Chronic Low Back Pain and Disability among Nurses: A Cross Sectional Study from Bam, Iran

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Background: Although Chronic Low Back Pain (CLBP) rarely threatens the humans' lives, those individuals suffering from such pain experience a variety of health-related problems and difficulties such as physical disability. This study aimed to determine the relationship between low back pain and physical disability among nurses working in Pastor Hospital of Bam, Kerman, Iran.

Material and Methods: This cross sectional study was conducted among nurses and paramedics who suffering from chronic low back pain and working in Pastor Hospital in Agu, 2015. Through randomly sampling, 120 eligible individuals were recruited of which 104 individuals were satisfied to enter to the study. The standard tools of Owsestry Disability Index (ODI) and Visual Analog Scale (Vas) as well as demographic questionnaire were used to collect data. The SPSS software, version 18 was used to analyze the data.

Results: In all, 104 participants with mean age of 34.7 ± 8.9 were assessed. The majority of the participants (N = 90, 86.5%) were female. There were significant association between functional disability and low back pain intensity (P < 0.001). Furthermore, Pearson correlation showed that there were significant positive relationship between duration of back pain and disability (P < 0.001).

Conclusion: The results of this study showed that the chronic low back pains among nurses were related to their disability. Therefore, it seems to improving low back pain among this target group can be an effective step to improve their physical function in their workplaces.

Keywords: Disability, Nurses, Chronic low back pain

Introduction

Job conditions can lead to some Muscular Skeletal Disorders (MSD) of which the spinal pains are the most common Chronic back pain is one of the most common problems observed among referees to therapeutic environments and often results in long term psychosocial health problems (Bratton, 1999). Chronic Low Back Pain (CLBP) has also been considered as the reason for one third of all disabilities (Picavet & Schouten, 2003). Although CLB Parley threatens the humans' lives, those individuals suffering from such pain, experience a variety of health-related problems and difficulties such as physical disability, depression, permanent and continuous complaint about chronic pain, job problems, and undesirable therapeutic outcomes that resulted in worse back pain (Waddell et al., 1984). Nurses, who have been suffering from chronic back pain for a long time, are apt to be afflicted by the physical disabilities and a range of social and psychological problems (Natvig, Eriksen & Bruusgaard, 002) which indirectly resulted in

high costs for sufferers. The effect of the chronic back pain on social, psychological, and physical performance of the individuals is as subsequent special complication of this disorder (Lee Chronister, & Bishop, 2008). Furthermore, CLBP includes large categories of the professional damages. In this regards, nursing professional is one of those job groups which cause the highest prevalence of the MSD, particularly back damages (Asghari, Karami,,& Rezaei 2002). Chronic pain is a pain which continues at least for three months. Researchers in Iran have reported the prevalence of the continuous chronic pain as 9% to 21% in general population aged between 18-65 years. Moreover, they reported chronic pain often has influenced on individual's ability to do their daily activities (Asghari, Karami,,& Rezaei 2002). It has been argued that about 33 to 50 percent of the individuals suffering from chronic pain become less able or unable to perform their daily activities. This finding motivated the researchers to study the role of the effective variables in formation of disability (Ghaffari et al., 2006). Disability is one of the most important determinative factors that cause costly treatment/rehabilitation and subsequently lower quality of life among nurses (Kingwell et al., 2012). Regarding the importance of the effect of various social, psychological, and physical factors on creation of the chronic low back pain, the existence of significant differences between disability intensity among the nurses suffering from chronic pain is obvious. Therefore, this study conducted to study the level of disability and pain among the individuals suffering from chronic low back pain in order to design the effective interventions to improve the health status of this target group in future.

Material and Methods

This cross sectional study was conducted in Aug., 2015 to determine the relationship between chronic low back pain and disability among nurses working in Pastor hospital affiliated to Bam University of Medical Sciences in Kerman, Iran. All the ethical principals were considered in this study. Consent form was signed by each nurse before entering into the study. Before beginning the study, it was explained for the nurses that participation in the study would be completely voluntary and the research results would be used only to achieve the research goals.

