

Work-related Musculoskeletal Disorders in Nurses (Pictorial Essay)

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ABSTRACT

Introduction

Musculoskeletal disorders (MSD) include a wide range of inflammatory and degenerative conditions affecting the muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels. Body regions most commonly involved are the low back, neck, shoulder, forearm, and hand, although recently the lower extremity has received more attention (Figure 1). Musculoskeletal disorders are one of the most important occupational injuries [1]. The term work-related Musculoskeletal Disorders (WMSD) refer to a large group of inflammatory and destructive

diseases that affect muscles, ligaments, tendons, joints, intervertebral discs, nerves, and blood vessels (Figure 2).

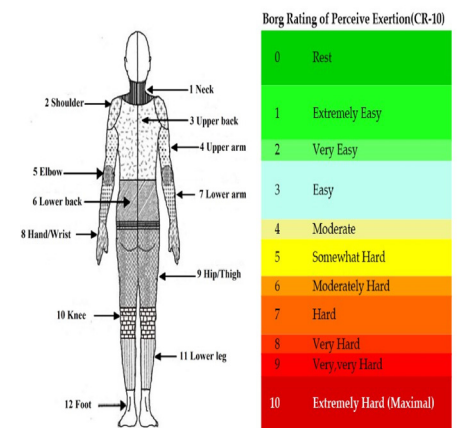


Figure 1) Body regions most commonly involved in the musculoskeletal disorders

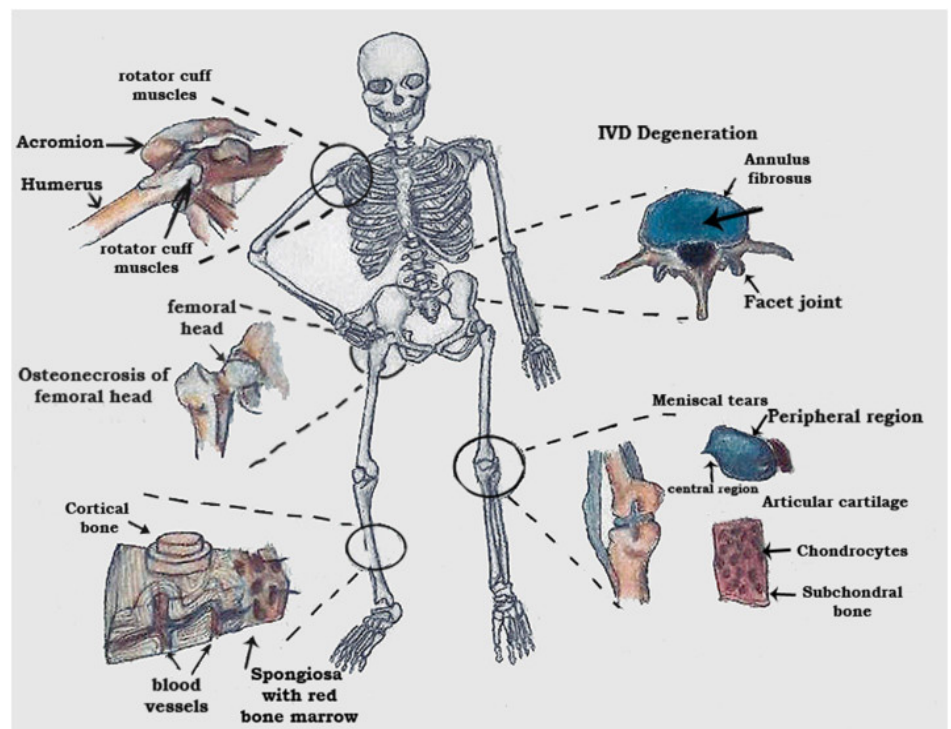


Figure 2) Muscles, ligaments, and other areas involved in musculoskeletal disorders

One of the most common MSD is Back Pain (LBP). Low back pain is a major problem in all countries of the world (Figure 3).



