



## Pain intensity and Disability among governmental employees and sellers suffering from Chronic Low Back Pain

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**Background:** The aim of this study was to evaluate the level of disability and pain intensity among two groups of governmental employees and sellers who suffering from chronic low back pain.

**Material and Methods:** This descriptive-analytic study was performed from Dec 2015 to Mar 2016 among employed staff members of education ministry (N = 50) and 40 sellers with chronic low back pain who were selected through non-random sampling method. The research tool was Oswestry inventory to inspect the pain intensity and level of disability of the participants. Statistical descriptive/analytic method was used to analyze data through SPSS V16.

**Results:** Totally, 90 participants included 50 employees with an average age of  $45.14 \pm .85$  years and 40 sellers with an average age of  $45.42 \pm 0.98$  years took part in this study. The variables as age, weight, height were the same in the two groups ( $P > 0.05$ ). There were significant difference between the two groups in terms of BMI  $2.01 (3.42-5.9)$ , pain:  $0.55 (0.18-0.92)$ , lifting disability:  $0.77 (0.28 \text{ to } 1.25)$ , walking  $1.03 (0.56 \text{ to } 1.49)$ , sleeping  $-0.26 (-0.51 -0.002)$ , sexuality  $2.07 (1.32 \text{ to } 2.82)$ , social life.  $0.43 (-0.82 - .03)$ , mean total score of functional disability in performing activities  $4.35 (1.93 \text{ to } 6.77)$  which were better in the employed group rather than the other group.

**Conclusion:** This study showed the functional disability and related effective factors were different between employees and sellers. Therefore, categorizing individuals who suffering from back pain into homogeneous groups and investigating the effective factors of disability in each group of people are recommended.

**Keywords:** Low Back Pain, Functional disability, Oswestry questionnaire

### Introduction

Low Back Pain (LBP) is the most common disorder of the skeletal-muscle in people less than 45 years (Anderson, 1999). Various factors such as biomechanical, psychological and social are involved in the incidence and remaining of its functional disabilities resulting (Dankaerts et al, 2007; O'Sullivan I, 2005). In this regard the chronic low back pain is one of the most types of pain that has

affected millions of people around the world who have suffered throughout their documentary history. The chronic low back pain (CLBP) is one of the most challenging medical problems that has high prevalence and put many costs upon the developed and developing countries. In addition, it is the reason of 25% of compensation costs of disability resulted in the workplace. The annual prevalence of low back pain is in the range of %15 to 45% (Maniadakis & Gray, 2000). Due to its nature, low back pain is a benign condition. Many suffering patients will recover within a few weeks, but some residual effects of repeated recurrence of pain has been seen (Sieben et al, 2005). Although the definition of chronic pain is very difficult, but most clinical therapists have reached to a unanimous conclusion that if it remains after 6 to 12 weeks, with recurrent pain, it will be chronic pain (Lee, Chronister & Bishop,

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2008; Reid, 2004). The pain duration and intensity is unpredictable and is not related with the extent of damage and type of treatment directly (Reid, 2004). Therefore the chronic low back pain (CLBP) has many major medicals, social-economic consequences (Sieben et al, 2005, Wand, O'Connell, 2008). The relation of functional disability with the several factors such as low back pain, movement disorders of the spine and physical activity's level has been evaluated in several studies (Sieben et al, 2005; Wand & O'Connell, 2008; van Dillen et al, 2001 & van Dillen,). Some studies have shown that people who have more severe pain also have more disability in their physical functions (Wand, O'Connell, 2008, van Dillen et al, 2001). Therefore, it seems that peoples who suffer from low back pain persuade themselves to avoid from physical activity in order to not be injured again, and this fear can cause to decrease their functional ability (Sahrmann & Sahrmann, 2002, Scholtes, Gombatto & van Dillen 2009). Some other researchers have raised recreational and physical activity in reducing the effect of increasing the level of functional disability in patients with low back pain and could decrease the incidence of low back pain in the general population (Newcomer, et al, 2000). As it seems the level of disabilities may differ in different population groups, this study intended to investigate rate of pain severity and degree of disability among two groups of education ministry employees and seller who were not employed.

