic factors (age, working duration and etc.) and musculoskeletal symptoms among nurses in Hospital Sultanah Bahiyah
5. To determine association betwen socio-demographic factors (age, working duration and etc.) and psychosocial risk factors (psychological job demands, social support, job insecurity, and job dissatisfaction)
6. To determine association between psychosocial risk factors (decision latitude, psychological job demand, social support, job insecurity and job dissatisfaction) and musculoskeletal symptoms among nurses

1.6.3 Study Hypothesis

1. There is an association between socio-demographic factors (age, marital status) and musculoskeletal symptoms among nurses in Hospital Sultanah Bahiyah
2. There is an association between socio-demographic factors and psychosocial risk factors (decision latitude, psychological job demands, social support, job insecurity and job dissatisfaction) among nurses
3. There is an association between psychosocial risk factors (decision latitude, psychological job demands, social support, job insecurity and job dissatisfaction)and musculoskeletal symptoms among nurses

CHAPTER 2

LITERATURE REVIEW

2.1 Nurses

2.1.1 Qualification of Nurses

Nurses that work with Ministry of Health Malaysia must obtain Diploma or Degree in Nursing from any Ministry of Health College, private college or government university. They also must registered with Malaysian Nurses Association. Registered nurses must have strong critical thinking, decision-making, communications, and interpersonal skills. Nurses must be able to accurately assess a patient's condition and needs, develop a solid strategy to care for that patient, and competently perform a wide range of high-level skills. They also must be able to provide non-judgmental care to people of varied cultural backgrounds and be committed to practicing in a safe and ethical manner (Zulkifli, H., 2011)

2.1.2. Categories of nurses

Nurses can be categorized into head nurses and staff nurses. Head nurses are registered nurses and had much experience in nursing compare to staff nurses. They are vital to the successful functioning of a medical facility's nursing unit. Head nurses perform a variety of routine and supervisory functions that affect almost every area of a unit's daily operations. Staff nurse is also a registered nurse. They have opportunity to work as generalists or specialist. As example, they can choose to work in fast-paced, high- tech areas like intensive care unit (ICU) or they can work in general-medical surgical unit (Zulkifli,H.,2011)

2.2 Job Scope of Nurses in hospitals

The role of nurses in health care activities generally include primary, secondary and tertiary. For primary health care activities, include the activities of health promotion, disease prevention and control, treatment and rehabilitation care. (Zulkifli H., 2011). While for secondary and tertiary health care, it involves activities health care in hospital. The nurse should monitor the patient's condition from time to time, record documenting treatment progress and make appropriate action. In order to fulfill their duties and responsibilities, nurses are subject to the Nurses Act 1950, the Midwives

Act 1966, and Code of Professional Conduct for Nursing, policy, regulation and guidelines set out in improving the quality of health care treatment (Zulkifli H.,2011) For secondary and tertiary services, nurses have been providing services in a variety of specialized units, specialties, and sub specialties in hospitals which include following activities:

- Specialized services

  Nurses will cover the field of Emergency, Traumatology, anesthesiology, intensive care, hemodialysis, and others.

- Specialist and sub-specialist services

  These services are designed to produce critical thinkers that can create care treatment using the "Evidence Based Delivery". At present, there are 26 areas of nursing expertise required for these services.

2.3 Musculoskeletal system

Human movement is brought about by the musculoskeletal systems under the control of the nervous system. Musculoskeletal system consists of the skeletal system and the muscular system. The skeletal system consists of the skeleton (bones) and the structures forming the joints between the bones. Skeletal system gives the body its shape and provides supporting framework for other systems. Adult skeletal system normally has 206 bones and more than 200 joints and accounts for between 12% and 15% of total body weight (James, W., 1999). Skeletal, visceral, and cardiac are the three types of muscle tissue.

Visceral muscle is usually considered to be part of the digestive system and cardiovascular system. Cardiac muscle found only in the heart. The muscular system refers only to the skeletal muscle. Each skeletal muscle is attached to the skeleton such that the muscle crosses one or more joints. (James W., 1946, p. 7). Several sub- categories such as the bones, joints, ligament, muscles, skeleton, and spine make up the musculoskeletal system.

2.3.1 Musculoskeletal disorders

2.3.1.1 Definition of musculoskeletal disorders

Musculoskeletal disorders (MSDs) denote health problem of the locomotor apparatus such as muscles, tendon,the skeleton, cartilage, ligaments, nerves or peripheral vascular system. (Europa, OSHA,1998). Musculoskeletal disorders are among the most important occupational health problems in both developed and developing countries (Punnett & Wegman 2004). These disorders affect the quality of life of most people during their lifetime. A disorder is work related when work procedures, equipment, or environment contribute significantly to the cause of disorders. (National Research Council U.S,1998)

2.3.1.2 Risk factors for musculoskeletal disorders

World Health Organization (WHO, 1985) define work – related disorders as multifactorial to indicate the inclusion of physical, organizational, psychological, and sociological risk factors. Work –related musculoskeletal disorders are supposed to be causally linked to physical load resulting from occupational activities.

Disorders or injuries affecting muscles, tendons, joints, ligaments and bones are mainly caused by mechanical overload of the respective biological structures. Physical environmental factors such as unsuitable climatic conditions can interact with mechanical load and aggravate the risk of musculoskeletal disorders.

Another example of environmental factors influencing the musculoskeletal strain is the lighting conditions. If lighting and visual conditions are deficient, muscles For example of physical hazards such as repetitive handling, awkward and static postures, and prolonged standing and sitting. While for organisational and psychosocial factors's examples includes demanding and straining work and lack of recreation times, high time pressure, overtime hours, lack of control over task performed, low levels of autonomy and lack of support from colleagues and supervisors. Besides, individual factors also play role in contributing towards the disorders such as prior medical history, age, obesity, smoking and others. (OSHA Europa)

2.3.1.3 Musculoskeletal disorders symptoms

Pain is the most common symptom associated with musculoskeletal disorders. Besides, there may be joint stiffness, muscle tightness, redness and swelling of the affected area. These disorders may progress in stage from mild to severe. In early stage, aching and tiredness of the affected limb occur during the work shift but disappear at night and during days off work. No reduction of work performance. Then, during intermediate stage, aching and tiredness occur early in the work shift and persist at night. It may also have reduced capacity for repetitive work. Lasty, at the late stage aching, fatigue and weakness persist at rest. The persons might had inability to sleep and to perform light duties (IOSH, UK).Treatment and management of MSDs may apply in several ways such as restriction of movement, application of heat or cold, exercise, and lastly medication and surgery. Therefore, the most effective ways are eliminate or reduce any risk factors involved (IOSH,UK)

2.4 Prevalence of musculoskeletal disorders

Musculoskeletal disorders and symptoms among working people occurs in these major areas such as the low back (Troup and Edwards, 1985), neck and upper limbs (Waris, 1979; Armstrong, *et al.*, 1982; Aptel, *et al.*, 2002).

2.4.1 Neck or shoulder pain

Disorders of the neck are common problems among industrial workers (Hagberg, 2000). According to National Institute of Occupational and Health (NIOSH, 1997), epidemiologic studies have defined neck MSDs in one of two ways, the first being symptoms occurring in the neck (usually with regard to a specific duration, frequency or intensity) or by using both symptoms and physical examination findings.

The occurrence of reported MSDs is generally lower when they are defined using both symptoms and physical examination results as compared to defined using symptoms alone. In another cross sectional study conducted by Ferreira and Saldiva (2002) reported that 54% of the 14 active telemarketing workers had neck/shoulder problems for more than 7 consecutive days. Research done by Baker, *et al.* (2003) found that 57% call centre (telecommunications sector) workers suffer from neck discomfort among the other discomfort experienced. Lei, *et al.* (2004)'s research on Chinese foundry workers in three factories China, showed that 6.2% out of 617 of them suffered from musculoskeletal symptoms on the neck. One of the few researches done on shipyard workers show that within 12 months, 14.6% out of 287 metal workers, 18.3% out of 93 welders and 25.2% out of the 244 other blue collar workers has neck/shoulder pain (Alexopoulos, *et al.,* 2006).

2.4.2 Wrist pain

Musculoskeletal disorders of the wrists/hands can be divided into three categories; carpal tunnel syndrome (CTS), wrist/hand tendinitis and hand-arm vibration syndrome (NIOSH, 1997). In 1999, Zetterberg, *et al.* carried out their investigation on the prevalence of wrist/hand symptoms in male and female car assembly workers. They found in a year, there were 37% of men and 57% women workers who experienced wrist/hand symptoms.

2.4.3 Back pain

Low back pain can be defined as chronic or acute pain of the lumbosacral, buttock, or upper leg region. Sciatic pain refers to pain symptoms that radiate from the back region down one or both legs. Several researchers have done studies pertaining back disorders and low back pain (LBP), (Burdorf and Sorock, 1997; Hoogendoorn, *et al.*, 1999). Back pain may also occur when the muscles joints,bones and connective tiss ues of the back become inflamed as a result of an infection or an immune system problem(Pedretti.L.W.et al, 1996).

From previous study done by Evangelos C. et.al,(2003), they found out that low back pain was the most prevalent musculoskeletal complaint, reported by 75% of the subjects. The high prevalence of low back trouble is

mirrored in the number of lost working days and productivity for the company. In Malaysia, statistics show that 80% of all adults will have at least one episode of back pain in their lifetime. Five of the ten back sufferers will experience recurrent pain within two years. A study done among workers in industries in Selangor, Malaysia found that the prevalence of low back pain was 42.1%. (Singh.J, 1998). Study done by K.G.Rampal (1995), among bus drivers in Malaysia found that the prevalence of back pain among bus express drivers was 50.8%, short distance bus driver was 60.8%, and among office worker was 41.3%.

2.4.4 Prevalence of musculoskeletal symptoms in nurses

Prevalence of low back pain had been found in nurses as well. Smith, *et al.* (2004) found that the highest prevalence of pain as complained by nurses is at the lower back (56.7%), followed by the neck (42.8%), upper back (38.9%) and shoulders (38.9%). The prevalence of MSS at any of the four body sites during previous study was 70%. (Smith, *et al.*,2004). Neck-related MSS were the second most frequently reported symptoms, affecting 45%. This The 12 month period-prevalence of shoulder symptoms in previous research was 40%, MSC of the upper back were reported by 37% of Chinese nurses. The prevalence of back pain was 79.4% (100 of the 126) where back pain was defined as having back pain at least once in the past one year (Rahmah, 2008). Complaints about the back in general were mentioned by 36%; 34% of

the respondents had low back complaints. A comparable proportion of subjects (30%) had arm or neck problems which were mostly located in the shoulder and the neck region.(Josephine A.,1996). Low-back pain was the most prevalent musculoskeletal complaint, reported by 75% of the subjects. Neck and shoulder complaints were less prevalent than back pain, but prevalences of chronic pain complaints were very similar (Alexopoulos.C, 2003).