Figure 3) Low back pain: Common musculoskeletal disorders

Suggestions to prevent or reduce WMSDs

- Workplace design based on ergonomic principles (Figure 4)
- Education
- Identify risk factors (Figure 5)
- Design and implementation of ergonomic intervention programs (Figure 6)
- Changes in incorrect management policies and compliance with international standards (Figure 7)
- Reducing of stress (Figure 8)
- Educate managers in this regard and gain their support (Figure 9)
- Implement organizational self-care programs

(Figure 10)

- Make protective laws
- Use of standard and auxiliary tools (Figure 11)
- Compliance with the principles of ergonomics (Figure 12)
- The proportion of the number of nurses to the patient(Figure 13)
- Daily exercise program for nurses and staff (Figure 14)

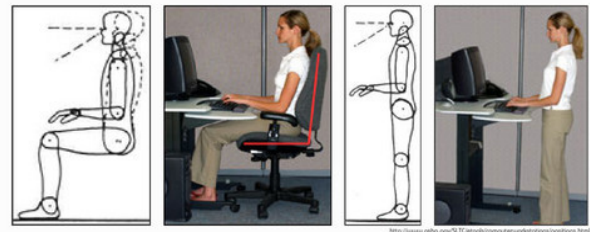


Figure 4) Workplace design based on ergonomic principles

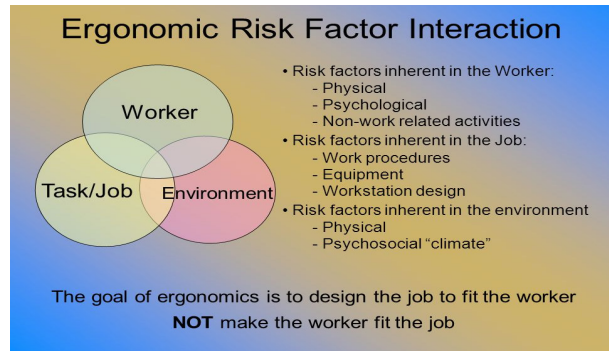


Figure 5) Identify risk factors

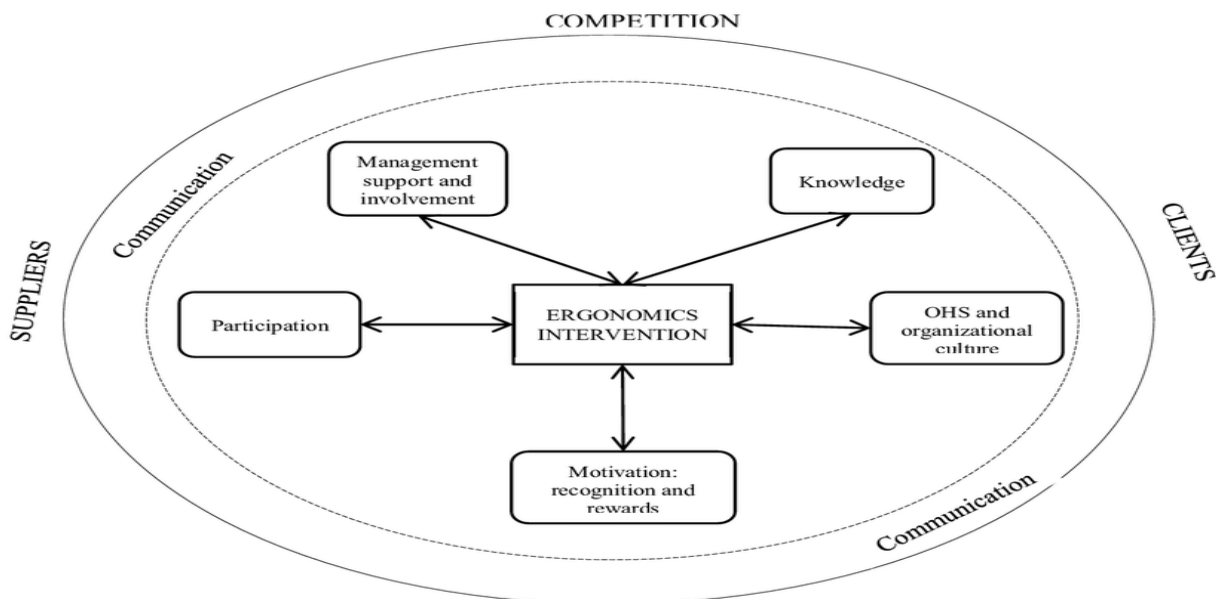


Figure 6) Design and implementation of ergonomic intervention programs

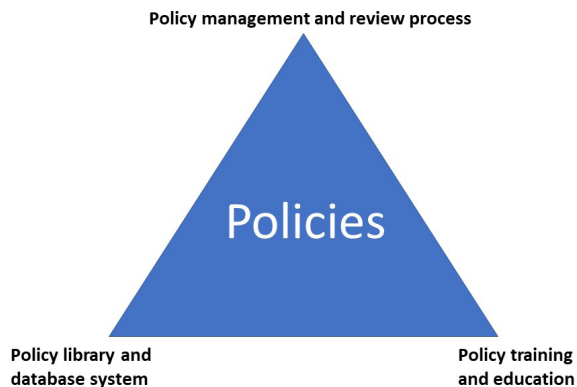


Figure 7) Changes in incorrect management policies and compliance with international standards