### Methods and Material

This study is a descriptive-analytical research. The statistical population consisted of 90 governmental employees and self-employed sellers that were entered into the study from Dec 2015 to Feb 2016. The study participants included 50 employees with a chronic low back pain from education's ministry of Iran and also 40 self-employed sellers who worked 8 hours per day like employees but they had more mobility than employees. Non-random sampling method was used to select the participants. All of interested employees who suffering from LBP and participated in a health screening program in last year were invited to this study. To determine their body mass index (BMI) software version Heymsfield 1996 was used. Based on BMI all of the participants were divided into five categories:

thin (less than 18.5), normal (18.5-24.99) overweight (25-29.99), obese (30-39.99) and morbidly obese (40 and more) (Roch et al, 1996). History of low back pain for at least 3 months continuously or intermittently chronic pain, daily working for 8 hours, at least high school graduating and male gender were as inclusion criteria. The exclusion criteria were included as suffering from any tumor/infection, the presence of kyphosis and scoliosis identified in the spine, stenosis spinal cord, vertebral fracture, disc herniation, and degenerative changes associated with previous surgery, hip or knee joint disease, joint damage, lower limb length differences, serious problems and severe neurological. Firstly, the objectives of study were completely explained to the participants. The consent forms were signed and then the questionnaires included demographic data and functional disability index through Persian translated & standardized Oswestry questionnaire (Mousavi et al, 2006) were completed by all the participants. This questionnaire consisted of 10 parts (pain intensity, personal work, lifting, social life, and travel) each part included 5 points and thus the maximum score (severe) for this questionnaire was 50. Its' value was from 0 to 100 that 0 score indicated ability to perform daily activities without pain (Fairbank & Pynsent, 2000). Data were analyzed by SPSS. Kolmogorov-Smirnov test was used to determine the normality of variables. Independent T-test was used to compare two group's mean according to the Oswestry questionnaire with significant level of  $P < 5\%$ .

### Results

Fifty employees with mean age of  $45.14 \pm 0.85$  and 40 sellers with mean age of  $45.42 \pm 0.98$  years completed the study. Table 1 shows the rest demographic data. There were no significant difference between two groups in terms of age, height and weight ( $P > 0.05$ ). However significance difference was observed in terms of BMI ( $P = 0.006$ ).

Significance differences between two groups were observed in terms of back pain ( $P = 0.004$ ), lifting ( $P = 0.002$ ), walking ( $P = 0.000$ ), sleeping ( $P = 0.04$ ), sexual activity ( $P = 0.000$ ), social life ( $P = 0.035$ ) and due to the total score of back pain related functional disability ( $P = 0.010$ ). Table 2 shows the comparison of functional disability between two groups of employees and sellers.

**Table 1. Demographic characteristics of the both studied groups.**

Variables	Mean difference(CI: 95%)	Employees (N = 50) Mean ± SD	Sellers (N = 40) Mean ± SD	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 of two groups of participations in terms of functional disability based on Oswestry questionnaire**

Variables	Employees (N = 50) Mean	Sellers (N = 40) Mean	Mean difference (%95CI)	P-value	df
Back pain	1.38 ± .90	82 ± .87	55 (.18-.92)	004*	88
Individual tasks	52 ± .93	50 ± .81	020 (-.35-.39)	915	88
Lifting	2.12 ± 1.42	1.35 ± .89	77 (.28-1.25)	002*	83.63
Walking	1.68 ± 1.34	65 ± .83	1.03 (.56-1.49)	000*	83.19
Sitting	1.76 ± 1.17	1.47 ± .93	28 (-.16-.73)	213	88
Standing	1.58 ± 1.07	1.30 ± .91	28 (-.14-.70)	192	88
Sleeping	54 ± .50	80 ± .72	-.26 (-.51- (-.002)	048*	88
Sexual action	2.20 ± 2.50	12 ± .79	2.07 (1.32-2.82)	000*	60.75
Social life	82 ± .98	1.25 ± .89	-.43 (-.82- (-.03)	035*	88
Travelling	82 ± .96	80 ± .60	02 (-.32-.36)	909	88
Disability index	13.28 ± 7.41	8.92 ± 3.91	4.35 (1.93-6.77)	001*	77.35

