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PREVALENCE OF LOW BACK PAIN AND LEVEL OF KNOWLEDGE ABOUT PATIENT HANDLING AND SHIFTING TECHNIQUES AMONG NURSES OF A PUBLIC SECTOR HOSPITAL IN KARACHI A SURVEY

¹Ferkhanda Imdad²Samreen Yasmeen³Farhan Ishaque⁴Wakash Lal⁵Umair Nawaz⁶Saeed Ahmed Sheikh⁷Narender Kumar

ABSTRACT

Background: Low back pain has been found to be the most prevailing musculoskeletal condition as well as a common cause of absence from workplace. Studies report that low back pain is common and accounts for a large number of reported disabilities among nurses. In fact nursing have one of the highest levels of back injury in all occupation groups. The aim of this study is to determine the prevalence of low back pain among nurses in a public sector teaching hospital of Karachi. This study has mainly focused on confounding factors leading to low back pain and level of education among nurses regarding patients handling or shifting techniques.

Methods: A self-administered questionnaires comprises of three sections, were used to collect data. The first section requested for socio-demographic information, followed by medical history of back pain during last month and during last year. The second section assessed the medical history of LBP in two categories i.e. during last month and during last year. The third and last section inquired about participants' level of education about ergonomics with simply in yes or no pattern. The questionnaires were given to 100 nurses. All questionnaires were completed in the presence of the researcher. Out of 100 questionnaires distributed and recorded, only 47 participants returned the questionnaire.

Results: Statistical Package for the Social Sciences (SPSS) version 19.0 was used for statistical analysis. Relationship between the prevalence of low back pain and training in patient moving techniques, manual material handling techniques is significant ($p=0.017, p=0.068$). There is a weak relationship with the knowledge of ergonomics, biomechanics and back pain preventive measures ($p=0.719, p=0.457, p=0.704$).

Conclusion: More than two third of the participated nurses were well trained in transfer techniques, manual material training and preventive measures of back pain. But they lack the biomechanical knowledge. The prevalence of back pain is more in the nurses and nursing students in public sector teaching hospitals of Karachi. The relationship between level of education about manual material handling/shifting techniques and frequency of low back pain has been established as well. Key words: back pain, prevalence, patient handling/shifting techniques.

Keywords: back pain, prevalence, patient handling/shifting techniques, nurses.

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²Assistant Professor, Dow University of Health Sciences, Karachi, Pakistan.

³Assistant Professor, Dow University of Health Sciences, Karachi, Pakistan.

⁴Senior Lecturer, Dow University of Health Sciences, Karachi, Pakistan.

⁵Senior Lecturer, Dow University of Health Sciences, Karachi, Pakistan.

⁶Senior Lecturer, Dow University of Health Sciences, Karachi, Pakistan.

⁷Physiotherapist, Aga Khan university Karachi.

CORRESPONDING AUTHOR

¹Ferkhanda Imdad

Senior Lecturer
Dow University of Health Sciences,
Karachi, Pakistan

INTRODUCTION

Low back has been estimated to affect almost 90% of the universal population. Hence it is considered to be the most common reason for functional disability [1]. Statistically it is said to be among the leading musculoskeletal disorders that predominantly affect the working population in all around the world. In fact low back pain has been found to be a global health dilemma affecting the global economic, societal, and public health sectors. A skilled worker will not be able to perform 100% if he or she is in pain. In western countries, LBP and related disorders have been found to be increasing and incurring billions of dollars in medical expenditures each year [2]. 10% prevalence of LBP in Nurses have been reported highest levels of work-related injuries when compared with all occupational groups. The great amount of physical work such as patient handling and transfers as well as psychological stress are said to be the factors responsible to increase the prevalence of low back pain among nurses [3]. Consequently, biomechanical investigations reported that movements' like lifting and transferring the patients result into high spinal stresses. In fact in US, they ranked first nationally (for the year 1994) based on the incidence rates of back pain among the employees of private industries. (NIOSH, 1997). Patient handling tasks, which are considered here as a form of manual material handling (MMH), include many of the workplace factors accompanying with risk of injury. Since patients, as loads to be handled, may be characterized as being unpredictable (may resist movement), having an undefined shape, and being dynamic loads, patient handling tasks are considered a hastening factor in the development of serious low back problems [4]. Shockingly, the cumulative weight lifted by a nurse in one typical 8-hour shift is equivalent to 1.8 tons [5]. According to Naidoo and Coopoo (2007), nurses in United States are said to be among the highly exposed to job-related injuries as well as experiencing low back pain as a major problem. Comparatively, there are very few studies that show the prevalence of low back pain among nurses in Asian countries [6]. However, it doesn't mean that LBP prevalence is low in these countries. One can predict easily that in countries that have limited human resources and are less equipped with latest technologies, the ratio of occupational health problems will be much greater than developed countries. However, less attention has been given to lifestyle factors such as leisure-time physical activities. The World Health Organization (WHO, 2003) suggests that physical activity is an essential requirement for our health and well-being. For an individual, it was found to be a strong means for prevention of diseases and for nations, a cost-effective method to improve public health across the population. It was also found to improve musculoskeletal health such as LBP, control body weight and reduce symptoms of depression. Musculoskeletal disorders arise principally from forces and stresses within the human body as it interacts with surrounding environment [7]. Specific force and stress levels are subjective to both workplace and personal risk factors. Workplace risk fac-