Figure 8) Reducing of stress



Figure 9) Educate managers in this regard and gain their support



Figure 10) Implement organizational self-care programs



Figure 11) Use of standard and auxiliary tools



Figure 12) Compliance with the principles of ergonomics



Figure 13) The proportion of the number of nurses to the patient

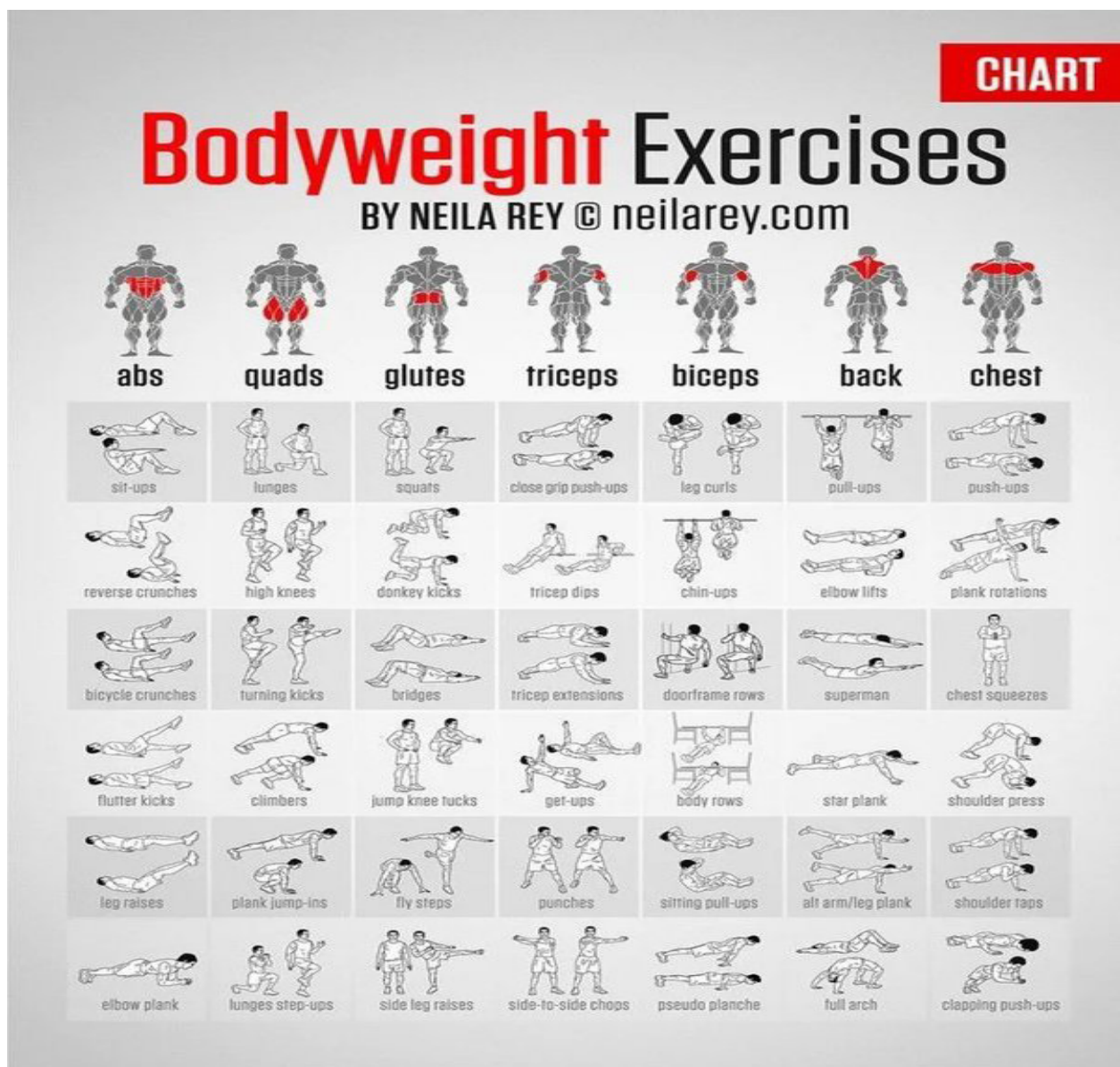


Figure 14) Daily exercise program for nurses and staff

Discussion

Work-related Musculoskeletal Disorders (WMSDs) are impairments of the musculoskeletal system, primarily caused by the performance of work tasks and the direct environment in which work is carried out [1]. Repetitive movements, awkward postures as well as continuous and excessive use of force might overload the musculoskeletal system, enhancing the risk of developing WMSDs [2]. Furthermore, psychosocial risk factors such as job related stress, lack of support from colleagues or managers, high