## Discussion

In this study the mean age of participants was more than 40 years that revealed in this age group low back pain was prevalent. This result is consistent with results of previous studies (Janwantanaku et al, 2011; Masood & Fakhrian, 2001; By Janke, Collins & Kozak, 2007). The possible causes of low back pain in this age range can be noted the inverse relationship between age and muscle strength. This study showed that employees experienced higher low back pain than sellers. This subject is corresponded with the previous study (Mohseni Bandpey et al, 2005). These studies have reported the long time work, job stress, low satisfaction, in appropriate ergonomics as the reasons for back pain (Fanucchi et al, 2009). However, as previous study confirmed (O'Salivan, 2005), the various factors related to functional disability and its negative persistent effects should be paid attention. The relationship between low back pain and related disabilities has always been one of the topics that be interested and in numerous studies have been investigated (Peters, Vlaeyen & Weber, 2005; Gheldof et al, 2010). Different results reported regarding relationship between severity of pain and related functional disability level. Some

studies showed a strong correlation between the intensity of pain and related functional disability (Guclu et al, 2012; Peters, Vlaeyen & Weber, 2005). This correlation has not observed in other studies (Gheldof et al, 2010; Woby et al., 2004; Woby et al, 2007). It maybe indicated non-homogeneity patients with low back pain intensity.

This study indicated that low back pain of employees group and their functional disabilities were higher than sellers group. Thus the comparison between the two homogeneity groups with regard to the intensity of pain, age, height, weight, physical inactivity more than 8 hours and continuous sitting position work that can be said physical inactivity, continuous work without replacing, Inappropriate ergonomics and incurrent sitting position have been of the difference's reason. This inspection also showed differences in functional disability, lifting, walking, sleep disorders, sexual action, social life and overall performance between the two groups. The functional disability of employees group was higher than other group that researcher believes the long time sitting with improper postures and also physical inactivity can be some causes of their performance problems.

According to these findings and different BMI between the two groups it seems to study the role of physical activity as well as intensity and duration of physical activity in people with low back pain is necessary (Baecke et al, 1982). In our study, Sellers had lower back pain intensity and also related disability while lifting, walking, sleeping, sex activity, social life and general disability because of their more physical activity in their workplace. Low back pain is a condition that affected people's performance somehow during 12 months, so that about 7% of adults faced this problem (Takahashi et al, 2006). There are many other effective related factors that accepted to be of pain intensity and related disability. Previous study indicated that cognitive aspects have a greater role in the functional disability compared to the pain intensity in patients with low back pain (Woby et al, 2004). Grombez and coworkers (1999) have shown that the fear and avoid moving are more effective factors in functional disability determination rate to patients with low back pain. Our study showed despite similar demographic characteristics, level of functional disability in employees was more than other group. Employees may be reduced functions and activity level because of more pain intensity and fearing of further damage and reappearing their pain (Woby et al., 2004).

### Conclusion

Results indicated that, there were differences between in functional disability and related effective factors for different groups of patients with low back pain which can show the necessity to categorize homogeneous patient's groups and investigating the effective factors of disability in each group of patients with low back pain. It also seems to participate in more activities through fear-avoid responses reducing and through improving physical activity levels can be reduce functional disability in patients with lower back pain.

### Conflict of Interest

There is no conflict of interest for this article.

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### Author contribution

AG: Study implementation, Data collection and analysis, writing the first draft of Paper.

AT: Study design and data analysis, editing and confirming the final draft of the paper.

ASK: Study design, confirming the final draft of the paper.

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### References

- Andersson, G. B. J. (1999) Epidemiological features of chronic low-back pain. *The lancet*. 354 (9178), 581-585.
- Baecke J. A, Burema, J. & Frijters, J. E. (1982) A short questionnaire for the measurement of habitual physical activity in epidemiological studies. *The American journal of Clinical Nutrition*, 36 (5), 936-942.
- Crombez, G., Vlaeyen, J. W., Heuts, P. H. & Lysens R. (1999) Pain-related fear is more disabling than pain itself: evidence on the role of pain-related fear in chronic back pain disability. *Pain*. 80 (1-2), 329-339.
- Fairbank, J. C. T. & Pynsent, P.B. (2000) The Oswestry disability index. *Spine*. 25 (22), 2940-2953.
- Gheldof, E. L. M., Crombez, G., Bussche, E. V. D., Vinck, J., Nieuwenhuys, A.V., Moens, G. et al. (2010) Pain-related fear predicts disability, but not pain severity: A path analytic approach of the fear-avoidance model. *European Journal of Pain*. 14 (8), 870. e1-870.e9.
- Guclu, D. G., Guclu, O., Ozaner, A. & Konkan, R. (2012) The relationship between disability, quality of life and fear-avoidance beliefs in patients with chronic low back pain. *Turkish Neurosurgery*. 22 (6), 724-731.
- By Janke, E. A., Collins, A., Kozak, A. T. (2007) Overview of the relationship between pain and obesity: What do we know? Where do we go next? *Journal of Rehabilitation Research and Development*. 44 (2), 245-262.
- Janwantanakul, P., Pensri, P., Moolkay, P. & Jiamjarasrangsi, W. (2011) Development of a risk score for low back pain in office workers-a cross-sectional study. *BMC Musculoskeletal Disorders*. 12 (23), Available from: DOI: 10.1186/1471-2474-12-23 [Accessed July 4<sup>th</sup>, 2017].
- Lee, G. K., Chronister, J. & Bishop, M. (2008) The effects of psychosocial factors on quality of life among individuals