2.5 Psychosocial risk factors

Psychosocial risk factors are things that may affect workers' psychological response to their work and workplace conditions (including working relationships with supervisors and colleagues). Examples are high workloads, tight deadlines, and lack of control of the work and working methods. Psychosocial risk factors can lead to musculoskeletal disorders. (HSE UK, 2000) Based on Job Content Questionnaire that has been developed by Karasek R., several scales of the risk factors was evaluated to measure the high-demand/low control/low-support model of job strain development. Only job associated psychosocial risk factors will be measured. The demand/control model predicts the stress- related risk and active-passive behavioural correlates of job.

2.5.1 Decision latitude or work control

Decision latitude or work control can be broadly defined as the level of control a worker has over the way they schedule their work, perform their job, and undertake their tasks. If such facets of job are rigid, then the decision latitude is low (Colin, D., & Leonard, O., 2009). Intellectual discretion included the following 4 items: learning new things, high levels of skill, high levels of creativity, and repetitious job. The score variation was from 4 to 16: the lower the score, the less the skill discretion. The index of authority over decisions included the 2 items of questions about influence over what to do and how to perform the work. The score variation was 2 to 8: the lower the score, the less the authority over decisions. (Josephson et.al, 1998).

2.5.2 Psychological job demands

The psychological job demand dimension relates to "how hard workers work" (Meshkati, et. al., 1995), organization constraints on task completion, and conflicting demands. The index for psychological demands included the following 5 items: excessive work, conflicting demands, time to do work, fast work, and hard work. The score variation was 5 to 20: the higher the score, the higher the demands(Josephson et.al, 1998).

2.5.3 Social support

Social support describes a complex process of how an individual draws support from interpersonal relationships, thereby enhancing their ability to cope with problematic situations and to enhance their general happiness derived from feelings of belonging to a community (Colin, D., & Leonard, O., 2009). Social support reflects the organizational climate as well as personal characteristics when seeking support from managers and colleagues. It was confirmed that lack of social support in a workplace, characterized by high levels of stress, might increase the risk of myocardial infarction and stroke (Andre-Petersson, et.al, 2007)

2.5.4 Job insecurity

Work's psychological burden consists not only of the carrying out the task but also in the human costs of adapting to labor market dynamics. These have become increasingly important in the last several years, because the global economy had job-displacing effects in many countries and increased reported job insecurity (Lohr, 1996). The fact that only one fourth of the nurses reported their job as "very satisfying" and as "security is good" suggest that an organizational approach to improving health care delivery and quality of care is critically needed (Lipscomb et al.,2004)

2.5.5 Job satisfaction

Job satisfaction has been defined as the degree of positive affective orientation toward one's job (Blegen & Mueller, 1987). Job satisfaction is related to both the nature of the job and the individual's expectations of the job (Lu, While, & Barriball, 2005). In a literature review, Lu et al.,(2005). found common sources of satisfaction in nursing: working conditions; interactions and relationships with patients, coworkers, and managers; the work itself; self-growth and promotion potential; praise and recognition; control and responsibility; and leadership style. The effects of dissatisfaction were absenteeism, burnout, turnover, and intention to quit. Reported studies suggest a direct link between job dissatisfaction and injuries; however, satisfaction has been shown to be inversely associated with occupational stress and linked to adverse health outcomes (Gray-Toft & Anderson, 1981; Norbeck, 1985; Packard & Motowidlo, 1987)

2.6 Association of psychosocial risk factors and musculoskeletal symptoms

2.6.1 Association of pscyhosocial risk factors and musculoskeletal smyptom based on other occupations

There was lacking of association between decision latitude and MSDs in literature. Study of 973 newspaper workers, employees that claimed

themselves as having low level of participation in job decision making were more likely to report MSDs symptoms of the shoulder. (Bernard, et al., 1994). In a study done among salesperson found that high competition, lack of control over time, and lack of variation, were significantly associated with neck symptoms, low job satisfaction was suggested to be associated with back complaints (Holmstrom E.B., 1992) in the cross-sectional study although null associations were found in surveys among professional drivers and firefighters (Maguusson M.L., 1996; Nuwayhid I.A.,1993). In a prospective study among aircraft workers, the employee's job dissatisfaction was found to be the strongest predictor of subsequent back injury, with a relative risk of 1.70 and an attributable fraction of 41%. Monotony at work and low control on the job was associated with back pain in construction workers (Holmstrom E.B., 1992). Bongers et al., (1993) noted that no studies of back trouble which analysed the effect of demands, control, and social support at the same time. It was also noted that several studies did not control appropriately for physical load. A lack of social support was significantly associated with neck-shoulder complaints in ambulance workers (U. Aasa, 2005), and sewing machine operators (A. Kaergaard and J. H. Andersen, 2000)

2.6.2 Association between psychosocial risk factors and musculoskeletal symptoms among nurses

Nursing aides were noted as one occupational group at high psychosocial health risk,for example cardiovascular disease, decreased performance, depression, and injury because they had high psychological workload, low decision latitude, and little control. They were unable to channel their stress response into an effective coping mechanism (Karasek & Theorell, 1990). Most of the researches have concluded that there is an association between the psychosocial factors with low back pain. (Feyer et al., 2000). Psychosocial risk factors at work such as perceived high pressure on time and workload, low job control, job dissatisfaction, monotonous work, and low support from co-workers and management appear to independently increase the risk of hospitalization for back disorders, with a 3.2 fold increase in a low-control job compared with a high-control job (Julia S., et.al 1995). The assistant nurses, attendants in psychiatric care, home-care workers, and assistants for the mentally retarded were compared with the registered nurses, and the risk estimate for seeking care for low back disorders was 7.2 (Josephson et.al, 1998)

CHAPTER 3

METHODOLOGY

3.1 Study location

The study was conducted at Hospital Sultanah Bahiyah (HSB), Kedah, Malaysia. Hospital Sultanah Bahiyah is a Kedah state hospital and act as a referral or tertiary hospital for 8 government hospital and 11 private hospitals in Kedah state. The hospital was equipped with Total Hospital Information System (THIS) in which the hospital implemented an online patient management system. Until March 2012, the hospital had 870 beds, of which 743 were located in the Hospital Sultanah Bahiyah and the rest is in the Hospital Sultanah Bahiyah Darulaman Highway Branch. The hospital was equipped with 12 operation theatre, 6 surgical day care room and 13 maternity room.

3.2 Study design

This is a cross- sectional study.

3.3 Sampling

3.3.1 Study population

Nurses who work in Hospital Sultanah Bahiyah, Alor Setar,Kedah (HSB). There were a total of 6 wards in HSB, including pediatric, anestesiology, surgery, medical, obstetric and gynecology. There were 30 nurses on average in each wards at any time.

3.3.2 Study sample

Inclusion criteria: Female nurses who work for more than a year.

Exclusion criteria: Pregnant nurses, nurses that have prolonged medical leave or maternal leave and nurses that had been diagnosed with other disease such as injury from accident.

3.3.3 Sampling frame

The nurses's name list

3.3.4 Sampling unit

A nurse who fulfil the criteria.

3.3.5 Sampling method

Simple random sampling was done to select the wards. All wards had the same chance to be selected. Nurses in each selected ward who fulfilled the inclusion criteria were recruited in this study.

3.3.6 Sample size

According to Kirkwood 1989, sample size can be calculated from the below formula;

$N = (P)(Q)/ e^2$

e= Standard error (ρ<0.05); 95% probability

P= Prevalence of musculoskeletal symptoms

Q= 1-P

Based on the study done by Smith., et. al (2004) among Chinese nurses, the 12 month period-prevalence of musculoskeletal symptoms at any of four body regions was 70%. Thus, the sample size of this study:

$N= 0.7(0.3) / (0.05^2)$

$= 84$

By considering 71% of non-response rate, the number of respondents were added up to 143 respondents.

3.4 Instrumentation (Questionnaire)

The questionnaire consists of three parts. The first part of the questionnaire was on the respondent's sociodemographic factors which included age, gender, marital status, years of formal education, working time, and nursing experience. The second part of the questionnaire investigated the musculoskeletal problems. A modified Standardized Nordic questionnaire (Kuorinka *et al.*, 1987) was used to assess the body parts with musculoskeletal disorders and their perceptions on health risks at work. It was translated from English to the Malay language and back translated to English. The Malay version questionnaire was used for better understanding of the respondents. This questionnaire was a standardized and validated questionnaire and widely used in epidemiological studies to assess upper musculoskeletal problems. Only one section will be asked:

Section 1: A general questionnaire of 40 forced-choice items identifying areas of the body causing musculoskeletal problems. Completion is aided by a body map to indicate nine symptom sites being neck, shoulders, upper back, elbows, low back, wrist/hands. (Fig.1) Respondents are asked if they have had any musculoskeletal problem in the last 12 months and last 7 days which has prevented normal activity.

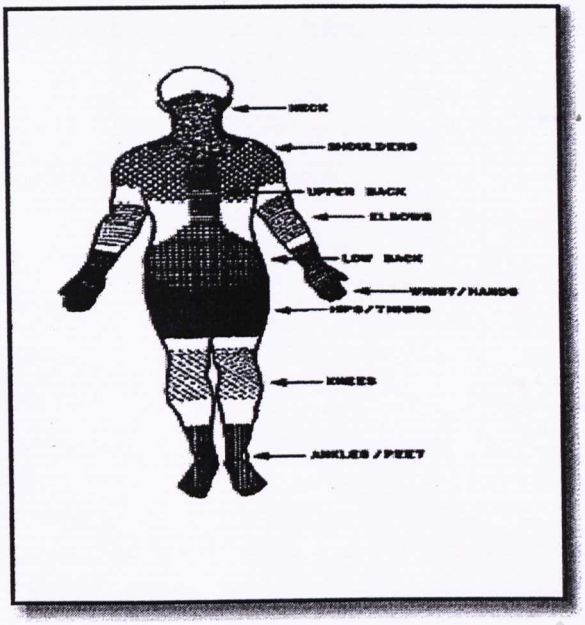

Figure 2: Musculoskeletal and body region

The third instrument was Job Content Questionnaire developed by Karasek. This is a validated questionnaire used to specifically measure the content of a work task. It comprises of 49 questions measuring 5 aspects of the psychosocial work environment which are:

- Decision latitude or job control
- Psychological demands
- Social support
- Job dissatisfaction
- Job insecurity

Each question had four responses which are in Likert- scale; strongly disagree (score of 1), disagree (score of 2), agree (score of 3) and strongly agree (score of 4). The overall score for each scale was then calculated. Median cut-off points were used to categorize the psychosocial risk factors to be "good" and "poor" since they were not

normally distributed. The JCQ has been shown to predict coronary heart disease and jobs with higher risk of stress. The questionnaire was originally derived from the job demand-control model (Karasek,1979) which has been one of the most influential theories is this area.

3.5 Data collection

The questionnaire were distributed and self-administered. The questionnaire will be collected immediately after the session. Before distributing the questionnaires to the eligible respondents, the purpose and objectives of this study was explained to the nurses. Written consent was obtained.

3.6 Quality control

Pre-test for questionnaire of psychosocial factors and musculoskeletal symptoms are conducted among 10% of similar sample population but not to the respondents to determine the understanding of questionnaire. This pre-test were conducted in 2 wards (Intensive care unit and Cardiothoracic) that were not included in this study. Reliability analysis of the questionnaire showed Cronbach alpha coefficient of 0.703.