tors comprise of: work shift, heavy physical work, heavy manual material handling, bending, lifting, frequency and duration of a task, repetitive work, and dynamic work load. Overexertion, particularly when associated with workplace risk factors is the leading cause of injuries during manual material handling (NIOSH, 1997). Statistics show that in hospital settings, nurses and nurse aids have been found to be more vulnerable to LBP as compared to other medical personnel. An important fact regarding nursing profession and its vulnerability to WRMSDs is that, 13 each year 12% of nursing personnel will consider a job transfer to decrease risk and another 12%-18% will actually leave the nursing profession due to chronic LBP [8]. Today, a nursing student is least interested to learn manual handling techniques and ergonomics because of the burden of heavy curriculum. In fact nursing schools must have to devote a reasonable amount of time for the teaching of manual techniques practiced in the clinical area. Therefore this implies that there is a possibility that LBP can be managed by use of well integrated and organized educational programs in nursing curricula regarding patient handling or shifting techniques. However, it implies through above mentioned facts that it's vital to investigate the prevalence and distribution of MSDs among nurses in Pakistan. Based on the results of this research, a training program may be proposed. The relationship between LBP and level of education among nurses has not been explored in Pakistan, and most of the nursing schools do not have any specific curriculum for ergonomics techniques in their curricula.

METHODOLOGY

Research setting the study was conducted at Dow University Hospital, Karachi, Pakistan. It is located at Ojha campus, SUPARCO Road, Karachi. It is a tertiary care teaching University Hospital attached to Dow International medical college (DIMC). There is more than 100 clinical nursing staff currently working at DUH. A self-administered questionnaire comprises of three sections, were used to collect data. The first section requested for socio-demographic information, followed by medical history of back pain during last month and during last year. LBP prevalence and impact data was obtained using a modified version of the Nordic Low Back Questionnaire (Kuorinka, I., et al., 1987). In research setting, all the participants got their nursing education and training in English language. So there was no need to translate the questionnaire in local language. To ensure the validity, clarity and reliability of the questionnaire, it was used in a pilot study on ten nurses who were not part of the study and working in another identical healthcare setting before being used for data collection. Few minor changes were done after this pilot survey. The first section collected the following socio-demographic characteristics of the nurses: gender, age, marital status, working experience, department currently working in and level of education. The second section assessed the medical history of LBP in to categories i.e. during last month and during last year. The reason for making such arrangement was to separate acute and chronic LBP which was necessary to

make any relation with level of education/training about patient handling/shifting techniques and ergonomics. The third and last section inquired about participants' level of education about ergonomics with simply in yes or no pattern. Ethical clearance was granted from the Ethics Review Committee ISRA University. Secondly, permission to conduct the study at DUH was sought and was granted from the director of medical services, DUH. The questionnaires were given to 100 nurses. All questionnaires were completed in the presence of the researcher. Out of 100 questionnaires distributed and recorded, only 47 participants returned the questionnaire.

DATA ANALYSIS

Completed data was tabulated on a spreadsheet for analysis. Then the data was coded from question responses into meaningful prevalence variables. Double data entering was done to ensure data quality. Thereafter data was transferred into the Statistical Package for the Social Sciences (SPSS) version 19.0. Descriptive statistics was used to summarize the collected demographic data of the study sample. The demographic data was presented. Univariate analysis was used to determine if any associations existed between LBP and PA as well as the socio-demographic variables. All tests were done at the level of significance $P \leq 0.05$.

RESULTS

The questionnaire was collected from all the participants. The data regarding absent from work due to back pain from two participants was missing in this analysis. All the responses of the questionnaire were tabulated in table 1. Relationship between the prevalence of low back pain and training in patient moving techniques, manual material handling techniques is significant ($p=0.017$, $p=0.068$). There is a weak relationship with the knowledge of ergonomics, biomechanics and back pain preventive measures ($p=0.719$, $p=0.457$, $p=0.704$). Association of LBP in last one year with the knowledge on nursing training, Ergonomics and Biomechanics was analyzed by uni-variate Analysis, which is mentioned in table 2.

