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Physical Activity Level in Two Groups of Patients with Chronic Low Back Pain

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Background: Sport and exercise therapy can be used for low back pain's prevention. This research was aimed to evaluate the level of functional disability, pain intensity difference between the two groups of patients with chronic low back pain.

Methods: this study was a cross-sectional-applied research conducted from December 2015 to March 2016 on the employed (N=50) and nonemployee people (N=40) suffering from chronic low back. Physical activity level and demographic properties in all subjects were measured by Baecke physical activity questionnaire. The data were analyzed using SPSS software version 16.

Results: Totally, two groups employees (N=50) with an average age of 45.14 ± 0.85 years old and the non-employee (N=40) people with an average age of 45.42 ± 0.98 years old took part in the study. No significant difference was observed between both groups on such variables as age, weight, height ($P > .05$). Significant difference was observed between the mean body mass indexes between two groups so that among the employed group was more than the non-employed ($p < .05$). Significant difference was observed about the physical activity ($p < .05$) and exercise ($p < .05$) between two mentioned groups in free time.

Conclusion: This study revealed the different groups of people who have different jobs may be different due to physical activity.

Key words: Low back pain, Physical activity, Baecke physical activity questionnaire.

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Introduction

Low Back Pain (LBP) are considered as the most common public health problems worldwide (Hoy et al., 2010; Mousavi et al., 2011) which leading to physical disability among people aged less than 45 years old (Andersson, 1999). The frequency of this problem has been reported from 14.4% to 85% during whole life time in different countries (Mousavi et al., 2011; Anderson, 1999; Diamond & Borenstein, 2006). LBP is a grate costly health problem which are imposed on societies and governments in each country (Hoy et al., 2010; Mousavi et al., 2011; Andersson, 1999; Dunn & Croft, 2004). Despite high prevalence rate of LBPamong people, the majority of it improves less than 3 months (Mousavi et al., 2011; Andersson, 1999; Diamond & Borenstein, 2006).

Inevitably, most costs would be imposed on the societies by these individuals who suffering from low back pain, so several researches have been conducted on preventing from this problem. In addition, LBP as a biopsychosocial injury is considered as a multidimensional subject that different factors may play a role in its incidence and retention (Hoy et al., 2010; Dunn & Croft, 2004; O'Sullivan, 2005). Thus, it is essential to identify the causes of LBP for appropriate prevention (O'Sullivan, 2005). The work- related LBP is a large part of these disorders (Diamond & Borenstein, 2006).The incidence and intensity of work- related disorders are indicated by special physical activity, and their symptom intensity decreased

by resting so that the role of work- related factors are obvious. These LBP disorders can be prevented by understanding and identifying work- related factors exactly in order to help people in the prevention and to apply appropriate prevention strategies. As different jobs may cause different activities during daily life, this study investigated the physical activity level among the two groups of employed and non-employed people suffering from LBP.

Methods

The present study is a cross sectional research. In this study, a total of 90 employed and non-employed people were recruited from November 2015 to March 2016. Of these, 50 subjects were employed and 40 subjects were non-employed who were suffering from LBP. The employed subjects were working in ministry of Ministry of Science, Research, and Technology. Non-employee people were selected from general population and were working like employees about 8 hours a day.

The employed with chronic LBP who had participated in previous screening program conducted in 2014, were invited by two methods: 1) sending official messages, 2) collaborative invitation. The participants were assessed by supported facilities like getting BMI and free of charge referring to the nutritionist specialist. To determine the Body Mass Index (BMI), Heyms field software version 1996 was used, which classified the participants in five categories: thin (BMI less than 18.5), normal (BMI 18.5-24.99), overweight (BMI between 25 and 29.99), obese (BMI between 30 and 39.99) and morbidly obese (BMI between 40 and more). The entrance criteria for participants to be included in this study were as having LBP for at least three months continuously or chronic intermittent pain with 8 work hours a day and at least being high school graduates. Exclusion criteria were as suffering from a tumor and/or infection in their back, the presence of kyphosis and scoliosis identified in the spine, spinal canal stenosis, vertebral fracture, disc herniation, and degenerative changes associated with previous surgery, hip and knee joint pain, joint damage, serious problems and severe neurological diseases. Primarily the research objectives were explained for all of the participants, and they were requested to read and response questionnaire items exactly. The Baecke questionnaire as an international standard questionnaire was translated by scientific centers like Tehran University of Medical Sciences and used to determine the levels of physical activity of the participants (Baecke, Burema & Frijters 1982). The response scale for the items was according to Likert scoring method. Cronbach Alpha coefficient of reliability method was calculated to determine the reliability of the questionnaire, the value of 0.79 was achieved for the items internal consistency on Baeck physical activity questionnaire. After filling the questionnaires, the data were entered into the SPSS software and analyzed. The Smirnov test was used to determine the normality of variables distribution, and for comparing mean values related to the two groups on the Baecke questionnaire, independent t-test was used with a significance level of $p < 0.05$.