3.7 Statistical analysis

All data will be analyzed using SPSS 20 Evaluation Version Product. Socio-demographic among nurses were evaluated by descriptive statistic where frequencies, mean, median were determined. The psychosocial risk factors were categorized into 'good/high' and 'poor/low'. Chi-square test was used to determine association between psychosocial risk factors (decision latitude, psychological demands, social support, job insecurity, and job dissatisfaction) and musculoskeletal symptoms.

3.8 Study ethic

Approval was obtained from National Medical Research Register (NMRR) of Ministry of Health (MOH), Malaysia and Medical Research Ethics Committee, Faculty Medicine and Health Sciences, Universiti Putra Malaysia (UPM). Permission was obtained from Director of the Hospital Sultanah Bahiyah. Written consent will be obtained from the respondents prior to the study and all respondents were assured that all personal information will be kept confidential. Permission to use the Malay version of JCQ was obtained from Professor Rusli bin Nordin.

CHAPTER 4

RESULTS

4.1 Socio- demographic distribution

Table 1 shows the socio-demographic characteristics of the nurses in Hospital Sultanah Bahiyah. Out of 148 eligible respondents, 143 of the nurses returned a complete questionnaire giving a response rate of 96.6%. All of the respondents were females. The age range was from 23 to 56 years with mean age of 30.9 (6.7) years. Majority of the respondents come from age range of 20 to 30 years old (64.3%). Majority of the respondents were Malay (96.5%) followed by Chinese (2.1%) and Indian (1.4%). Most of the respondents were married (78.3%). Respondents were from medical based wards (62.9%) and surgical based wards (37.1%). Majority (96.5%) of the nurses had diploma in nursing, while 3.5% had degree in nursing. A total of 134 (93.7%) of them were registered nurses, 9(6.3%) were head nurses. Majority of the nurses had 3 to 7 years working duration (51.0%) and most (62.2%) had income of less than RM2000 monthly.

Table 1: Socio-demography of respondents (N=143)

Variables	Frequency (%)	Mean (SD)	Median (IQR)
Age		30.9(6.7)	29.0 (7)
20-30	92(64.3)		
31-40	38(26.6)		
41-50	8(5.6)		
51-60	5(3.5)		
Race			
Malay	138 (96.5)		
Chinese	2 (1.4)		
India	3 (2.1)		
Marital status			
Single	30 (21)		
Married	112 (78.3)		
Divorce	1(0.7)		
Wards			
Medical based	90 (62.9)		
Non –medical based	53(37.1))		
Education			
Diploma nursing	138 (96.5)		
Degree in nursing	5(3.5)		
Registered nurses	134 (93.7)		
Head nurses	9 (6.3)		
Duration of work (years)		6.11 (5.13)	5.0 (5)
≤2	28 (19.6)		
3-7	73 (51.0)		
8-12	31(21.7)		
≥13	11 (7.7)		
Monthly income		1793.34 (466.33)	1626.00(500)
<2000	89(62.2)		
2000-2999	50(35.0)		
>3000	4(2.8)		
Work duration/day (hours)		8.01(1.21)	8.0 (1)
6-7	67(46.9)		
8-9	45(31.5)		
≥10	31(21.7)		

4.2 Prevalence of musculoskeletal symptoms among nurses

Prevalence of musculoskeletal symptoms at any of the five body sites during this study was 76%. For the occurrence of symptom in previous 12 months, 73(51%) of the respondents encountered neck pain. 80(55.9%) of them experience shoulders pain. 43 (30.1%) complained on wrist pain. 101(70.6%) of respondents complained upper back pain and 83(58%) of them experience low back pain. For complaints of the pains with sickness absence, 62 (43.4%) of respondents that having upper back pain agreed that they had to be absent from work when experience it. 51 (35.7%) of respondents experience shoulder pain also agree on having absent from work. Majority of the respondents did not experience any pain during past 7 days prior to this study.

Table 2: Prevalence of musculoskeletal symptoms among nurse (N=143)

Site of musculoskeletal symptoms	Previous 12 month	Sickness absence	Past 7 days
	N (%)	N (%)	N (%)
Neck	73(51.0)	31(21.7)	29(20.3)
Shoulder	80(55.9)	51(35.7)	41(28.7)
Wrist	43(30.1)	43(30.1)	21(14.7)
Upper back	101(70.6)	62(43.4)	54(37.8)
Lower back	83(58.0)	47(32.9)	50(35.0)
MSS symptoms	380(76.0)		

4.3 Normality and distributions of psychosocial risk factors among nurses

4.3.1 Normality test for psychosocial risk factors scale

Figure 3 show the histogram with normality curve for decision latitude. The Kolmogorov- Smirnov statistic for testing normality is produced with the normal and detrended probability plots. The data is not normally distributed.

Kolmogorov – Smirnov = < 0.01

Shapiro-Wilk = 0.04

Skewness =

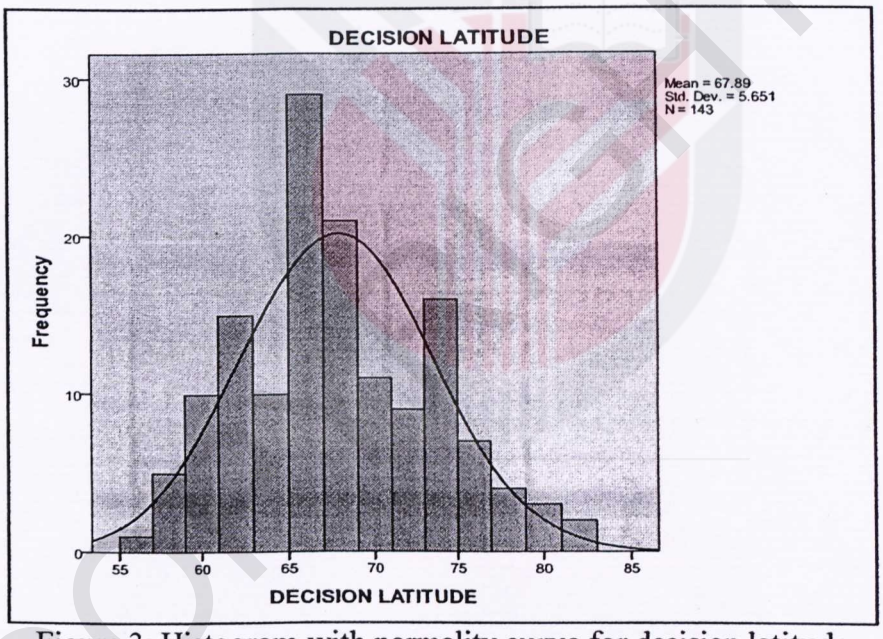

Figure 3: Histogram with normality curve for decision latitude

Figure 4 show the histogram with normality curve for psychological job demands.

It is assumed that the data is not normally distributed.

Kolmogorov – Smirnov = < 0.01

Shapiro-Wilk = 0.04

Skewness = 0.156

Kurtosis = -0.720

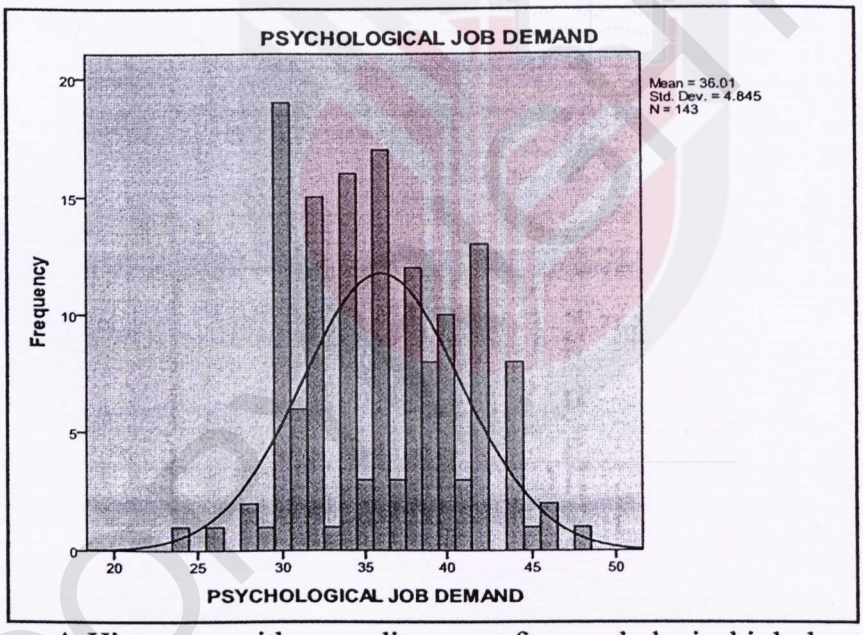

Figure 4: Histogram with normality curve for psychological job demand

Figure 5 shows the histogram with normality curve for social support. The data was not normally distributed.

Kolmogorov – Smirnov = < 0.01

Shapiro-Wilk = 0.04

Skewness = 0.917

Kurtosis = 3.381

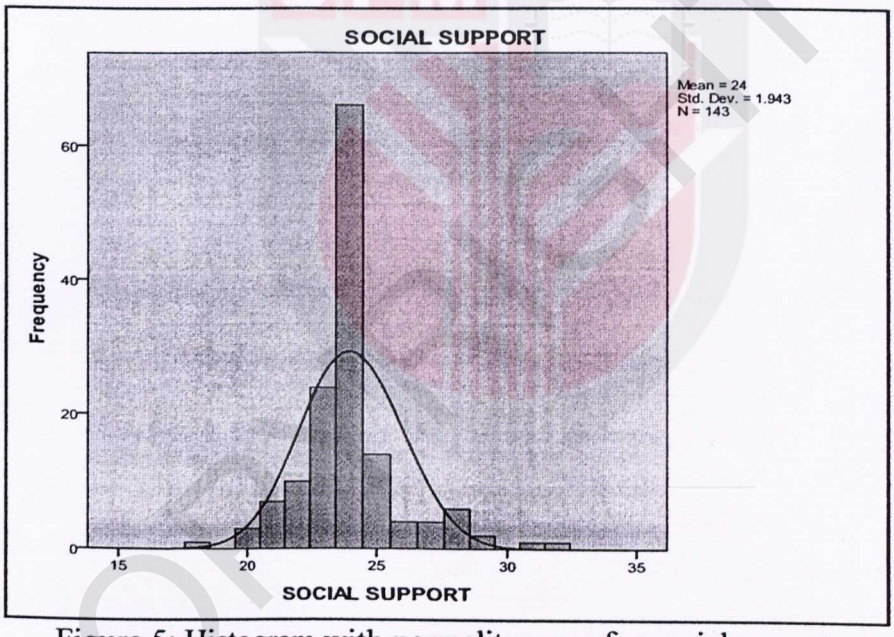

Figure 5: Histogram with normality curve for social support

Figure 6 show the histogram with normality curve for job insecurity. The data is not normally distributed.

Kolmogorov- Smirnov; < 0.05.

Shapiro- Wilk; < 0.05.

