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Low Back Pain and some Related Factors among Employees in Iran

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ABSTRACT

Aims: Evidences support association between obesity and Low Back Pain (LBP). The purpose of the present study is to explore related factors of lBP in some employees working at Deputy of health of Guilan University of Medical Sciences.

Instrument &Methods: This study was a cross sectional study. A total of 100 employees working at deputy of health of Guilan University of Medical Sciences and were selected through nonrandom purposive sampling method. The research tools were Quebec Back Pain Disability Scale (QDS) and Visual Analogue Scale (VAS) . Statistical descriptive/analytic methods were used to analyze data through SPSS version 23.

Findings: In total 100 employees with mean age 43.84 ±8.44years took part in the study. Of these participants, 68 employees were female (68%) and 32 employees were male (32%). The findings from this study indicated that most of the studied participants were suffering from moderate pain. This study also showed that there was a significant association ($P < 0.05$) between LBP and high BMI.

Conclusion: This study verified that increased Body Mass Index (BMI) is associated with LBP and disability among employees. Therefore, designing educational programs with emphasis on reducing BMI through increasing physical activity and healthy diet is strongly recommended.

Keywords: Body Mass Index, Low Back Pain , Musculoskeletal Diseases, Employees.

Introduction

Low back pain (LBP) is the most common disorder among aged around 45 years old. It has been discussed that the majority of general people have suffered from back pain at least once throughout their life[1]. Lower back pain is one of the main reasons of disability, work absence and health system expenses [2]. LBP plays a key impact on public health problem because it causes limitations in activity and work capacity, and induces considerable economic and medical burden to individuals, families, and governments [3]. LBP is an epidemic painful and discomfort health problem in many industrialized countries [4]. This health problem can be a factor of retirement and lower physical activities. It has been estimated that most of LBP is acute However; approximately 15 to 20 percent of LBP is Chronic Low Back Pain (CLBP). Acute LBP is a self-limiting and benign problem. However, many patients seek its' treatment to reduce their pain[5]. In contrast, CLBP is difficult to treat and so many patients to seek multiple health care providers for treatment [6].

LBP, in contrast to many other occupational diseases caused by a single factor, this disorder is a multifactorial health problem and have several causes [7]. According to previous studies regarding LBP, in addition to ergonomic exposures, other factors include gender, age, body mass index are involved with LBP [8]. A researcher have shown the relationship between LBP and anthropometric indices like height, weight and age [9]. Therefore, this study evaluated the relationship between LBP and some factors in some employees

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working at deputy of health of Guilan University of Medical Sciences.

Instruments and Method

This study is a –cross sectional research. The participants consisted of 100 governmental employees that were entered into the study from Dec 2017 to Feb 2018. These participants were working in deputy of health of Guilan University of Medical Sciences and suffering from LBP for at least 3 months continuously or intermittently, were working for 8 hours daily, had at least high school education level and were interested in participating in this study. However, the individuals who were not able to respond the questions were excluded from the study.

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 the same year were invited to this study. All ethical issues were considered for this study. The procedures of this research were explained for the potential participants and if they signed the consent form, they had been entered into the study. Measuring the severity of pain in individuals with chronic pain is very important. Therefore, special tools like Vigual Analof Scale (VAS) was considered for visual assessment of pain [10]. VAS graded on a 10 cm - line. Participants were signaled their musculoskeletal pain on a specific number. VAS is one of the most reliable tools for visual assessment of pain[10]. Pain numbered on (1-3 is considered as mild pain, numbers 4-7 as moderate pain and 8-10 as severe pain). Therefore in addition to VAS and demographic information (age, weight, height, body mass index, duration of work with computer) the other instrument used in this study was Quebec Back Pain Disability Scale (QDS). This questionnaire was standardized and its reliability and validity were confirmed in previous studies [11]. The components of the QDS questionnaire includes various activities and situations. In this scale, in any situation or motion the pain rate is questioned. This scale consists of one central question like "Did you have trouble today with...?" followed by 20 activities of daily life. Some examples of daily activity: taking something out of the fridge, getting out of bed... In every activity, there are 6 answer categories, measured by using a Likert scale from 0-5 (0 = no problem, 5 = not able to). If the patient suffers a lot difficulties in that day, he/ she scores that activity with 5, if it gives no problems scores 0. The final outcome is obtained by the sum of the scoring of the degree of difficulty in performing the 20 daily activities. These outcomes score within the range of 0 and 100, determents the level of functional disability, with higher numbers representing greater levels of disability. In total of zero numbers in this questionnaire it means complete health and without difficulties in the region. The higher the score is, the signs of the problem are more. This information obtained from this questionnaire represents all aspects of the participants' inability to do things and provides therapist with abilities of the patients. To determine their (BMI) software version Heymsfield 1996 was used. based on BMI of all participants witch were divided into four 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) [12]. Questionnaires were completed by all participants. All data were entered into the SPSS version 23, and analyze through descriptive and analytical tests. For describing the data frequency and percent of the variables were measured. Data was analyzed by pearson correlation coefficient software.