Results

Totally, two groups employees (N=50) with an average age of 45.14 ± 0.85 years old and the non-employee (N=40) people with an average age of 45.42 ± 0.98 years old took part in the study. Significant differences was observed between two groups regarding BMI (P=0.006). Average BMI of employed subjects was higher than the other group. However, no significant difference was observed between two groups regarding variables such as age, height, and weight of the participants ($P > 0.05$). The Mean±SD of employees' age, height, weight, and BMI were 45.14 ± 0.85 year, 1.70 ±9.46 m, 79.94 ± 11.7 kg, and 27.5 ± 3.25, respectively. However, these measurements among the other groups were 45.42 ± 0.98 year, 1.72 ± 7.75 m, 76.77 ± 13.5 kg, and 25.5 ± 3.43, respectively (Table 1).

No significant difference was observed regarding physical activity at their work place between two groups (P= 0.1). However, a significant difference was observed regarding physical activity ($P < 0.05$) and exercise time ($P < 0.05$) between the two groups in free time. Generally no significant difference was observed regarding physical activity index between the two groups due to Baecke questionnaire (P=0.19) (Table 2).

Table1. Demographic characteristics of the both groups of participants

Variables	Mean Difference (CI: 95%)	Employees(N=50) Mean	Sellers(N=40) Mean	*P*-value
Age(Y)	-2 (-.67- .10)	45.14±.85	45.42±98	*df*=88 *P*=.13
Height(m)	-2.8 (-6.5-.81)	1.70±9.46	1.72±7.57	*df*=88 *P*=.126
Weight	3.6 (-2.12-8.45)	79.94±11.7	76.77±13.5	*df*=88 *P*= .23
BMI	1.97 (.569-3.382)	27.53±3.25	25.56±3.43	*df*=88 *P*= .006*

Table 2. Comparison between two groups of the participations in terms of physical activity

Physical Activity Variable	*df*	*P*-value	Mean Difference (%95CI)	Sellers Mean (N=40)	Employees Mean (N=500)
Workplace	88	.11	-1.15(-2.56-.26)	23.25 ±3.73	22.1± 3.03
Free time	88	.01*	1.99(.48-3.49)	18.94±3.89	16.95±3.08
Exercise Time	88	.01*	.72(.32-1.11)	2.32 ±1.01	1.60±.84
Physical Activity Index	88	.19	1.63(-.84-4.11)	43.56±6.07	41.92±5.64

Discussion

This research was aimed to evaluate the level of functional disability, pain intensity difference between the two groups of patients with chronic low back pain.

The results of this study are consistent with some previous studies' findings due to the relationship between chronic LBP and physical activity (Kahle, 2009; kinzey & Armstrong, 1998; Carpes, Render & Mot, 2011; Moon et al., 2013; Johnson, 2012; Hosseinifar, Akbari & Shahrakinasab, 2009; Ezzati et al., 2012; Nezhad Roomezi & Rahnama, 2012; Rostami et al., 2014 . As previous studies showed physical activity could increase the muscles power around the column vertebra and decreases the ligaments and vertebral joints tension. Furthermore, physical activity could maintain the vertebra in natural (Rosenstiel & Keefe 1983). This study showed no significant different was observed between the two LBP groups during their working but significant difference was observed between the two groups in their free time and physical activity as their doing exercise . This difference in the none-employed group was more significant than other group and was considerable in its quantity. In addition, the different risk factors may play important role in the amount of LBP in patients, which must be recognized (Guclu et al., 2012).The relationship between LBP and the amount of physical activity is considered as an important matter for researchers and different studies (Peters, Vlaeyen & Weber, 2005; Crombez et al., 1999; Gheldof et al., 2010; Grotle et al. 2004; Woby et al., 2007; Mannion et al., 2001). There are differential results about the amount of physical activity among the individuals with LBP so that high relationship has been observed between LBP intensity increasing and the physical activity decreasing. The LBP increasing results in the physical activity decreasing (Peters, Vlaeyen & Weber, 2005; Mannion et al., 2001; Goodarzi, Torabi & Safari kermanshahi 2016).

In this study no significant difference was observed in physical activity in work place among the two groups, it may be as a result of the common work time (about 8 hours) and the limited time for physical activity while the none - employed group's physical activity was more than employees group because of their more free time. Therefore, the LBP intensity in employed was more than the other group (Goodarzi, Torabi & Safari kermanshahi ,2016).

It seems that increase in recreational physical activities and also participation in exercise programs can reduce the individuals' back pain through increasing positive physiological effects such as fitness level (Hartvigsen & Christensen, 2007) and also reduced paid attention to the LBP among the LBP suffering people as a coping strategies (Turner & Clancy, 1986; Rosenstiel & Keefe, 1983).

Conclusions

This study revealed the different groups of people who have different jobs may be different due to physical activity.

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Authors ' contribution

AG: Conducted whole study and had full access to all of the data for analysis. Also she was involved in drafting the article

AT: Assessed the patients and confirmed their eligibility for the study. He took responsibility for conducting the study and the integrity of the data and the accuracy of the data collection.

ASK: Participated in conducting the study. All authors approved the final version of the manuscript.

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