Sl.No	Question	Yes	No	Data Missing
1.	Experienced pain more than 30 min	06	41	
2.	Have you suddenly stopped any work due to pain	06	41	
3.	Have you ever taken medications for back pain	03	44	
4.	Have you ever absent for work due to back pain	03	42	02
5.	Have you ever underwent a surgery for back pain		47	
6.	Have you ever hospitalized due to back pain		47	
7.	Have you experienced any joint dislocations or broken bones while working in hospital	01	46	
8.	Have you received any training how to transfer patients and lifting techniques	34	13	
9.	Have you received any manual material training	31	16	

10.	Have you had any knowledge about biomechanics	16	31	
11.	Have you had knowledge about back pain prevention methods	32	15	

Table 1: Analysis of discomfort experienced by patients due to back pain

Variable	Yes	No	p-value*
Training for moving patients			
Yes	4 (40.0)	30 (81.1)	
No	6 (60.0)	7 (18.9)	0.017
Training or instructions on proper manual material handling			
Yes	4 (40)	27(73.0)	
No	6 (60)	10 (27)	0.068
Knowledge of or experience with ERGONOMICS during your			
Education			
Yes	3 (30.0)	15 (40.5)	
No	7 (70.0)	22 (59.5)	
Knowledge of or experience with BIOMECHANICS			
Yes	2 (20.0)	14 (37.8)	
No	8 (80.0)	23 (62.2)	0.457
Knowledge of or experience with back injury prevention methods			
Yes	6 (60.0)	26 (70.3)	
No	4 (40.0)	11 (29.7)	
*Fisher Exact p-value			

Table2: Association of LBP in last one year with knowledge on training, Ergonomics and Biomechanics (Univariate Analysis)

DISCUSSION

This study results are similar to the other prevalence studies about back pain in nurses and nursing students. It is a common observation that hospital staff often complain of lower back pain (LBP). Many studies suggest that there is a high incidence of work-related LBP in nurses [9,10]. Its significance in healthcare professionals is beyond any doubt. LBP is the most prevalent and most costly musculoskeletal disorder according to WHO report [11]. Several epidemiological studies have shown that musculoskeletal disorders (including LBP) and *workload* are related [12]. More recently, the effect of workload, work hours, job stress, and fatigue on back pain have emerged [13]. These health issues are important not only for the health care professionals, but also because they may contribute to work force shortages by influencing the nurses to leave the profession [14].

Mitchell, T. et al (2008), in their survey among undergraduate nursing students and recently graduated nurses identified the relative contributions of age and occupational exposure on the prevalence, duration and severity of low back pain episodes [15]. They included 897 undergraduate nursing students (years 1, 2 and 3) and 111 graduate nurses in their study. Using a modified version of the Nordic Low Back Questionnaire, information regarding low back pain episode prevalence, impact, duration, frequency and causes was obtained. The results concluded a rise in

occupational exposure from student to working nurse is the primary cause of the increase in low back pain. Since prevalence rate of back ache was high in nursing students before starting the clinical work, high number of cases of back ache are expected. However, this increased exposure may be to physical as well as psychological stressors. So this group is really a target group for training the preventive techniques of back ache.

Sikiru and Hanifa (2010) conducted a department-to-department enquiry using a self-structured questionnaire. The 12 month prevalence of LBP was 73.53%. Female nurses (68%) having more prevalence rate than the male nurses (32%). It was concluded that poor knowledge on back care and ergonomics of different work settings is the major predisposing factor of LBP [16]. KJ June and S-H Cho (2011) examined the relationship of LBP prevalence with personal and work-related characteristics among intensive care unit nurses. A total of 1345 nurses were included in this study. Total of 65 intensive care units in 22 South Korean hospitals accepted to carryout study in their facility. Back pain prevalence was measured by the frequency of back pain (always, once a week, once amonth or once in two or more months) during the past year. Multi-level logistic regression analyses were conducted to examine the relationship between back pain and personal and work-related characteristics. Though the intensive care nurses in Korea are very young the high prevalence of back pain was found. This paper suggest that improving nurse staffing, reducing the frequency of night shifts and assessing risk factors in specific intensive care unit specialties are suggested to decrease back pain prevalence [17].

