



# Prevalence of Low Back Pain and its association with Depression in Male and Female Employees in Iran

## ARTICLE INFO

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## ABSTRACT

**Aims:** Due to Human's physical and psychological dimensions interaction so that both dimensions includes human integrity and general health, this study aimed to investigate the relationship between Low Back Pain(LBP) severity and depression among employees of the Education Ministry.

**Instrument & Methods:** In this researching as a descriptive-analytical study, 100 employees of the Education Ministry who were selected through available sampling, included. . Study tools included demographic questionnaire, Visual Analog Scale (VAS) and Beck Depression Inventory. Data were analyzed by using SPSS 23 and Pearson correlation coefficient (r) and independent t-test.

**Findings:** The results showed that 62% (N=62) of employees were suffering from LBP with different severity. In addition there was a positive and significant correlation between low back pain and depression in participants (P <0.05). However, no significant difference between mean pain intensity in male and female employees was observed (P> 0.05).

**Conclusion:** The relationship between LBP and depression among the staff in this study was revealed. It is necessary to pay attention towards physical-psychological factors and also mental and physical vitality for preventing and treatment of LBP.

**Keywords:** Low Back Pain (LBP), Depression, Employee staff.

## Introduction

Low Back Pain (LBP) is one of the major medical problems in all societies so that approximately 85% of people have experienced this problem at least once during their lives [1]. Back pain is one of the most important causes for disability, work absence and medical treatment expenses [2]. Studies show that the second reason for patients referring to health care providers and the third reason for surgery and the fifth reason for hospitalization is LBP [3]. There are symptoms of LBP in many diseases and systemic musculoskeletal disorders [4]. It has many consequences, including job loss, sick leave and as one third reason for earlier retirements. Back pain is not a disease, really It is a set of symptoms that are usually

acute and self-limiting [5]. Low Back pain patients like other chronic illnesses, in addition to physical complications, also have mental health problems, so their lifestyle will be affected [6]. Low back pain has been known as a physical - psychological - social problem. Negative effects on all aspects of health have been linked to mental health symptoms [7]. Lewis et al. reported that in addition to the physical factor, psychological and emotion factors play a large role in the severity and procedure of low back pain [8]. Many studies have indicated that psychological improvements have been strongly related to the ability and quality of life of patients with low back pain [9, 10]. The findings of a study in Iran have also addressed the integrative and comprehensive role of

psychological factors associated with low back pain in patients [11]. Uncontrolled psychological factors can lead to disability of staff, medical costs and work absence and economic costs for the whole society. The purpose of this study was to investigate its prevalence and relation with depression among employees of Iran's Ministry of Education.

### Instruments and Method

The study is a descriptive-analytical study. Participants included the Ministry of Education's employees who were selected through available sampling. Subjects displayed their satisfaction to participate in the study through a specific form. Exclusion criteria included no tendency for participating in the study, background

of spine surgery and orthopedic injuries. Thus 100 male and female employees aged 20-55 years from August 2019 to October 2019 were enrolled in this study. Visual Analog Scale (VAS) applied to measure pain intensity in patients with low back pain. VAS is a 100 mm (10 cm) horizontal bar with one end being zero without pain, the other tag end 10 is the most severe pain. Its internal reliability (ICC = 0.091) reported. This scale widely used in other scientific research [12]. The Beck Depression Inventory has 21 items that measure physical, behavioral, and cognitive symptoms of depression. Each of them has four selective options that on 0 to 3 scale rated and determines different degrees of depression from mild to severe. The maximum score on this questionnaire is 63 and its minimum score is 0. Participants

**Table1)** Low back pain severity among studied subjects

Frequency	Frequency of subjects		Low back pain severity	
	Females N(%)	Males N(%)	VAS scale	
3	2 (2.8)	1 (3.2)	Mild Pain	1
10	4 (5.7)	6 (19.3)		2
1	1 (1.4)	0 (0)		3
11	7(10.1%)	4 (12.9)	Moderate Pain	4
10	8 (11.5)	2 (6.4)		5
6	4 (5.7)	2 (6.4)		6
1	1 (1.4%)	0 (0)		7
9	7 (10.1%)	2 (6.4)	Severe Pain	8
7	6 (8.6%)	1 (3.2)		9
4	4 (5.7)	0 (0)		10
62	44 (63.7)	18 (58.06)	Total	
38	25 (36.2)	13(41.9)	No pain	

can answer questionnaire with several range of answers. Previous study has reported coefficient ( $K^2$ ) as 0.73 [13].  $K^2$  coefficient was calculated as 0.69 in this study. Questionnaires were completed by the participants and the data were analyzed using SPSS version 23. Pearson Correlation was used for descriptive statistics and evaluating the prevalence of LBP and its relationship with depression variables in each group. In addition, Independent t-test was used to compare the severity of pain between two groups of women and men.