Regarding the ethical principles, the potential participants were reassured that their information would kept confidential. The ethics committee of Bam University of Medical Sciences approved the study. To select the potential participants, the researcher referred to the nursing office of the hospital and received the complete list of the nursing staff (nurses and paramedics) who was working in the hospital. Then, the specified number of samples was extracted using the available list through random sampling method. After selecting the of eligible nurses who were satisfied to take part in the study, the researcher referred to the nurses' workplace in specified times and, after justifying them about the goals of the study, they were invited to participate in the study. The researcher distributed the questionnaires among the participants who qualified the required criteria and had tendency to participate in the study, and then asked them to fill out the questionnaires. The criteria required for entering the study were included as tendency to participate in the research, not being on vacation during the period of data collection, working as nurse or paramedics in the hospital, lack of congenital disorder and/or lump on the spinal column. In order to collect data, a researcher-made questionnaire comprising of three parts was used. The first part included questions about the socio-demographic and professional specifications such as age, gender, marital status, height, weight, education level, job, income, and location of residency. The second part included questions about back pain such as time duration of pain, time duration of treatment, suffering from sciatica pain and the intensity of the pain. The other questionnaires included the questions about physical disability that were asked through Owsestry Disability Index (ODI) and the questions regarding pain intensity that were asked through Visual Analog Scale (VAS). The VAS was used for measuring the intensity of the perceived pain. This scale is a 100mm horizontal straight line that on one end of it the phrase "no pain" is written and the phrase "most pain" is written on the other end. The patient marks the amount of his frequently perceived pain on the 100mm continuum of this line (Price et al., 1983). The amount of pain is measured and calculated using a graded ruler from the starting point of the continuum to the point marked by the patient. This scale is widely used in the pain-related researches and its

reliability and validity has been confirmed (Price et al., 1983).

The ODI questionnaire, including 10 six-option items, evaluates various aspects such as dealing with and tolerating the pain intensity, personal care, picking up the things, walking, sitting, standing up, sleeping, social life, travelling, and changes in pain intensity (pain degree). The highest score for each item is 5, so the total highest score is 50 and the total disability is calculated through multiplying the sum of each item score by 2. This questionnaire, indeed, evaluates the disability in performance between 0 and 100; so that, zero score means complete health and lack of disability, 0-25 scores mean low disability, 25-50 scores mean medium disability, 50-75 scores mean high disability, and 75-100 scores mean intense and severe disability so that the individual is unable to do any activity. The first item of this scale measures the pain intensity and the other 9 items are related to the daily activities which are influenced by the back pain.

In the previous studies the reliability of the pain intensity scale and ODI questionnaires has been mentioned as 91% and 84% respectively and have been confirmed (Mousavi et al., 2006). Moreover, the content permissibility method was used to determine the scientific credit of the data collection instruments so, the questionnaire was given to some of the university professors and after examining the suggestions the required and necessary corrections were exerted and applied. Furthermore, in order to determine the reliability of all the questions the Chronbach alpha was used, where $\alpha = 0.76$ was obtained. After being collected, the data were analyzed using descriptive-analytical statistics through $SPSS_{18}$. In all of the statistical tests the meaningfulness level (significance rate) was considered at level of $P < 0.05$.

Results

In all, 120 eligible nurses and paramedics were recruited, of them 104 nurses were satisfied to participate in the study. Of all participants of this study, 90 individuals (86.5%) were female and the rest were male. Furthermore, thirty one participants (26.9%) were paramedics. The age of the participants ranged from 21 to 57 and their mean age was 34.7 ± 8.9. Table 1 shows the rest of socio

demographic characteristics of the participants. The mean weight was 69.7 ± 8.9 ranging from 48 to 98 Kg and the mean height of the participants was 168 ± 9.9kg ranged from 150 to 181kg.

The duration of back pain among participants ranged from 0 to 21 years with the mean years of 3.8 ± 4.29. Based on the pain intensity scale, the range of pain intensity differed from 0 to 10 with the mean score of 3.6 ± 1.1. The mean score of disability scale was 12.32 ± 4.1 ranged from 0 to 60. The results indicated that the duration (number of years) of back pain has relationship with pain intensity measured by pain scale and disability intensity measured by disability scale (DOI) ($P < 0.001$). Moreover, there is a meaningful relationship between years of back pain and some of the demographic variables that are shown in Table-2.