Johnsson, C., et al. evaluated the training program in patient handling and moving skills according to the Stockholm Training Concept. The evaluation focused on work technique, musculoskeletal problems, job strain and the experience of the person being transferred. The two models of learning strategies were practiced, traditional groups and quality circles. Fifty-one people employed at geriatric hospitals and in primary care, participated in the training program. For the evaluation, video recordings were collected during moving the patient from bed to wheelchair, before and after the training. The participants' work technique during the patient transfer was assessed using seven items. A questionnaire covering individual factors, physical exertion, job strain, and musculoskeletal problems, was filled in by the participants before training and also six months after. A decrease in the participants' physical exertion, during transfers of patients from 'bed to chair' was shown six months after completion of the training program. However, there was no significant decrease in the participants' musculoskeletal problems and job strain after training. Ninety-eight per cent of the participants were positive about having participated in the training [18].

CONCLUSION

More than two third of the participated nurses were well trained in transfer techniques, manual material training

and preventive measures of back pain. But they lack the biomechanical knowledge. The prevalence of back pain is more in the nurses and nursing students in public sector teaching hospitals of Karachi. The relationship between level of education about manual material handling/shift-ing techniques and frequency of low back pain has been established as well.

REFERENCES

- [1] Lela, m., & Frantz, j. m. physical activity among nurses in kanombe military hospital. *african journal of physiotherapy and rehabilitation sciences*.2012;4(1-2):63-66.
- [2] Louw, q. a., Morris, l. d., & Grimmer-Somers, k. the prevalence of low back pain in africa: a systematic review. *bmc musculoskeletal disorders*.2007; 8(1): 105-42
- [3] Vieira, e. r., Kumar, s., coury, h. j., & narayan, y. low back problems and possible improvements in nursing jobs. *journal of advanced nursing*.2006; 55(1): 79-89.
- [4] Torres, n. Effects of training in modifying work methods and behaviours during common patient handling activities.1998; (doctoral dissertation, virginia polytechnic institute and state university).
- [5] Tuohy-main, k. Why manual handling should be eliminated for resident and career safety. *geriaction*.1997; 15(1), 10-14.
- [6] Naidoo, r., & coopoo, Y. The health and fitness profiles of nurses in KwaZulu-Natal. *Curationis*.2007; 30(2): 66-73.
- [7] Dempsey, P. G. A critical review of biomechanical, epidemiological, physiological and psychophysical criteria for designing manual materials handling tasks. *Ergonomics*.1998;41(1):73-88.
- [8] Moses, E.B. ED. The registered nurse population: Findings from the national sample survey of registered nurses. Washington DC: U.S. Department of Health and Human Services, U.S. Public Health Service, Division of Nursing. 1992.
- [9] Buckle, P. Epidemiological aspects of back pain within the nursing profession. *International journal of nursing studies*.1987; 24(4):319-324.
- [10] Bejia, i., younes, m., jamila, h. b., khalfallah, t., ben salem, k., touzi, m., & bergaoui, n. Prevalence and factors associated to low back pain among hospital staff. *Joint BoneSpine*.2005; 72(3): 254-259.
- [11] Woolf, a. d., & pfleger, b. (2003). burden of major musculoskeletal conditions. *bulletin of the world health organization*.2003; 81(9): 646-656.
- [12] Bernard, b. p., putz-anderson, v., & burt, s. e. A critical review of epidemiologic evidence for work-related musculoskeletal disorders of the neck, upper extremity, and low back. *cincinnati: centers for disease control and prevention nationalinstitute for occupational safety and health publication*.1997;97-141.
- [13] Mcneely, e. The consequences of job stress for nurses' health: time for a check-up. *nursing outlook*.2005;53(6), 291-299.
- [14] Stone, p. w., clarke, s. p., cimiotti, j., & correa-de-arau-

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- jo, r. nurses' working conditions: implications for patient safety. *emergency medicine news*.2004; 26(12): 74-77.
- [15] Mitchell, t., o'sullivan, p. b., burnett, a. f., straker, l., & rudd, c. low back pain characteristics from undergraduate student to working nurse in australia: a cross-sectional survey. *international journal of nursing studies*.2008; 45(11): 1636-1644.
- [16] Sikiru, l., & hanifa, s. Prevalence and risk factors of low back pain among nurses in a typical nigerian hospital. *african healthsciences*.2010;10(1), 26-30.
- [17] Kjune and s-h cho. Low back pain and work-related factors among nurses in intensive care units. *journal of clinicalnursing*.2011;20:479-487.
- [18] Johnsson, c., carlsson, r., & lagerström, m. Evaluation of training in patient handling and moving skills among hospital and home care personnel. *Ergonomics*.2002; 45(12): 850-865.

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