VOLUME-8, ISSUE-3, MARCH-2019 • PRINT ISSN No 2277 - 8160

Original Research Paper

Nursing

EFFECT OF BODY MECHANICS TRAINING (BMT) ON THE MANAGEMENT OF LOW BACK PAIN AMONG HEALTH PROFESSIONALS: A LITERATURE REVIEW

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ABSTRACT Low back pain (LBP) is the most frequent occupational musculoskeletal disorder among health care workers and it's prevalence is much higher among health professionals than many other occupational groups. The risk groups of low back pain among healthcare professionals are nurses, dentists, physiotherapists, laboratory workers, physicians and caregivers. The annual prevalence of LBP among health care workers is as high as 77%. Awkward trunk posture, sudden physical load, Prolonged standing, working by bending forwards, twisting, frequent heavy lifting, using the waist and body in wrong positions, and improper working conditions and staying in the same posture for long periods of time can be counted among the occupational risk factors which developed low back pain. Learning how to use good body mechanics will minimize the stresses and decrease the incidence of back injuries. Many types of research have shown that proper body mechanics and ergonomics training can reduce the work related back pain. Training and education play a vital role in reducing low back pain among health professionals.

KEYWORDS : Low back pain, Body Mechanics, Body mechanics training, Health professionals

INTRODUCTION:

Low back pain (LBP) has developed as a major public health problem in the developed and developing countries and the socio-economic burden of this problem has a huge dimension. 37% of the LBP cases occur due to work-related problems. Gender, age, occupation, obesity, smoking, recurrent weight lifting, weakness of abdominal muscles, scoliosis and increased lumbar lordosis are some of the known risk factors of low back pain.[1] The incidence of LBP is quite high and it is an important disease burden for the society, although LBP is not a cause of death. According to the WHO, in the world, 800,000 Disability Adjusted Life Years are lost because of the low back pain problems.[2] Not having ergonomic tables or chairs, having a desk job, working in the same position for a long period of time, and the difficulty of working with a computer are all factors causing LBP.[3] Worldwide, the healthcare workers represent 12% of the working population. An environment in which healthcare workers operate, considered to be one of the most hazardous occupational settings. Healthcare workers encounter diverse hazards due to their work related activities in addition to the usual workplace related exposures,. In spite of this knowledge, the work environment of healthcare continues to be neglected by organizations and governments. It has been reported that among healthcare workers, a higher annual prevalence of back pain (77%) compared to other occupational groups. Ergonomic related injuries pose a significant health risk and it is the most prevalent occupational injury in healthcare industry.[4]

PREVALENCE OF LOW BACK PAIN AMONG HEALTH PROFESSIONALS:

LBP is found to occur at least once in a lifetime in about 90% of the world's population and is ranked first as the cause of disability and the inability to work.[5] The frequency of LBP is about 10%–25%, with an annual first-time incidence of 5%.[5,6] Back, neck, shoulder, and knee problems are the most common complaints among nursing, dental and medical personnel.[7] Majority of healthcare professionals has the risk of musculoskeletal disorders and the high risk groups of low back pain are nurses, dentists, physiotherapists, laboratory workers, physicians, and caregivers.[8] Health care workers show a higher prevalence of low back pain than many other occupational groups. Among health care workers, the annual prevalence of LBP is as high as 77%. Health personnel are generally characterized by having a high physical work load. The high point prevalence of LBP was observed in the study conducted at Uganda i.e. 84% (n=100) of which 45.24% among male and 54.76% were among female health workers.[9] Gender, age, body mass index, smoking, alcohol usage, family history and physical activity level can be listed among personal risk factors. Working by bending forwards, twisting, sudden physical load, using the waist and body in wrong positions, heavy lifting, exposure to vibration, improper working conditions and staying in the same posture for long periods of time can be counted among the occupational risk factors which lead to LBP.[10,11]

Researchers who conducted Study in Egypt among 50 staff nurses stated that 58% of nurses had lumbar pain,48 % with severe pain and 92% staffs marked that the pain was work related.[12] Work-related musculoskeletal system diseases are commonly observed among nurses, physiotherapists, dentists, and dieticians. LBP was observed in 70.09% of healthcare professionals. Of the individuals suffering from LBP, 57.2% were working with a risky posture. 40.63% of individuals without LBP were using risky working postures. LBP prevalence of nurses and dentists were higher compared to other groups ($p < 0.05$).[13] A study conducted in Tunisia among 300 health workers revealed that the perceived physical workload was considered heavy by 41.6% interviewed healthcare workers. During 12 months of investigation, 2/3 of healthcare workers complained of LBP with pain rated as "severe" or "extremely severe" in 54.4% of cases. Higher LBP prevalence was statistically correlated with female gender ($p = 0.01$) and impaired work capacity ($p < 10^{-3}$). Prevention of low back pain based on the improvement of working conditions and multidisciplinary management with collaboration between rehabilitation and occupational physician may ensure the reduction of the prevalence and the impact of this disabling disease.[14]