mental workload and lack of recognition for the work done, are reason the development of WMSDs [3]. These disorders are among the most important occupational problems among health service providers [4]. According to the estimate of the International Labor Organization (ILO), about 160 million work-related diseases occur in the world every year, which is the highest recorded statistic related to musculoskeletal injuries. Work-related injuries may cause problems such as job loss, work restrictions, fatigue, burnout, or eventually changing jobs [5]. As

well, musculoskeletal disorders are the main cause of loss of work time, increased costs, and human injuries [6]. Today, in the world, a large part of the payment of compensation to the injured workforce is related to these disorders (more than 85%). For this reason, the issue of prevention and control of these disorders is extremely important.

The most prevalent WMSDs were located at the back (overall), shoulder/neck, neck, shoulder, lower back and wrist WMSDs with mean 12-month prevalence values of 60, 54, 51, 50, 47, and 42%, respectively [7]. Prevalence of low back pain in Iranian nurses, 30 to 60% higher than other areas of the body [8]. In Iran, many studies have been conducted to evaluate the prevalence of musculoskeletal problems in different occupations. The results of our surveys show that about 36% of the employees in Iran have an inappropriate physical conditions while working. The highest prevalence of these problems has been in the lower limbs, especially the lower back and knees [9]. The employees working in the hospital are at a higher risk of suffering from musculoskeletal disorders due to the diversity of their jobs and physical tasks. The most common cause of shoulder and back injury occurs due to lifting, carrying, and transferring the patient. Among health care workers, nurses have the highest rate of back pain with an annual prevalence of 40-50% [10].

Statistics from a study on Iranian nurses in 2014 show that almost a quarter of people suffer from work-related physical pain, including back pain, and one out of three people suffer from work-related back pain. Also, in another report from a review study conducted in 2015, 7.4% of nurses are absent every week due to mental fatigue or physical disability due to work, which is 80% more than other professional groups [11]. Some studies showed that MSDs are one of the factors of disability in nurses. Compared to

other workers, nurses take 30% more sick leave. 16% of these leaves are due to back pain. While this figure is 8% in other jobs [8]. Approximately 30% of all people working in the treatment sector consider their duties physically stressful. This is mentioned by more than 60% of paramedics. According to the nurses, moving and lifting the patient is the most stressful part of their work. Studies have shown that nursing personnel with the task of moving patients experience back problems more than others [12]. Literature shown there is a high probability of injuries to the lower back in nurses when transferring patients who need to make sudden movements with inappropriate positions. The ratio of nurse to bed can also be an effective factor in the occurrence of musculoskeletal disorders so that the closer this ratio is to the standard condition in each department, the less work pressure is imposed on the nurse [6, 10, 11].

Musculoskeletal disorders are one of the most important planning priorities at the macro level, which is less addressed and requires special attention at all levels of planning. Actions were taken in Iran about musculoskeletal disorders included:

- 1) Reducing the prevalence of osteoporosis, low back pain, and osteoarthritis in the population by at least 2% by baseline by the end of the Sixth Development Plan.

- 2) Management of musculoskeletal diseases with three target disease groups including 'osteoporosis and related metabolic disorders, 'low back pain and osteoarthritis' and 'muscular dystrophies'.

Reducing the prevalence of osteoporosis, back pain, and arthritis in the population by at least 10% of the base year until the end of the sixth development plan has been determined as one of the tasks related to the management of non-communicable diseases. In the year 2011 has been set as one of the priorities of non-communicable disease management

planning and now the management of musculoskeletal diseases with three target disease groups including 'osteoporosis and related metabolic disorders, 'back pain and arthritis, and 'muscular dystrophies' It has been stated that the management program of osteoporosis and related metabolic disorders is in the phase of trial implementation and finalization of the plan 'prevention and treatment of osteoporosis and other groups of target diseases are in the phase of the study and data collection [4, 9]. Finally, work-related musculoskeletal disorders can be prevented and controlled by following ergonomics and stretching and strengthening exercises.

Conclusion

This study revealed that there are many factors that contribute to musculoskeletal disorders.

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