Skewness = 0.371

Kurtosis = -0.215

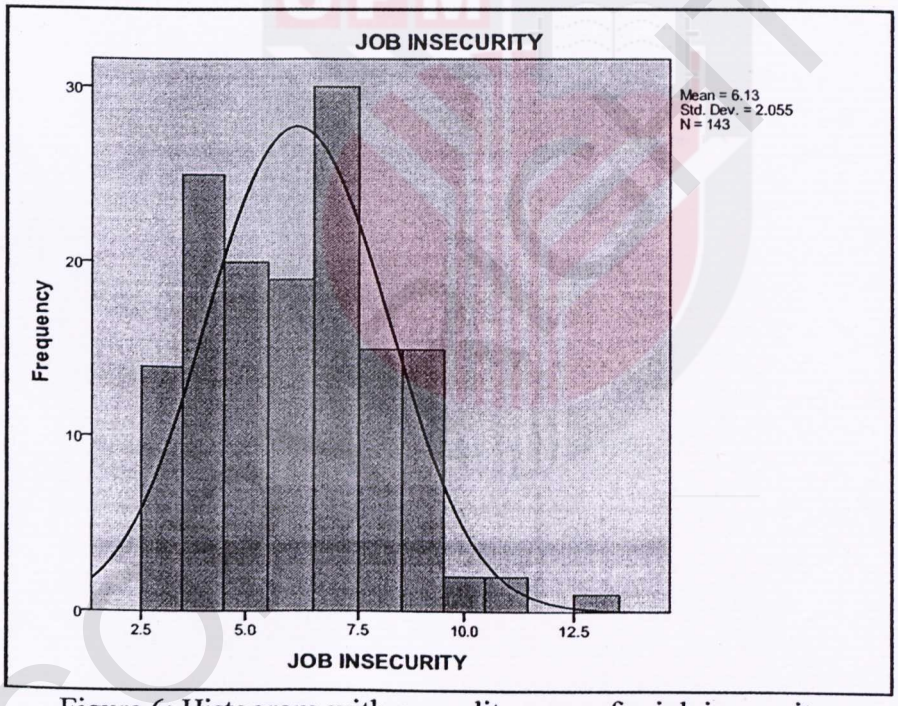

Figure 6: Histogram with normality curve for job insecurity.

Figure 7 show the histogram with normality curve for job dissatisfaction. The data is not normally distributed.

Kolmogorov- Smirnov; < 0.05

Shapiro- Wilk; < 0.05

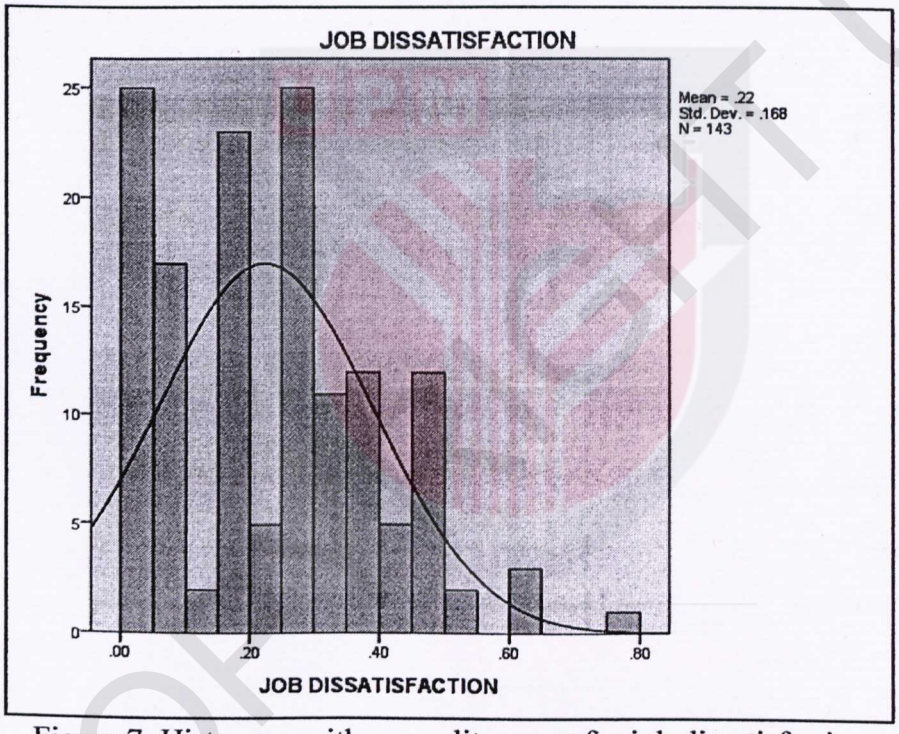

Figure 7: Histogram with normality curve for job dissatisfaction

4.3.2 Distribution of psychosocial risk factors among nurses

Table 3 show the distribution of psychosocial risk factors items which are decision latitude, psychological job demand, social support, job insecurity and job dissatisfaction among nurses that were evaluated using Job Content Questionnaire. Scores for decision latitude among the respondents are from 56 to 82 with the mean and median of 67.89(5.651) and 68 respectively. For psychological job demand, score ranged from 24 to 48, the mean 36.01 (4.845) and median is 36. Social support scores ranges from 18 to 32 with the mean of 24.00(1.943) and median is 24. Respectively, for job insecurity, the scores ranged from 3 to 13. The mean and median is 6.13(2.055) and 6 respectively. Job dissatisfaction scores were within 0.00-0.078.The mean and median was 0.22(0.1677) and 0.2 respectively.

Table 3: Distribution of psychosocial risk factors among nurses (N=143)

Psychosocial job factor	Mean(SD)	Median	Range
Decision latitude	67.89 (5.65)	68.00	56-82
Psychological job demand	36.01(4.845)	36.00	24-48
Social support	24.00(1.943)	24.00	18-32
Job insecurity	6.13 (2.055)	6.00	3-13
Job dissatisfaction	0.22(0.168)	0.20	0-0.78

Table 4 shows the psychosocial risk factors categorization. Decision latitude, psychological job demands and social support were categorized into good and poor based on median scores as cut-off point. Ninety one (63.6%) respondents had good decision latitude while 52(36.4%) of them had poor decision latitude while 82(57.3%) of the respondents experienced good psychological job demand. Majority (77.6%) had good social support.

Table 4: Psychosocial risk factors among nurses

Psychosocial risk factors	Good N (%)	Poor N (%)	Total
Decision latitude	91(63.6)	52(36.4)	143
Psychological job demand	82(57.3)	61(42.7)	143
Social support	111(77.6)	32(22.4)	143

Table 5 shows the level of job insecurity and job dissatisfaction among the respondents. The respondent's level of job insecurity were high (54.5%) and the level of job dissatisfaction also high (50.3%).

Table 5: Level of job insecurity and job dissatisfaction

Psychosocial risk factors	High N (%)	Low N (%)	Total
Job insecurity	78(54.5)	65(45.5)	143
Job dissatisfaction	72(50.3)	71(49.7)	143

4.4 Association between socio-demographic factors and musculoskeletal symptoms

Table 6 shows the Chi-square test between socio-demographic factors and neck pain among nurses. There was no significant association was found. Table 7 shows the association betwen socio-demographic factors and shoulder pain among nurses. Monthly income was significantly associated with shoulder pain. (χ^2=10.886, ρ<0.05). Table 8 shows the association between socio-demographic factors and wrist pain. Working duration as nurses (years) was significantly associated with wrist pain (χ^2 = 8.894, ρ<0.05). Table 9 shows the association between socio-demographic factors with upper back pain. However, there was no significant association found. Table 10 shows the socio-demographic factors and low back pain. Type of wards was significantly associated with low back pain (χ^2= 17.233,ρ<0.05).

Table 6: Socio-demography characteristics and neck pain

Variables	Neck			
	Yes	No	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	46(32.2)	46(32.2)	0.743	NS
31-40	20(14)	18(12.6)		
41-50	5(3.5)	3(2.1)		
51-60	2(1.4)	3(2.1)		
Wards				
Medical based	41(28.7)	49(34.3)	2.932	NS
Surgical based	32(22.4)	21(14.7)		
Duration of work (years)				
≤2	12(8.4)	16(11.2)	2.195	NS
3-7	37(25.9)	36(25.2)		
8-12	19(13.3)	12(8.4)		
≥13	5(3.5)	6(4.2)		
Monthly income (RM)				
<2000	53(37.1)	55(38.5)	5.436	NS
2000-2999	19(13.3)	10(7.0)		
>3000	1(0.7)	5(3.5)		
Work duration/day (hours)				
6-7	28(19.6)	39(27.3)	4.742	NS
8-9	28(19.6)	17(11.9)		
≥10	17(11.9)	14(9.8)		

*χ^2 test, level of significance, $\rho<0.05$

Table 7: Socio-demography characteristics and shoulder pain

Variables	Shoulder			
	Yes	No	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	52(36.4)	40(28.0)	7.236	NS
31-40	25(17.5)	13(9.1)		
41-50	2(1.4)	6(4.2)		
51-60	1(1.3)	4(6.3)		
Wards				
Medical based	43(30.1)	47(32.9)	3.826	NS
Surgical based	37(25.8)	16(11.2)		
Duration of work (years)				
≤2	15(10.4)	13(28)	6.412	NS
3-7	38(26.6)	35(24.5)		
8-12	23(16.1)	8(5.6)		
≥13	4(2.8)	7(4.9)		
Monthly income (RM)				
<2000	59(41.3)	49(34.3)	10.884	0.004*
2000-2999	21(14.7)	8(5.6)		
>3000	0(0)	7(4.9)		
Work duration/day (hours)				
6-7	36(25.2)	31(21.7)	1.182	NS
8-9	24(16.8)	21(14.7)		
≥10	20(14)	11(7.7)		

*χ^2 test, level of significance, ρ<0.05

Table 8: Socio-demography characteristic and wrist pain

Variables	Wrist			
	Yes	No	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	25(17.5)	67(92)	2.154	NS
31-40	12(8.4)	26 (18.2)		
41-50	4(2.8)	4(2.8)		
51-60	2(1.4)	3(2.1)		
Wards				
Medical based	28(19.6)	62(43.4)	0.125	NS
Surgical based	15(10.5)	38(26.6)		
Duration of work (years)				
≤2	6(4.2)	22(15.4)	8.894	0.031
3-7	18(12.6)	55(38.5)		
8-12	16(11.2)	15(10.5)		
≥13	3(2.1)	8(5.6)		
Monthly income (RM)				
<2000	28(19.6)	80(55.9)	5.966	NS
2000-2999	14(9.8)	15(10.5)		
>3000	1(0.7)	5(3.5)		
Work duration/day (hours)				
6-7	15(10.5)	52(36.4)	3.584	NS
8-9	17(11.9)	28(19.6)		
≥10	11(7.7)	20(14.0)		