Table 1. Demographic and clinical chrematistics of the studied participants (N = 104).

variables		N	Percent
Sex	Female	90	86.5
	Male	14	13.5
Marital status	Single	25	24
	Married	73	70.2
	Divorced	6	8.5
Location of residency	Town	93	89.4
	Across the town	11	10.6
Education	Diploma	27	26
	BS	75	72.1
	MSc	2	1.9
Income	Good	8	7.7
	Moderate	77	74
	Poor	19	18.3
Job	Head nurse	5	4.8
	Nurse	71	68.3
	Auxiliary nurses	28	26.9
Sciatica pain	Yes	18	17.3
	No	86	82.7
Disability intensity	No disability	3	2.9
	Low disability	34	32.7
	Moderate disability	59	56.7
	High disability	8	7.7
	Severe disability	0	0
Total		100	104

31

Pierson correlation coefficient shows that number of years of back pain affliction is meaningfully related with the individuals' age, individuals' weight and individuals' pain intensity. All the correlation between studied variables and disability are shown in Table 2.

Table 2. Relationship between studied variables and among studied participants (N = 104).

Variables	Correlation (r)	P value
sex	-0.019	0.85
age	0.744	< 0.001
weight	0.285	0.003
height	-0.016	0.87
pain intensity	0.689	< 0.001
Residency location	-0.148	0.13
Time duration of treatment	0.517	< 0.001
Pain intensity	0.810	< 0.001
Sciatica pain	-0.313	< 0.001
Walking time within 6 meter distance	0.604	< 0.001

Discussion

This study conducted to study the level of disability and pain among the individuals suffering from chronic low back pain in order to design the effective interventions to improve the health status of this target group in future. As indicated by the results, the majority of the whole participants had an experience of back pain for 1 to 21 years. This finding is consistent with findings of previous evidence which reported low back pain is so prevalent among nurses (Adhikari & Dhakal, 2015). In present study it was demonstrated that some of individual factors such as age, sex, weight, and socio-economic status had meaningfully relationship with back pain, so that increased low back pain were more observed in older participants with higher weight. Ferguson and Marras also indicated that the individual factors could affect the lumbar disorders (Ferguson & Marras, 1997). Investigating the intermediary role of the pain exacerbating in the relationship between pain intensity and physical disability resulted by pain is an important issue. The results of the present study have been supportive for relationship between pain intensity and physical disability; In addition the findings of this study that demonstrated the importance of exacerbating the pain in elaboration of the disability resulted by chronic pain, supported this finding that pain intensity can predict the level of disability (Tavafian, Jamshidi & Mohammad, 2011).

The results of the present research are not consistent with results of previous study (Mohseni et al., 2005) regarding the individually related factors. This difference may be caused by the difference between target groups of the studies.

The results of present research showed that there was a meaningful relationship between pain intensity and physical disability resulted by chronic back pain in nurses. Findings of the studies on physical disability confirmed the positive relationship between duration of back pain affliction and the demographic characteristics as well as the relationship between mean score of pain with physical disability intensity. These findings indicate that the nature of chronic back pain affliction in nurses and paramedics influences the intensity of physical disability. As expected, the average of the pain scores influenced the target group's physical disability scores. Some other researchers have recently investigated the effects of pain intensity changes on physical ability. For instance, findings of Sabin sky's study showed that the physical less-ability behavioral patterns in nurses are directly related with their pain intensity (Ferguson & Marras, 1997). Despite strength points of this study, it should be noted that, using the self-reporting instruments could be one of the limitations that might influence the results. However, this study showed that low back pain may cause physical disability among the nurses who suffering from low back pain.

Conclusion

The results of this study showed that the chronic low back pains among nurses were related to their disability. Therefore, it seems to improving low back pain among this target group can be an effective step to improve their physical function in their workplaces**.**

Conflict of interests

The authors declare that they have no conflicts of interest

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Author contribution

LS, MJ: Study Importation, Data collection and analysis, Writing the first draft of the Paper.

LS, MJ, FP: Study design and data analysis, editing and confirming the final draft of the paper.

LS, MJ, FP, AN: Study design, confirming the final draft of the paper .

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