### Findings

In this study subjects were included 100 employees (31 males and 59 females) aged 22 to 58 years with mean age of  $41.14 \pm 8.92$  years and their work experience mean were  $17.43 \pm 7.93$  years.. The results showed that 62% (N=62) of the participating staff had low sever back pain with , 58% (N=58) of men and 72% (N=72) of female employees in the study

had mild low back pain. Overall, 14% (N=14) of the subjects had mild low back pain, 28% (N=28) had moderate back pain, and 20% (N=20) had severe low back pain. (Table1)

Pain numbered on (from 1 to 3 is considered as mild pain, numbers from 4 to 7 as moderate pain and from 8 to 10 as severe pain. Therefore in addition to VAS and demographic information (age, sex, and duration of work with computer) the other instrument used in this study was Beck's Depression Inventory (BDI-II). Pearson correlation coefficient showed that there was a significant relationship between depression and pain severity  $r = 0.2$  at the significant level  $P < 0.05$ . (Table2)

### Discussion

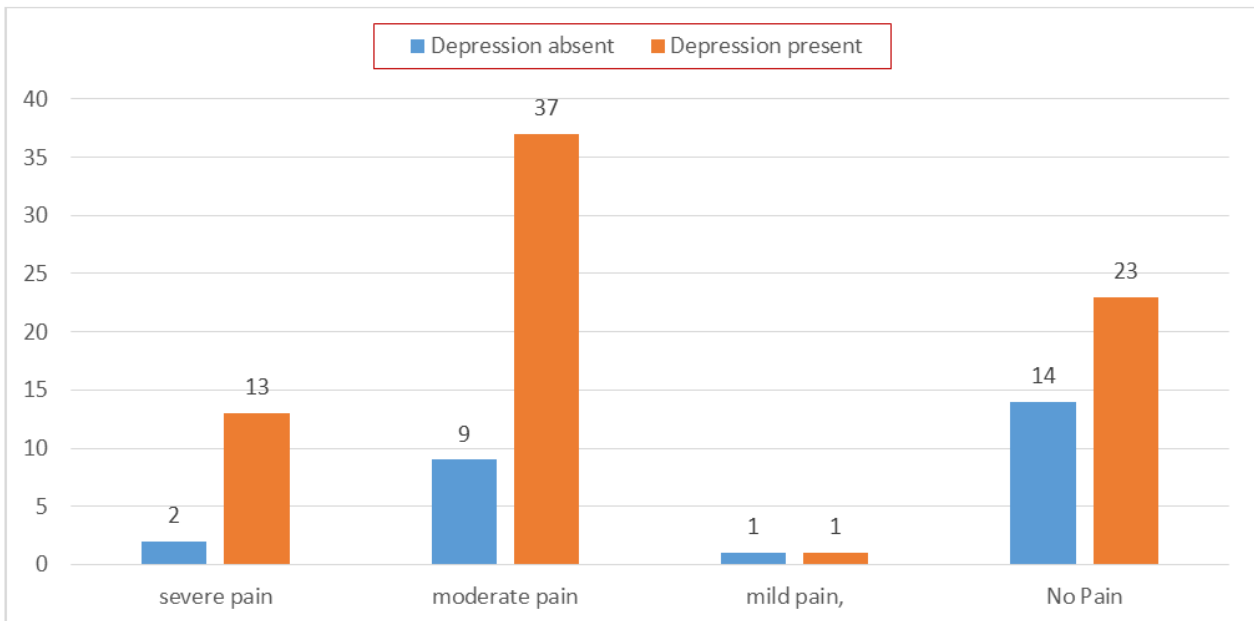
The study aimed to investigate the severity of low back pain and its relationship with depression among employees who are working in the Education Ministry. The findings showed that the majority of subjects