*χ^2 test, level of significance, $\rho<0.05$

Table 9: Socio-demography characteristic and upper back pain

Variables	Upper Back			
	Yes	No	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	63(44.1)	29(20.3)	2.000	NS
31-40	30(21)	8(5.6)		
41-50	5(3.5)	3(2.1)		
51-60	3(2.1)	2(1.4)		
Wards				
Medical based	60(42)	30(21)	1.838	NS
Surgical based	41(28.7)	12(8.4)		
Duration of work (years)				
≤2	17(11.9)	11(7.7)	6.880	NS
3-7	48(33.6)	25(17.5)		
8-12	27(18.9)	4(2.8)		
≥13	9(6.3)	2(1.4)		
Monthly income (RM)				
<2000	75(52.4)	33(23.1)	0.501	NS
2000-2999	22(15.4)	7(4.9)		
>3000	4(2.8)	2(1.4)		
Work duration/day (hours)				
6-7	48(33.6)	19(13.3)	0.750	NS
8-9	33(23.1)	12(8.4)		
≥10	20(14)	11(7.7)		

*χ^2 test, level of significance, $\rho<0.05$

Table 10: Socio-demography characteristics and low back pain

Variables	Lower Back			
	Yes	No	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	52(36.4)	40(28)	1.229	NS
31-40	24(16.8)	14(9.8)		
41-50	5(3.5)	3(2.1)		
51-60	2(1.4)	3(2.1)		
Wards				
Medical based	50(35)	40(28)	**17.223**	**0.001***
Surgical based	33(23.1)	20(14)		
Duration of work (years)				
≤2	13(9.1)	15(10.5)	4.743	NS
3-7	41(28.7)	32(22.4)		
8-12	20(14.0)	11 (7.7)		
≥13	9(6.3)	2(1.4)		
Monthly income (RM)				
<2000	62(43.4)	46(32.2)	2.187	NS
2000-2999	19(13.3)	10(7.0)		
>3000	2(1.4)	4(2.8)		
Work duration/day (hours)				
6-7	35(24.5)	32(22.4)	1.818	NS
8-9	29(20.3)	16(11.2)		
≥10	19(13.3)	12(8.4)		

*χ^2 test, level of significance, $\rho<0.05$

4.5 Associations between socio-demographic factors and psychosocial risk factors among nurses

Table 11 shows the association between socio- demographic factors and psychological job demand. There was no significant association found. Table 12 shows the association between socio-demographic factors and social support. Type of wards was significantly associated with social support (χ^2= 11.084, ρ <0.05). Table 13 shows the association between socio-demographic factors and job insecurity. Type of wards also was significantly associated with job insecurity (χ^2= 8.943, ρ <0.05). Table 14 shows the association between socio-demographic and job dissatisfaction. Type of wards also had significant association with job dissatisfaction (χ^2= 8.951, ρ <0.05).

Table 11: Socio-demography characteristics and psychological job demands (N=143)

Variables	Psychological job demand			
	Good	Poor	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	54(37.8)	38(26.6)	2.473	NS
31-40	21(14.7)	17(11.9)		
41-50	3(2.1)	5(3.5)		
51-60	4(2.8)	1(0.7)		
Wards				
Medical based	55(38.5)	35(24.5)	1.509	NS
Surgical based	27(18.9)	26(18.2)		
Duration of work (years)				
≤2	18(12.6)	10(7.0)	1.676	NS
3-7	43(30.1)	30(21.0)		
8-12	15(10.5)	16(11.2)		
≥13	6(4.2)	5(3.5)		
Monthly income (RM)				
<2000	58(40.6)	50(35.0)	2.400	NS
2000-2999	20(14.0)	9(6.3)		
>3000	4(2.8)	2(1.4)		
Work duration/day (hours)				
6-7	41(28.7)	26(18.2)	2.417	NS
8-9	27(18.9)	18(12.6)		
≥10	14(9.8)	17(11.9)		

*χ^2 test, level of significance, ρ<0.05

Table 12: Socio-demographic characteristics and social support (N=143)

Variables	Social support			
	Good	Poor	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	71(49.7)	21(14.7)	2.907	NS
31-40	32(22.4)	6(4.2)		
41-50	5(3.5)	3(2.1)		
51-60	3(2.1)	2(1.4)		
Wards				
Medical based	66(46.2)	24(16.8)	11.084	0.011*
Surgical based	45(31.5)	8(5.6)		
Duration of work (years)				
≤2	21(14.7)	7(4.9)	0.232	NS
3-7	57(39.9)	16(11.2)		
8-12	24(16.8)	7(4.9)		
≥13	9(6.3)	2(1.4)		
Monthly income (RM)				
<2000	83(58.0)	25(17.5)	3.903	NS
2000-2999	25(17.5)	4(2.8)		
>3000	3(2.1)	3(2.1)		
Work duration/day (hours)				
6-7	53(37.1)	14(9.8)	1.880	NS
8-9	32(22.4)	13(9.1)		
≥10	26(18.2)	5(3.5)		

*χ^2 test, level of significance, $\rho<0.05$

Table 13: Socio-demography characteristics and job insecurity(N=143)

Variables	Job insecurity			
	High	Low	χ^2	ρ
	N(%)	N(%)		
Age				
20-30	46(32.2)	46(32.2)	2.725	NS
31-40	23(16.1)	15(10.5)		
41-50	6(4.2)	2(1.4)		
51-60	3(2.1)	2(1.4)		
Wards				
Medical based	50(35.0)	40(28.0)	8.943	0.03*
Surgical based	28(19.6)	25(17.5)		
Duration of work (years)				
≤2	18(12.6)	10(7.0)	3.822	NS
3-7	35(24.5)	38(26.6)		
8-12	17(11.9)	14(9.8)		
≥13	8(5.6)	3(2.1)		
Monthly income (RM)				
<2000	61(42.7)	47(32.9)	1.623	NS
2000-2999	13(9.1)	16(11.2)		
>3000	4(2.8)	2(1.4)		
Work duration/day (hours)				
6-7	34(23.8)	33(23.1)	2.782	NS
8-9	23(16.1)	22(15.4)		
≥10	21(14.7)	10(7.0)		

*χ^2 test, level of significance, ρ<0.05

Table 14: Socio-demography characteristic and job dissatisfaction (N=143)

Variables	Job dissatisfaction			
	High	Low	χ^2	ρ
	N (%)	N (%)		
Age				
20-30	44(30.8)	48(33.6)	1.314	NS
31-40	22(15.4)	16(11.2)		
41-50	4(2.8)	4(2.8)		
51-60	2(1.4)	3(2.1)		
Wards				
Medical based	42(29.4)	48(33.6)	8.951	0.03*
Surgical based	30(21.0)	23(16.1)		
Duration of work (years)				
≤2	14(9.8)	14(9.8)	0.13	NS
3-7	37(25.9)	36(25.2)		
8-12	15(10.5)	16(11.2)		
≥13	6(4.2)	5(3.5)		
Monthly income (RM)				
<2000	53(37.1)	55(38.5)	0.340	NS
2000-2999	16(11.2)	13(9.1)		
>3000	3(2.1)	3(2.1)		
Work duration/day (hours)				
6-7	32(22.4)	35(24.5)	0.440	NS
8-9	23(16.1)	22(15.4)		
≥10	17(11.9)	14(9.8)		

*χ^2 test, level of significance, ρ<0.05

4.6 Psychosocial risk factors and musculoskeletal symptoms among nurses

Table 15 shows the association between decision latitude and musculoskeletal symptoms among nurses. There was significant association between decision latitude and shoulder pain (χ^2= 4.549, ρ <0.05). Table 16 shows the association between psychological job demands and musculoskeletal symptoms. Psychological job demands were significantly associated with shoulder pain (χ^2= 5.481, ρ <0.05). Table 17 shows the association between social support and musculoskeletal symptoms. Social support was significantly associated with neck pain (χ^2= 8.669, ρ <0.05) and shoulder pain (χ^2= 10.200, ρ <0.05). Table 18 shows the association between job insecurity and musculoskeletal symptoms. Upper back pain (χ^2= 6.836, ρ <0.05) and low back pains (χ^2= 4.557, ρ <0.05) were significantly associated with job insecurity.

Table 15: Decision latitude and musculoskeletal symptoms (N=143)

Body parts		Decision latitude			
		Good N (%)	Poor N (%)	χ^2	ρ
Neck	Yes	50(35.0)	23(16.1)	1.520	0.218
	No	41(28.7)	29(20.3)		
Shoulder	Yes	57(39.9)	23(16.1)	4.549	0.033*
	No	34(23.8)	29(20.3)		
Wrist	Yes	25(17.5)	18(12.6)	0.803	0.370
	No	66(46.2)	34(23.8)		
Upper back	Yes	66(46.2)	35(24.5)	0.435	0.510
	No	25(17.5)	17(11.9)		
Low back	Yes	51(35.7)	32(22.4)	0.410	0.522
	No	40(28.0)	20(14.0)		

*χ^2 test, level of significance, $\rho<0.05$

Table 16: Psychological job demand and musculoskeletal symptom (N=143)

Body parts		Psychological job demand			
		Good N (%)	Poor N (%)	χ^2	ρ
Neck	Yes	42(29.4)	31(21.7)	0.002	0.962
	No	40(28.0)	30(21.0)		
Shoulder	Yes	39(27.3)	41(28.7)	5.481	0.019*
	No	43(30.1)	20(14.0)		
Wrist	Yes	27(18.9)	16(11.2)	0.746	0.388
	No	55(38.5)	45(31.5)		
Upper back	Yes	58(40.6)	43(30.1)	0.001	0.975
	No	24(16.8)	18(12.6)		
Low back	Yes	44(30.8)	39(27.3)	1.517	0.218
	No	38(26.6)	22(15.4)		

*χ^2 test, level of significance, $\rho<0.05$

Table 17: Social support and musculoskeletal symptom (N=143)

Body parts		Social support			
		Good N (%)	Poor N (%)	χ^2	*P*
Neck	Yes	64(44.8)	9(6.3)	8.669	0.003*
	No	47(32.9)	23(16.1)		
Shoulder	Yes	70(49.0)	10(7.0)	10.200	0.001*
	No	41(28.7)	22(15.4)		
Wrist	Yes	32(22.4)	11(7.7)	0.363	0.547
	No	79(55.2)	21(14.7)		
Upper back	Yes	82(57.3)	19(13.3)	2.517	0.113
	No	29(20.3)	13(9.1)		
Low back	Yes	69(48.3)	14(9.8)	3.458	0.063
	No	42(29.4)	18(12.6)		

*χ^2 test, level of significance, $\rho<0.05$

Table 18: Job insecurity and musculoskeletal symptom (N=143)

Body parts		Job insecurity			
		Good N (%)	Poor N (%)	χ^2	ρ
Neck	Yes	37(25.9)	36(25.2)	0.896	0.344
	No	41(28.7)	29(20.3)		
Shoulder	Yes	38(26.6)	42(29.4)	3.636	0.057
	No	40(28.0)	23(16.1)		
Wrist	Yes	19(13.3)	24(16.8)	2.662	0.103
	No	59(41.3)	41(28.7)		
Upper back	Yes	48(33.6)	53(37.1)	6.836	0.009*
	No	30(21.0)	12(8.4)		
Low back	Yes	39(27.3)	44(30.8)	4.557	0.033*
	No	39(27.3)	21(14.7)		

*χ^2 test, level of significance, $\rho<0.05$

Table 19: Job dissatisfaction and musculoskeletal symptom (N=143)

Body parts		Job dissatisfaction			
		Good N (%)	Poor N (%)	χ^2	ρ
Neck	Yes	35(24.5)	38(26.6)	0.345	0.557
	No	37(25.9)	33(23.1)		
Shoulder	Yes	35(24.5)	45(31.5)	3.164	0.075
	No	37(25.9)	26(18.2)		
Wrist	Yes	18(12.6)	25(17.5)	1.773	0.183
	No	54(37.8)	46(32.2)		
Upper back	Yes	48(33.6)	53(37.1)	0.098	0.754
	No	30(21.0)	12(8.4)		
Low back	Yes	39(27.3)	44(30.8)	0.005	0.943
	No	39(27.3)	21(14.7)		

*χ^2 test, level of significance, $\rho<0.05$

CHAPTER 5

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Response rate

The response rate among nurses was 96.6%. This is higher than other studies on similar population groups, using the same methodology, which reported rates of 72.6 % (Smith et al., 2003), 75.1% (Smith et al., 2006), and 84% (Evangelos et al., 2003). The response rate was very good because although the nurses had multiple tasks and were fully occupied in the wards, they gave their full cooperation as this study was approved by the hospital director.