- with chronic pain. *Rehabilitation Counseling Bulletin*. 51 (3), 177-189.
- Maniadakis, N. & Gray, A. (2000) The economic burden of back pain in the UK. *Pain*. 84 (1), 95-103.
- Masoud, S. A. & Fakharian, E. (2002) Epidemiological evaluation of patients with lumbar pain referred to Shaheed Beheshti Hospital in Kashan from 1998 to 1999. *Feyz Journals of Kashan University of Medical Sciences*. 5 (4), 109-114.
- Mohseni Bandpey, M. A., Fakhri, M., Ahmad Shirvani, M., Bagheri Nesami, M. & Khalilian, A. (2005) Epidemiological aspects of low back pain in nurses. *Journal of Babol University of Medical Sciences (JBUMS)*, 7 (2), 35-40.
- Mousavi, S. J., Parnianpour, M., Mehdian, H. Montazeri, A. & Mobini, B. (2006) The Oswestry disability index, the Roland-Morris disability questionnaire, and the Quebec back pain disability scale: translation and validation studies of the Iranian versions. *Spine*. 31 (14). 454-459.
- Newcomer, K. L., Laskowski, E. R., Yu, B. Johnson, J. C. M. A. & An, K. N. (2000) Differences in repositioning error among patients with low back pain compared with control subjects. *Spine*. 25 (19), 2488-2493.
- O'Sullivan, P. (2005) Diagnosis and classification of chronic low back pain disorders: maladaptive movement and motor control impairments as underlying mechanism. *Manual Therapy*. 10 (4), 242-255.
- Peters, M. L., Vlaeyen, J. W. S. & Weber, W. E. J. (2005) The joint contribution of physical pathology, pain-related fear and catastrophizing to chronic back pain disability. *Pain*. 113 (1-2), 45-50.
- Reid, M. (2004) An assessment of health needs of chronic low back pain patients from general practice. *Journal of Health Psychology*. 9 (3), 451-462.
- Sahrmann, Sh. & Sahrmann, Sh (2002) *Diagnosis and treatment of movement impairment syndromes*, Elsevier Health Sciences.
- Scholtes, S. A. Gombatto, S. P. & Van Dillen, L. R (2009) Differences in lumbopelvic motion between people with and people without low back pain during two lower limb movement tests. *Clinical Biomechanics*. 24 (1), 7-12.
- Sieben, J. M., Portegijs, P. J. M. Vlaeyen, J. W. S. & Knottnerus, A. (2005) Pain-related fear at the start of a new low back pain episode. *European Journal of Pain*. 9 (6), 635-635.
- Takahashi, N., Kikuchi, SH., Konno, Sh., Morita, S., Suzukamo, Y., Green, J. & Fukuhara, Sh. (2006) Discrepancy between disability and the severity of low back pain: demographic, psychologic, and employment-related factors. *Spine*. 31 (8), 931-939.
- van Dillen, L. R., Sahrmann, Sh., Norton, B. J. Caldwell, Ch. L., Fleming, D., McDonnell, M. C. et al. (2001) Effect of active limb movements on symptoms in patients with low back pain. *Journal of Orthopaedic & Sports Physical Therapy*. 31 (8), 402-418.
- Van Dillen, I. R., Sahrmann, Sh. A & Wagner, J. M. (2005) Classification, intervention, and outcomes for a person with lumbar rotation with flexion syndrome. *Physical Therapy*. 85 (4), 336-351.
- Woby, S. R., Roach, N. K., Urmston, M. & Watson, P. J. (2007) The relation between cognitive factors and levels of pain and disability in chronic low back pain patients presenting for physiotherapy. *European Journal of Pain*. 11 (8), 869-877.
- Woby, S. R., Watson, P. J., Roach, N. K. & Urmston, M. (2004) Are changes in fear-avoidance beliefs, catastrophizing, and appraisals of control, predictive of changes in chronic low back pain and disability? *European Journal of Pain*. 8 (3), 201-210.