**Table 2)** Relationship between depression with some demographic factors and low back pain index among participants

Variables	Age	Sex	Work experience with computer	Depression	Low Back Pain
Age	1	0.16	0.293**	0.125	0.246*
Sex	0.16	1	-0.061	-0.12	-0.116
Work experience with computer	0.293**	-0.061	1	0.077	0.228*
Depression	0.125	-0.012	0.077	1	0.208*
low Back Pain	0.246*	-0.116	0.228*	0.208*	1

\*Correlation is significant at the 0.05 level

\*\* Correlation is significant at the 0.01 level



**Figure 1)** Frequency of studied participants in visual analogue scale distribution category with depression absent or depression present.

suffered from mild and severe low back pain. This finding can be indicated the severity of work injury and job characteristics. The results are consistent with previous researchers' results in their researches [14,15]. The reasons for the similarity can be found in the similar research methods that all three studies have done on the same Iranian workflow. Long working hours (long sit-ins), high work stress, and insufficient income have been reported as reasons for the high prevalence of low back pain in the workplace in this study [15]. Tanakul. J., et al. reported a prevalence of low back pain in employees with a one-year experience about 23 to 38 percent, as a major reason for quitting under the age of 45 [16]. According to the findings of the study, it is certain that long sitting on a chair during organizational work as a major reason for LBP as indicates in the present study. Therefore, according to the alignment findings of this study and other mentioned studies, it can be concluded that the employees are at risk of low back pain. Findings indicates that LBP among male or women workers, there is no a statistically significant difference between the incidence

of low back pain. There are risks in this issue for both groups. However, men are expected to have higher muscle strength and be able to stand for more difficult work. The results of this study show that employees in both groups are equally are at low back pain risk. Therefore, it is necessary to provide all staff with training on how to deal with such a problem.

In particular the findings showed a positive and significant correlation between low back pain and age of employees, with increasing age and then decreasing of physical strength and occupational fatigue respectively, increasing the likelihood of musculoskeletal disorders and low back pain. There is a significant correlation among employees as the incidence of LBP increases with increasing age. Furthermore, LBP will be increased due to long term sitting for the staff. Previous evidence has also shown that increased age is a risk factor for back pain [17, 18]. Findings in low back pain and depression relationship field indicate a positive and significant correlation between them. Many studies have shown that depression is common among people suffering from

chronic pain and seems to play a more prominent role in the severity of pain than physical factors in cases of chronic pain and high levels of stress and anxiety with pain. Thus through many treatments for psychological disorders in patients with chronic pain, we can reduce pain and enhance quality of life of suffered people<sup>[19,20]</sup>. Aghayari and et al during a investigating among 244 persons, found that there was a positive and significant correlation between low back pain and anxiety in nurses<sup>[21]</sup>. Bairows and et al, in a study of the relationship between depression and pain severity found that patients with chronic low back pain had high degrees of depression that was significantly correlated with severe pain and disability<sup>[22]</sup>. Depression is a disorder that reduces activity in the individuals and creates a hypo activity situation in person so that he/she avoids physical activity. Therefore, his/her functional abilities will be limited consequently, lack of activity caused low level of body muscles using<sup>[20]</sup>. The balance of blood chemical transmitters disrupting can cause psychological problems and exacerbate chronic pain, including low back pain. In addition due to functional disabilities: stigma may be cleared, and this stigma including mental illnesses such as depression can be exacerbated by the general public, family, friends, and even health care professionals, Depression can discourage depressed people from seeking medical help and physical activity, leading to social isolation, reduced life satisfaction, and exacerbation of chronic pain, including low back pain. Long immobility and no physical activity as sitting can be caused for physical problems among the people with LBP. Thus Depression and psychological problems both together exacerbate a variety of physical problems in the individuals. One of these problems can be chronic low back

pain. It has been reported as an effective factor in the development of low back pain<sup>[19,20,23]</sup> that their findings are alignment with this study. The study type (cross-sectional study), Self-reporting of the severity of pain and depression were certain limitations of this study. In future studies, it is advisable to examine the relationship between other psychological factors such as anxiety, stress and chronic low back pain.

### Conclusions

Due to the results of this study, it is recommended that staff be provided with the necessary training in motor literacy and corrective movements for regular physical activity. Necessary training in the ergonomic principles also can be effective and in addition for as much as depression is effective factor for LBP. Managers must be obligated to refresh the workplaces and environment for employees.

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### Ethical permission

All ethical issues were considered for this study.

### Conflicts of Interest

The authors declare that they have no conflict of interest.

### Author's contributions

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

MN. 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.

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.

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