5.2 Prevalence of musculoskeletal symptoms among nurses

The prevalence of MSS any body site during this study was 76%, which is higher than previous research done among Chinese nurses (70%) (Smith et. al., 2004) but lower compare to previous Sweden study (Josephson et. al.,1997) In this cross-sectional study, the prevalence of musculoskeletal symptoms among nurses was highest in the upper back (70.6%), lower back (58%), and shoulder (55.9%). The

occurrence of musculoskeletal complaints among nursing personnel was associated with work-related physical load, which seem to reflect the many activities in nursing practice that may lead to musculoskeletal disorders.This outcome were similar to the study done by Daraiseh et al., (2003) who stated that the three highest prevalence rates of musculoskeletal disorders (MSDs) among nurses were found in the neck, shoulders and back region, followed by the upper back, hands/wrist and knee/lower legs. MSD of upper back in this study was higher (70.6%) than the findings from the study in Sweden which was only 30% (Josephson et al.,1993) and the study of Asian nurses conducted in China that showed 37% (Smith et al., 2006). Occupational back injury is clearly related to lifting and repeated activities. Persons in occupations that require lifting such as nursing are especially at risk. (Lagerstorm et al., 1998)

However, prevalence of low back pain among nurses (58%) was lower compared to study done in Japan which showed prevalence of low back pain of 71.3% (Smith et.al, 2006) and study by Rahmah et.al, (2008) who stated that the prevalence of low back pain is 79.4%. However, research in Hong Kong showed that low back pain may affect between 40.6% (Yip,2001) of Asian nurses, which was lower than our finding. This could be due to lumbar region received high pressure when the nurses manually handling. (Hoogendoorn et al., 1999)

Besides, prevalence rate of shoulder pain is lower in this study rather than the study done by Derek et.al, (2004) which they reported that shoulder-related MSD was the most frequently reported symptom among Japanese nurses, affecting almost three-quarters of them over the past year (71.9%). Nurses who undertook regular manual handling of patients had a 2.07 times higher risk of shoulder MSD, a 2.59

times higher LBP risk, and an 11.97 times higher risk of MSD at any body site, when compared to their colleagues who did not undertake manual handling.(Smith et.al., 2006). MSD prevalence of neck in this study is lower than MSD of the neck among Japanese nurses (54.7%) (Smith et.al, 2004). Lagerstorm et.al., (1995) state that working in a medical or a geriatric ward (physically strenuous types of wards) and age were interacting factors for severe neck symptoms.

5.3 Distribution of psyschosocial risk factors among nurses

In this study, we assessed the psychosocial risk factors that can contribute to musculoskeletal problems among nurses. There were five scale that will be evaluated which are decision latitude, psychological demands, social support, job insecurity and job dissatisfaction.

We found that most of the nurses had good decision latitude (63.6%) because they don't have problems in decision making. They did not rely on higher management to make any decision. Their opinion also been heard by the higher management. Nurses also have high job demands (57.3%). In a survey of more than 43,000 nursing personnel in five countries, 17–39 percent planned to leave their job in the next year due to physical and psychological demands (Aiken et.al., 2001).

They also have very good social support (77.6%). These result is against from study done by Josephson et.al, who found that the nurses have low social support. In our

study, all nurses and head nurses are in very good relationship and they maintain their professionalism at workplace. Nurses in our study have high job insecurity (54.5%), and high job dissatisfaction (50.3%). The reasons behind this findings are because the nurses feel insecure and have thought on being fired from the jobs.

Improvement in instrumental communication throughout the organization could enhance nurses' satisfaction (Davidson et al., 1997). In addition, Adams and Bond (2000) showed that the perceptions of nurses of the balance between number of available staff, skill mix, care organization (i.e. roster) and the ward's workload also has a major influence on their job satisfaction. Study done by Isabella, et.al (2004) found that high psychological demands were reported by more than 66% of nurses, low decision latitude by 49% of the nurses, a combination of these two factors by more than one-third of nurses (35%), and low social support by half (52%) of the nurses.

5.4 Socio-demographic characteristics and musculoskeletal symptoms among nurses

In this study, there was no association found between age and musculoskeletal symptoms. The result is similar to studies Yip (2001) and Smith et al., (2002) who pointed out that age, height, weight and body mass index (BMI), and workplace items of weekly hours, total years and bedside work did not significantly affect the

prevalence rates of MSDs among nurses. These findings are further supported by findings by Feng et al., (2007) who found that personal factors, such as age, gender, and smoking were not significant risk factors for musculoskeletal symptoms among nursing staff. This is because most of the respondents in this study were young nurses. They were more energetic, healthy and mostly did not experience any illness compared to the older ones. They were newly, trained and probably practiced safe working habits in the hospitals.

By contrast, findings Derek et al., (2002) and Yip (2001) showed that they did not find any relationship between prevalence of MSDs and demographic characteristics. It was found that shoulder pain was significantly associated with monthly income. The nurses that gain monthly income less than RM2000 mostly complaining on the shoulder symptoms (41.3%). This could be due to most (62.2%) of the nurses in this study were newly appointed or junior nurses (monthly income less than RM2000) who did most of the manual jobs in the wards. A study reported that the nurses experienced shoulder pain because they had to do physical activity such as assist patients to mobilise using a walking stick, move patients around in a wheelchair, bed and wash or dress patient while they are on bed, this will increase risk for shoulder pain (Julia S. et.al, 2002).

Our findings also reported that the working duration was significantly associated to wrist pain. This finding contradicts with other studies that found no association between musculoskeletal symptoms with working duration (Alexopoulos et.al, 2003). Nurses who worked for 2 to 3 years complained of wrist pain. This maybe due desk work and working on the computer.

In our findings, we also observed the association between low back pain with type of wards (medical-based and surgical-based) (χ^2= 17.223; ρ <0.05) . This finding is in line with other study (Kee & Sun, 2007) who stated that nurses in those wards had to transfer, move, and lift patients who are sometimes heavy or obese patients, and have to reposition patients. These were found to be an extremely hazardous job that had substantial risk of causing low back injury even with one or two patient handlers (Marras et.al., 1999). But this statement differ in other study that stated high rates of MSDs prevalence rates in medical and surgical ward might be due to administrative control issues. (Kee & Sun, 2007)

5.5 Socio-demographic characteristics and psychosocial risk factors among nurses

In this study, only type of wards were significant with social support, (χ^2= 11.084, ρ <0.05) job insecurity, (χ^2= 8.943, ρ <0.05) and job dissatisfaction (χ^2= 8.951, ρ <0.05).

There were no specific findings on the association between wards and psychosocial risk factors of interest. It should be noted that the stress level and stressing factors for nurses working in different wards are different. The difference is attributed to the variability in the working condition and responsibilities of nurses. Study finding by Daraiesh et al., (2003) indicated that work satisfaction was

positively associated with socio organizational stimuli and negatively associated with socio-organizational demands.

On the other hand, work dissatisfaction was negatively associated with socio-organizational stimuli and positively associated with socio-organizational demands. In a study carried out by Kennedy et al., (1997), there were some evidences that creating supportive and enabling work environment for nursing staff is a way of finding solution to the problem of stress and burnout associated with their duties. He found that nurses who perceived their work as supportive were more satisfied with their jobs and in their ability to provide high quality patient care.

5.6 Psychosocial risk factors and musculoskeletal symptoms among nurses

Our findings in this study showed that job insecurity was significantly associated with upper and low back pain. This differ from the study done by Marcuss and Gerr, (1996) whereby they can relate the association between neck or shoulder pain with job insecurity instead. These findings was against with the study done by Rahmah et al., (2008),who found no association between any psychosocial risk factors and back pain.

However, they found that psychosocial factors showed prevalence of back pain is higher in those who have work dissatisfaction, low support from colleague and employer eventhough they were not statistically significant. We also found that

the social support was associated with neck pain. Studies on working populations reported strong associations between poor social support and risk for neck and back pain (Toomingas et.al,1997; Linton, 1990).

From our study, decision latitude, psychological job demand, and social support were significantly associated with shoulder pain. This findings is in line with study done by Lipscomb et al. (2002) who found a significant association between demanding schedule and MSDs in the neck, shoulder, and back. Study done by Lagerstorm et al., (1995) among female nursing also found the association between high job demand, poor stimulation and poor control at work with shoulder pain. This result also similar with the findings by Ahlberg et al., (1993) that found a positive association between poor support and shoulder pain. Mehrdad et al., (2010) found that there were statistically significant relationships between psychosocial risk factors and neck, wrist/hand, upper back, and foot symptoms.

In general, four plausible types of explanations have been suggested to account for associations between work-related psychosocial factors and MSDs (Bergqvist 1984; Bongers et al. 1993; Bernard et al. 1993; Sauter and Swanson 1996; Sauter et al. 1983; Ursin et al. 1988). First, psychosocial demands may produce increased muscle tension and exacerbate task-related biomechanical strain. Second, psychosocial demands may affect awareness and reporting of musculoskeletal symptoms, and/or perceptions of their cause. Within this second explanation may fall the "perverse incentive" view, in which societies may provide workers with systems (such as workers' compensation) that may lead to overreporting of MSD symptoms (Frank et al. 1995). Third, initial episodes of pain based on a physical insult may

trigger a chronic nervous system dysfunction, physiological as well as psychological, which perpetuates a chronic pain process. Finally, in some work situations, changes in psychosocial demands may be associated with changes in physical demands and biomechanical stresses, and thus associations between psychosocial demands and MSDs occur through either a causal or effect-modifying relationship.

5.7 Study limitation

This is a cross –sectional study. It is difficult to determine whether the outcome followed exposure in time or exposure resulted from the outcome. Recall bias might happen where the respondents might forget the musculoskeletal symptoms that she already experienced. Respondents might gave false or wrong information during answering questionnaire, thus it will cause information bias. Reviews of work process were not included in this study, therefore physical work factors that can cause musculoskeletal symptoms could not be assessed objectively. This study only limited to female nurses because there are limited male nurses, so the result cannot be representative and generalized to the nurses' population. This study was done at one hospital only. So, the result cannot represent for the whole Malaysia.