All values were reported as the Mean ± Standard Deviation (SD). The Kolmogorov-Smirnov test was used to determine whether outcome variables were normally distributed.

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Findings

In total 100 employees who took part in the study were analyzed. Of these participants, 68 employees (68%) were female and 32 employees (32%). were male Demographic variables showed that mean age of the participants was 43.84 ±8.44 years. Table 1 shows the results of demographic variables. From the total sample, the mean BMI was 26.47 ± 4.62. Almost 5% of the employees were thin 33% had a normal weight 42% were overweight and 20% were obese**.** Table 2 shows the relationship between age, BMI, work experience with computer and QDS scores . There were statistically significant correlation between age, BMI, work experience with computer, and functional disability (P < 0.05). BMI has stronger role in correlation with LBP than other determinants.

Table 1) Demographic characteristics of the studied participants

Variables	Minimum	Maximum	Mean± SD
Age (Y)	19.00	58.00	43.84±8.44
Height (m)	1.40	1.92	1.64±9.56
Weight (Kg)	34.00	120.00	71.39±13.74
BMI	12.58	37.10	26.47±4.62
Work experience with computer(Y)	.00	26.00	8.67±7.84

Body Mass Index (BMI)

Table 2) Relationship between the level of functional disability index with some demographic factors among the studied participants

Variables	Age	BMI	Work experience with computer	Quebec Back Pain Disability Scale
Age	1	0.185	0.239*	0.216*
BMI	0.185	1	0.083	0.247*
Work experience with computer	0.239*	0.083	1	0.211*
Quebec Back Pain Disability Scale	0.216*	0.247*	0.211*	1

*Correlation is significant at the 0.05 level (2-tailed)

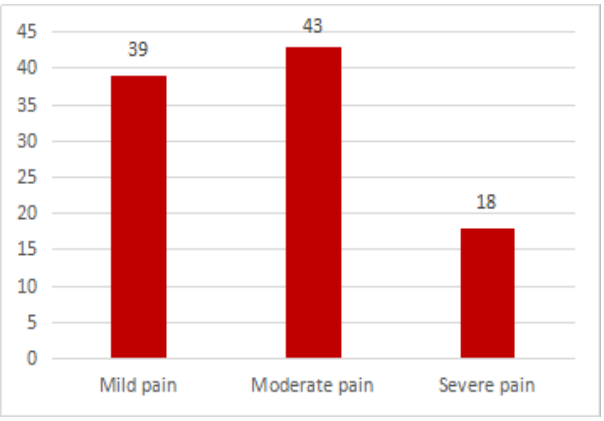

Figure 1) Pain visual analogue scale distribution at participants (1-3 mild pain, 4-7 moderate pain, 8-10 severe pain)

Discussion

This research was aimed to evaluate the relationship between LBP and some factors in some employees working at deputy of health of Guilan University of Medical Sciences. In previous studies, it has been obvious that LBP have affects on economy of developed and developing countries in many ways[13,14]. As it was described in this study, most employees suffered from moderate pain. This result is in consistent with findings from previous study [15]. As it was reasoned in previous evidences, physical and psychosocial factors effects as well as d individual characteristics might contribute to LBP [16,17,18]. However, in this study.

these factors were not assessed , so it is strongly proposed to be explored in future studies. In present study, it was found that there was a positive correlation between BMI with QDS scores. Moreover, the findings of this study have shown that employees working at deputy of health of Guilan University of Medical Sciences with excessive weight had a higher risk of developing back pain than participants who obtained normal weight. This study showed high BMI, long working with computer may be the reasons for back pain. Previous evidence has also shown that increased BMI is a risk factor for back pain [19,20]. This study showed older age has been listed as one of the recognized prognostic factors influencing pain that is inconsistent with the study of Jansen [21]. There was statistically significant relationship between BMI and LBP in this study. Recall that LBP were ranged between 0 and 100 also BMI was classified from 1 to 4 in whitch score 4 means obese" Therefore the positive value of correlation (r = 0.24) implies that an increase in BMI leading to overweight or obesity might be resulted in LBP. Body Mass Index is proportional to weight and inversely proportional to the square of the height. LBP may be resulted due to alterations from normal biomechanics in the vertebral column. Probably the low back pain was initiated as a result of transfer of excess weight from upper extremities and mid-section in patients with overweight or obesity, especially central obesity, through the low back. As such may ultimately alter the biomechanics of lumbar spinal movements and add pressure or shear to the synovial zygapophysial joints, adjacent intervertebral discs or other lumbo-sacral structures, abnormalities that may contribute to LBP [22-23]. This suggests that overweight may be an index in LBP, especially nonspecific low back pain. This population-based study indicates that obesity is associated with a high prevalence of LBP. Further studies are needed to determine if the association is causal.like other studies.

Thers is some limitations for this study that the most important limitation is self-reporting and research type that is a cross sectional study. Therefore, it is proposed to do causal studies to find the more real determinants of LBP.

Conclusions

This study revealed the increased BMI is a risk factor for back pain in 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.

AZ. 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

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

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