Study conducted in Chennai, in June 2013; where, researchers stated that about half (50.7%) of the participants reported symptoms at least in one part of their bodies, over the past 12 months. Low back pain was the highest (45.7%) among all the symptoms, followed by neck pain (28.5%) and shoulder pain (23.5%), whereas hip/thigh pain (7.1%) and elbow pain (5%) was the least reported. Body pain during last 12 months was complained by 56% of nurses 55% of physiotherapists, 54% of dentists, 39% of lab technicians and 38% of physicians, irrespective of regions. The researchers recommended that an integrated health promotion model should be planned for health care professionals in workplace.[15]

EFFECT OF BODY MECHANICS TRAINING:

Action has an important role on the continuation of physiological and psychological functions. Right action, can be maintained in the best way by an appropriate body mechanic and position adjustments which help the body to gain dynamism. Immobility or wrong action is causing functional loss and disabilities in the body systems. It is not important to have strong muscles. It is important to know how the muscles are used, how to get a straight standing look, how the right action is acquired and to know how these muscles are used in various actions. The scientific field, which teaches the muscle, bone, joint and nerves forming the human body working with other systems is called body mechanic.[16] "Body mechanics" is a phrase used to describe the movements we make each day during normal activities, including standing, sitting, walking, lying in bed, pulling, pushing and lifting. Good body mechanics will help remedy and prevent future back problems, while bad body mechanics contribute to back problems and other muscle and bone problems.

Good body mechanics means using the safest and most efficient methods to lift and move patients or heavy items. Efficiency is more important than strength. Care must be taken to maintain the neutral spine in order to avoid injury, either at the moment of lifting something or, more likely, as a result of poor body mechanics over time. Neutral spine means the normal curves-at the neck, middle and lower back are to be maintained. Everyday activities can place undue stress on the spine. Learning how to use good body mechanics will minimize these stresses and decrease the incidence of back and neck injuries. Good body mechanics are not just for the work site but should be used at all times.[17]

Prevention is better than cure by understanding the underlying principles of body mechanics, and to maintain the proper ergonomic posture in day to day activities which helps to prevent the further back injuries. Many types of research have shown that proper body mechanics and ergonomics training and education can reduce the work related back pain. Bejia, I., Younes, (2010) reported that training and education have good effects on preventing the back injuries.[18] Study conducted by Mrs. L. Shanthi in Madurai among 60 perimenopausal women revealed that percentage of pretest score on low back pain disability in experimental group was 56.7% and control group was 55.1% and post test score in experimental group was 36.6% and control group was 52.7%. Experimental group was reduced to 23.1% and it is 2.4% in control group. This percentage of reduction 23.1% is the net benefit of video assisted teaching of spinal exercises body mechanics on low back pain disability.[19] In a study conducted by Ibrahim Mubarak Al Baalharith et al, titled, "evaluation of body mechanics ergonomic posture training and education on back injury prevention (Beeb) intervention on low back pain among staff nurses," included 300 nursing staffs 150 in each group, control and experimental. After the intervention, the control group post -test mean value was 6.212 with 2.213 S.D and experimental post-test mean 4.12 with 2.143 T=2.04 (P<0.001).The difference was highly significant (P<0.001).The control group pre and post test was compared by the paired test and it was not significant (p=0.0561).[20] It shows that body mechanics and ergonomic posture training is much more effective in reducing LBP. Zizi Fikry Mohamed Abd El-Rasol et al in their study concluded that body mechanics and ergonomics training program had positive effect on nurses' knowledge and practices, in relation to low back pain, disability level and quality of nursing work life at immediately after and post three months from program implementation compared to pre-program implementation.[12] Reda Abd Eslam Ibrahim and Om Ebrahiem A. E. Elsaay in their study entitled, effect of Body mechanics training on reducing LBP among 42 nurses concluded that all studied nurses had back pain pre program implementation. Majority of them had back pain in lumber region , there is a significance difference between duration, intensity, quality, and rhythms of LBP for studied nurses in pre and post program implantation. There was a significance difference between knowledge and nurses' performance of body mechanics for studied nurses in pre and post program implantation.[21]

CONCLUSION:

Low back pain is a major work related musculoskeletal disorder among caregivers with heavy professional and social impact. Prevention of LBP is based on the improvement of working conditions, proper ergonomics and multidisciplinary management with collaboration between rehabilitation and occupational physician. Awareness regarding proper posture, education, body mechanics/exercises training programs on prevention and coping strategies for LBP and other musculoskeletal disorders be made mandatory for health care professionals, especially for the high-risk groups such as nurses, dentists, and physiotherapists not only to reduce the occurrence of low back pain among them but also to promote efficiency in patient care. An integrated health promotion strategies should be planned for health care professionals in workplace.

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