RECOMMENDATION

Specific intervention programmes must be done to reduce the increase of musculoskeletal symptoms among nurses. Several prevention strategies focused on the psychosocial risk factors is recommended to minimize the risk of any musculoskeletal complaint. Hospital administration may promote on good ergonomics practise in order to prevent any occurence of musculoskeletal complaints. Intervention program that should include an organizational policy aimed at reducing injuries associated with patient handling. Social support should be improved through activities such as team building, recreational activities, peer group activities and other activities related. Specific ergonomics intervention can be done to reduce any musculoskeletal discomfort among nurses.

Further longitudinal study should be done among nurses in different types of wards at several hospital in multiple regions of Malaysia. Sample size of nurses should be add up in order to make the result be generalized to whole populations. Rather than using questionnaire-based instruments, it is best to introduced other methodology such as simpler observational techniques. These techniques have been developed for systematically recording workplace exposure to be assessed by an observer and recorded on pro-forma sheets. Some permit only postural assessments of various body segments to be made, but the majority assess several critical physical exposure factors. Several examples are OWAS, Rula, NIOSH Lifting Equipment, OCRA, REBA and etc. For advanced observational techniques include range of video-based observational techniques that is developed for the assessment of postural variation for highly dynamic activities. Some examples of these techniques include

video analysis, ROTA, and etc. Lastly, direct methods that rely on sensors that are attached directly to the subjects for the measurement of exposure variables at work. Well known method is EMG that synchronize recording and computerized analysis of myoelectrical activity. This can be used to estimate muscle tension and evaluate local muscle fatigue that relies on changes in the spectral characteristics.

CONCLUSION

This study showed that prevalence of musculoskeletal symptoms among nurses was high. Psychosocial risk factors such as decision latitude, psychological job demand, social support and job insecurity significantly affect musculoskeletal symptoms. Other significantly associated risk factors were monthly income, working duration, and type of wards.

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NATIONAL INSTITUTES OF HEALTH APPROVAL FOR CONDUCTING RESEARCH IN THE MINISTRY OF HEALTH MALAYSIA

PENGESAHAN INSTITUSI PENYELIDIKAN NEGARA UNTUK MENJALANKAN PENYELIDIKAN DI KEMENTERIAN KESIHATAN

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Unique NMRR Registration ID : *[Nombor Pendaftaran]*	NMRR-11-1090-10185
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Protocol Number if available : *[Nombor Protokol jika ada]*	10185

#	**Investigator Name** *[Name Penyelidik]*	**Institution Name** *[Nama Institusi]*
1	SITI MASTURA BINTI BALYA	

I have reviewed the above titled research, and approve of its design and conduct.

Saya telah menyemak kajian yang bertajuk seperti di atas dan meluluskan rekabentuk dan perlaksanaannya.

Name of Director : *[Nama Pengarah]*	Dr. Tahir Aris
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FAKULTI PERUBATAN DAN SAINS KESIHATAN
FACULTY OF MEDICINE AND HEALTH SCIENCES
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA

PENERANGAN KEPADA RESPONDEN

TAJUK KAJIAN: PERKAITAN ANTARA PSIKOSOSIAL FAKTOR RISIKO DAN SAKIT BELAKANG BAHAGIAN BAWAH DI KALANGAN JURURAWAT DI HOSPITAL SULTANAH BAHIYAH

PENGENALAN

Kajian ini dijalankan untuk menyelidik sama ada terdapat perkaitan atau tidak antara faktor risiko yang dikaji serta kesan kesihatan yang timbul iaitu sakit belakang bahagian bawah di kalangan jururawat. Psikososial faktor risiko merupakan salah satu faktor yang dapat menyumbang kepada sakit otot di kalangan pekerja yang melakukan kerja – kerja berat dan berulang-ulang. Faktor risiko ini merupakan elemen yang memberi kesan psikologi terhadap kerja dan keadaannya serta berpotensi untuk menyebabkan masalah kesihatan yang berkaitan.

Apakah yang harus dilakukan?

Responden hanya akan diberi borang soal-selidik untuk diisi dan ianya cuma mengambil masa selama 5-10 minit.

Berapa ramai jururawat yang terlibat?

Seramai 140 orang jururawat akan dipilih secara rawak untuk menjadi respondan bagi kajian ini.

Apakah faedah kajian ini kepada responden?

Hasil kajian ini akan diterangkan dan jika ada perkaitan antara faktor risiko yang dikaji dan sakit belakang, maka beberapa langkah pencegahan akan dicadangkan untuk mengurangkan masalah ini.

Adakah terdapat sebarang risiko jika saya menyertai kajian ini?

Tidak akan ada sebarang risiko untuk anda jika anda menjadi responden. Semua maklumat yang diberi akan digunakan untuk tujuan kajian sahaja dan dijamin sulit.

TERIMA KASIH ATAS KERJASAMA ANDA, JIKA MEMPUNYAI SEBARANG PERTANYAAN,

SILA HUBUNGI:

SITI MASTURA BT BALYA

017 -4337499

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FAKULTI PERUBATAN DAN SAINS KESIHATAN
FACULTY OF MEDICINE AND HEALTH SCIENCES
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA

BORANG PERAKUAN (RESPONDEN)

PENYELIDIK : SITI MASTURA BINTI BALYA

Saya.....K/P....., dengan ini bersetuju untuk menyertai kajian soal selidik ini.

Saya telah dimaklumkan mengenai kajian ini dari segi objektif dan metodologi. Saya faham bahawa saya mempunyai hak untuk menarik diri dari kajian ini pada bila – bila masa tanpa sebarang sebab dan alasan. Saya juga faham bahawa maklumat yang diberikan untuk kajian ini akan kekal sulit.

Saya ingin tahu/tidak ingin tahu* hasil kajian ini.
*potong yang tidak berkenaan

Tandatangan ..... Tandatangan .....
(*Responden*) (*Saksi*)

Tandatangan :..... Nama :.....

No. K/P. :.....

Saya mengesahkan bahawa saya telah menerangkan kepada responden tentang kajian ini.

Tarikh ..... Tandatangan .....
(Penyelidik)

No Siri:

JABATAN KESIHATAN KOMUNITI
FAKULTI PERUBATAN DAN SAINS KESIHATAN
UNIVERSITI PUTRA MALAYSIA

PERKAITAN ANTARA PSIKOSOSIAL FAKTOR RISIKO DAN SAKIT BELAKANG BAHAGIAN BAWAH DI KALANGAN JURURAWAT DI HOSPITAL SULTANAH BAHIYAH

Adalah dimaklumkan bahawa satu kajian tentang hubungkait di antara psikososial risiko faktor dan sakit belakang bahagian bawah di kalangan jururawat. Sehubungan dengan itu, sukacita dimaklumkan bahawa anda telah terpilih untuk menjadi salah seorang responden kajian ini. Oleh demikian, anda diminta menjawab semua soalan yang dikemukakan dengan mengikut arahan yang telah diberikan. Segala maklumat berkenaan responden akan dirahsiakan dan hanya akan digunakan untuk kajian ini.

Responden ID:

Tarikh kajian:

BAHAGIAN 1 (A): SOSIODEMOGRAFI DAN PEKERJAAN

Bil.	Soalan	Kegunaan pejabat	
		Kod	Jawapan
1.	Umur _____tahun	B1	
	Jantina: 1. Lelaki 2. Perempuan	B2	
	Bangsa: 1. Melayu 2. Cina 3. India 4. Siam 5. Lain-lain	B3	
	Status perkahwinan: 1. Bujang 2. Berkahwin 3. Bercerai/Berpisah 4. Duda/Janda (pasangan meninggal dunia)	B4	

Bil.	Soalan	Kegunaan pejabat	
		Kod	Jawapan
	Bilangan ahli keluarga yang tinggal serumah dengan anda: _____ orang. Nyatakan pertalian: _____	B5a B5b	
	Bilangan anak: _____ orang. Bilangan ahli keluarga yang ditanggung: _____ orang.	B6a B6b	
	Tahap pendidikan tertinggi: 1. Sekolah menengah rendah (SRP) 2. SPM/STPM 3. Diploma kejururawatan 4. Ijazah	B7	

2.	Apakah gelaran jawatan anda sekarang? (Berikan dengan tepat) _____	B8	
	Berapa lamakah anda memegang jawatan ini? _____ (tahun/bulan/hari)	B9	
	Pendapatan bulanan (gaji hakiki): RM_____ Pendapatan bulanan (gaji hakiki + elaun): RM_____	B10a B10b	
	Tempoh bekerja dalam sehari _____ jam Berapa shift sehari? ____	B11	
	Nyatakan tempoh keseluruhan anda telah bekerja: _____ tahun	B12	

BAGI SOALAN DI BAWAH, SILA TANDAKAN JAWAPAN YANG PALING HAMPIR

BAHAGIAN 1 (B): PSIKOSOSIAL

		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
3.	Pekerjaan saya memerlukan saya mempelajari perkara baru ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju(4)	Q3	
4.	Pekerjaan saya melibatkan kerja yang berulang-ulang. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q4	
5.	Pekerjaan saya memerlukan kreativiti. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q5	
6.	Pekerjaan saya membenarkan saya membuat keputusan sendiri. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q6	
7.	Pekerjaan saya memerlukan kemahiran yang tinggi.	Q7	

	☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)		
8.	Dalam pekerjaan, saya bebas menetukan bagaimana hendak melaksanakan tugas saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q8	
9.	Semasa bekerja, saya berupaya melakukan pelbagai perkara yang berbeza-beza. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q9	
		Kegunaan pejabat	

Bil.	Soalan	Kod	Jawapan
10.	Saya mempunyai hak untuk menentukan pekerjaan saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q10	
11.	Saya berpeluang untuk mengembangkan kebolehan saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q11	
12.	Berapa ramai orang bertugas dalam kumpulan atau unit anda? ☐ Saya kerja berseorangan (1) ☐ 2-5 orang (3) ☐ 6-10 orang (8) ☐ 10-20 orang (15) ☐ lebih 20 orang (30)	Q12	
13. A	Saya cukup berpengaruh ke atas keputusan dalam kumpulan kerja saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q13A	
13. B	Jabatan/unit saya membuat keputusan secara demokrasi. ☐ Saya kerja berseorangan (8) ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q13B	
14.	Saya mempunyai peluang untuk cadangan saya yang berkaitan	Q14	

	dengan dasar jabatan dipertimbangkan (seperti urusan berkaitan gaji, pemecatan pekerja, pembelian latan baru, dll) ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)		
15.	Sebahagian daripada kerja saya ialah menyelia orang lain. ☐ Tidak (1) ☐ Ya, 1-4 orang (2) ☐ Ya, 5-10 orang (3) ☐ Ya, 11-20 orang (4) ☐ Ya, lebih 20 orang (5)	Q15	
		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
16.	Saya adalah ahli persatuan atau kesatuan pekerja. ☐ Tidak (1) ☐ Ya (2)	Q16	
17.	Kesatuan kerja saya mempunyai pengaruh besar terhadap polisi jabatan. ☐ Bukan ahli kesatuan (8) ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q17	
18.	Saya mempunyai pengaruh terhadap polisi kesatuan atau persatuan pekerja. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q18	
19.	Pekerjaan saya memerlukan saya bekerja dengan sangat pantas. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q19	
20.	Pekerjaan saya memerlukan saya bekerja keras. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q20	
21.	Pekerjaan saya memelukan kekuatan fizikal yang banyak.	Q21	

	☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)		
22.	Saya tidak diminta untuk melakukan kerja-kerja secara berlebihan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q22	
23.	Saya mempunyai masa yang cukup untuk menyudahkan kerja saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q23	

		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
24.	Pekerjaan saya sering memerlukan saya mengalih atau mengangkat benda-benda yang berat. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q24	
25.	Pekerjaan saya memerlukan aktiviti fizikal yang cepat dan berterusan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q25	
26.	Saya bebas daripada tekanan-tekanan yang berbeza (conflicting demands) yang dibuat oleh orang lain. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q26	
30.	Saya sering bekerja dengan kedudukan tubuh saya yang tidak selesa dalam jangkamasa yang lama. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q30	

Kegunaan pejabat

Bil.	Soalan	Kod	Jawapan
31.	Saya terpaksa bekerja untuk suatu jangkamasa yang lama dalam kedudukan kepala atau lengan saya yang tidak selesa. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q31	
33.	Berapa stabilkah kerja anda? (Sila pilih satu jawapan sahaja) ☐ Tetap dan stabil (1) ☐ Bermusim (4) ☐ Kerap tergendala (4) ☐ Bermusim dan kerap tergendala (4) ☐ Lain-lain _____ (9)	Q33	
34.	Pekerjaan saya dijamin baik. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q34	
35.	Dalam tempoh setahun lepas, berapa kerap anda berdepan dengan masalah kehilangan pekerjaan atau kerja-kerja yang sering tergendala? ☐ Tidak pernah ☐ Sekali ☐ Lebih daripada sekali ☐ Sentiasa ☐ Sememangnya diberhentikan	Q35	
36.	Kadangkala seseorang itu hilang pekerjaan tetap mereka. Adakah kemungkinan anda akan kehilangan pekerjaan anda sekarang dalam beberapa tahun lagi? ☐ Tidak mungkin sama sekali (1) ☐ Ada sedikit kemungkinan (2) ☐ Ada kemungkinan (3) ☐ Kemungkinan besar (4)	Q36	
		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan

37.	Harapan saya untuk dinaikkan pangkat dan mempertingkatkan kerjaya saya adalah cerah. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q37	
38.	Kemahiran saya masih lagi berguna dalam tempoh lima tahun. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q38	
39.	Adakah anda mempunyai masalah pendedahan kepada bahan kimia yang merbahaya semasa bekerja? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q39	
40.	Adakah anda mempunyai masalah pendedahan kepada pencemaran udara akibat habuk, asap, bahan semburan, fiber atau sebagainya semasa bekerja? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q40	
41.	Adakah anda menghadapi masalah terdedah kepada bahan yang diletak atau disimpan secara berbahaya semasa bekerja? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q41	
42.	Adakah anda menghadapi masalah terdedah kepada kawasan yang kotor atau tidak terjaga di tempat kerja anda? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q42	

		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
43.	Adakah anda menghadapi risiko untuk mendapat penyakit semasa bekerja? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q43	
44.	Adakah anda mempunyai masalah berdepan dengan peralatan, kelengkapan atau mesin yang merbahaya? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q44	
45.	Adakah anda menghadapi masalah terdedah kepada kebakaran, melecur atau renjatan ("shock")? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q45	
46.	Semasa bekerja, berapa kuatkah anda perlu bercakap supaya suara anda didengari oleh seseorang yang berada bersebelahan dengan anda? ☐ Berbisik ☐ Suara yang biasa ☐ Suara yang kuat ☐ Menjerit	Q46	
47.	Adakah anda terdedah kepada carakerja yang merbahaya semasa bekerja? ☐ Tidak terdedah (0) ☐ Saya terdedah tetapi ia merupakan masalah kecil (1) ☐ Saya terdedah dan ia merupakan masalah besar (2)	Q47	
48.	Majikan saya mengambil berat mengenai kebajikan orang bawahannya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q48	

		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
49.	Majikan saya memberikan perhatian terhadap apa yang saya katakan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q49	
50.	Saya terdedah kepada kemarahan atau percanggahan pendapat dengan majikan saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q50	
51.	Majikan saya memberi bantuan dalam memastikan kerja-kerja dapat disiapkan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q51	
52.	Majikan saya berjaya mengajak orang lain bekerja bersama-sama. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q52	
53.	Rakan-rakan sekerja saya berkemampuan dalam melakukan kerja mereka. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q53	
54.	Rakan-rakan sekerja mengambil berat tentang saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q54	
55.	Saya terdedah kepada kemarahan dan percanggahan pendapat dengan mereka yang bekerja dengan saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q55	

56.	Rakan-rakan sekerja saya adalah peramah. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q56	
		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
57.	Rakan-rakan sekerja saya sering memberi galakan antara satu sama lain untuk bekerjasama. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q57	
58.	Rakan-rakan sekerja saya membantu bagi memastikan kerja-kerja disiapkan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q58	
59.	Saya sering mendapat maklum balas langsung atau sebaliknya mengenai perasaan pekerja lain terhadap perkhidmatan yang saya berikan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q59	
60.	Saya sering mengenali pekerja lain secara peribadi semasa bertugas. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q60	
61.	Bagaimanapun, pekerja lain dapat mempengaruhi khidmat yang saya hasilkan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q61	
62.	Saya boleh mempengaruhi apa yang pekerja lain mahu. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q62	
63.	Keputusan pekerja lain merupakan cabaran utama bagi tugas saya. ☐ Sangat ☐ Tidak ☐ Setuju (3) ☐ Sangat	Q63	

	tidak setuju (1) setuju (2) setuju (4)		

		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
64.	Saya terdedah kepada kemarahan atau cemuhan pekerja lain. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q64	
65.	Pengetahuan saya tentang kepuasan pekerja lain merupakan punca utama saya merasa penting dan berguna dalam melaksanakan tugas saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q65	
66.	Unit/kumpulan kerja saya memberikan sumbangan yang penting kepada masyarakat. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q66	
67.	Saya dihormati dan diberikan ganjaran yang sewajarnya oleh majikan untuk kerja-kerja yang saya lakukan. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q67	
68.	Kebolehan dan kemahiran saya adalah amat penting bagi unit/kumpulan kerja saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q68	
69.	Saya mendapat maklumat atau maklumbalas tentang prestasi kerja saya daripada majikan saya. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q69	
70.	Saya menghasilkan keseluruhan perkhidmatan semasa bertugas-yakni sumbangan saya terhadap keluaran perkhidmatan tersebut	Q70	

	dapat dilihat dengan jelas. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)		
		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
71.	Saya mendapat maklumat atau maklumbalas berkenaan prestasi kerja saya daripada rakan-rakan sekerja. ☐ Sangat tidak setuju (1) ☐ Tidak setuju (2) ☐ Setuju (3) ☐ Sangat setuju (4)	Q71	

BAHAGIAN II: TEKANAN PSIKOLOGI & TEKANAN FIZIKAL

Bil.	Soalan	Kegunaan pejabat	
		Kod	Jawapan
1.	Adakah anda berpuas hati dengan pekerjaan anda? ☐ Tidak sama sekali (1) ☐ Tidak begitu berpuas hati (2) ☐ Agak berpuas hati (3) ☐ Sangat berpuas hati (4)	V1	
2.	Adakah anda akan menasihati rakan anda untuk bekerja seperti anda? ☐ Menasihati 'Jangan' (1) ☐ Agak ragu-ragu (3) ☐ Mencadangkan dengan bersungguh-sungguh (5)	V2	
3.	Adakah anda mahu melakukan kerja ini lagi ☐ Dengan penuh kerelaan (1) ☐ Memikirkannya semula (3) ☐ Tidak sama sekali (5)	V3	
4.	Apakah kemungkinan anda akan mencari kerja baru di tahun hadapan? ☐ Sangat berkemungkinan (1) ☐ Agak mungkin (3) ☐ Tidak mungkin sama sekali (5)	V4	

Bil.	Soalan	Kegunaan pejabat	
		Kod	Jawapan
5.	Apakah pekerjaan anda sekarang ini serupa dengan apa yang anda pohon dahulu? ☐ Sangat serupa (1) ☐ Agak serupa (3) ☐ Tidak serupa sama sekali (5)	V5	

DALAM TEMPOH 12 BULAN LEPAS, ADAKAH ANDA MENGALAMI PERKARA-PERKARA SEPERTI MANA BERIKUT:

		Kegunaan pejabat	
Bil.	Soalan	Kod	Jawapan
6.	Adakah anda mengalami masalah sakit leher? Ya ☐ Tidak ☐	V6	
7.	Adakah masalah sakit leher ini menghalang anda daripada melakukan kerja (rumah atau tempat kerja)? Ya ☐ Tidak ☐	V7	
8.	Adakah masalah sakit leher ini mengganggu anda pada bila – bila masa 7 hari lalu? Ya ☐ Tidak ☐	V8	
9.	Adakah anda mengalami masalah (sakit, ketidakselesaan) bahu? Ya ☐ Tidak ☐	V9	
10.	Adakah masalah sakit bahu ini menghalang anda daripada melakukan kerja (rumah atau tempat kerja)? Ya ☐ Tidak ☐	V10	
11.	Adakah masalah sakit bahu ini mengganggu anda pada bila – bila masa 7 hari lalu? Ya ☐ Tidak ☐	V11	
12.	Adakah anda mengalami sakit di bahagian pergelangan tangan? Ya ☐ Tidak ☐	V12	
13.	Adakah sakit di bahagian pergelangan tangan ini menghalang anda dari melakukan aktiviti/kerja seharian? Ya ☐ Tidak ☐	V13	
14.	Adakah masalah sakit di bahagian pergelangan tangan ini mengganggu anda pada bila – bila masa 7 hari lalu? Ya ☐ Tidak ☐	V14	
15.	Adakah anda pernah mengalami sakit di bahagian atas belakang? Ya ☐ Tidak ☐	V15	
16.	Adakah sakit bahagian atas belakang ini menghalang anda daripada melakukan aktiviti harian(di rumah atau tempat kerja) Ya ☐ Tidak ☐	V16	

17.	Adakah sakit belakang ini mengganggu anda pada bila-bila masa 7 hari lalu? Ya ☐ Tidak ☐	V17	
18.	Adakah anda mengalami sakit di bahagian bawah belakang? Ya ☐ Tidak ☐	V18	
19.	Adakah sakit di bahagian bawah belakang ini menghalang anda dari melakukan aktiviti harian(kerja atau di rumah)? Ya ☐ Tidak ☐	V19	
20.	Adakah sakit di bahagian bawah belakang ini mengganggu anda pada bila – bila masa 7 hari lalu? Ya ☐ Tidak ☐	V20	