ISSN: 2476-5279; International Journal of Musculoskeletal Pain Prevention. 2021;6(1): 433-438.

Relationship between Low Back Pain and Disability

ARTICLEINFO

Article Type
Original study

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How to cite this article

Maghbouli R., Purmemari MH., Moeini Badi F., Moatamed N., Setareh M. Relationship between Low Back Pain and Disability. IJMPP. 2021; 6(1): 433-438.

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Article History
Received: Dec 5, 2020
Accepted: Jan 29, 2021
ePublished: Mar 12, 2021

ABSTRACT

Aims: Low Back Pain (LBP) is one of the problems that affects many people throughout their life. It has been argued that many individuals with LBP suffered from disability.. Due to the high prevalence of LBP, this study was performed to explore the relationship between LBP and disability among a referees to Zanjan University of Medical Sciences (ZUMS).

Method and Materials: This study was performed on eligible referees to the teaching hospitals of ZUMS. The Oswestry Lumbar Disability Questionnaire were used to to assess the disabilities during daily activities and the questionnaire of Van Korf et al. was used to measure pain intensity through Numerical Pain Rating (NPR) scale. The collected data were entered into SPSS version 26 and analyzed.

Findings: Totally 238 individuals including 159 female with mean age of (35.56± 16.12) and 79 male with mean age of (40.06± 13.22) took part in the study and completed the questionnaires. The results of this study showed there was significant relationship between pain severity and disability ($p<0.05$). Furthermore, the findings of the present study showed that female suffered from pain severity and disability more than male significantly ($p<0.05$).

Conclusion: According the findings of this study, designing proper interventions to decrease LBP in order to decrease disability consequently. However, doing more researches in future to verify the results of this study is strongly recommended.

Keywords: Low Back Pain– Disability – Relationship- Iran .

Introduction

Globally, Low Back Pain (LBP) is a disabling health problem [1, 2]. It has been argued that majority of individuals experience this problem throughout their life [3]. In spite of the importance of LBP, the main causes of it is not obvious [4]. As LBP is usually considered as a non-specific health problem , studies have paid attention to realize its' behavioral risk factors. It has been discussed that the factors such as heavy physical work demands, mental/emotional pressures, aging, gender, low educational level, could contribute to prevalence this problem [5].

Due to the increased life expectancy non-communicable diseases have been increased worldwide [6]. In this regards, musculoskeletal disorders that leading to disability is so prevalent [7]. Low back pain is a highly disabling prevalent health complaint [8]. The existed evidences revealed that about 60 to 85% of people suffered from LBP at some points of their life[9-12]. It has been suggested that in upcoming decades, the aged people will likely suffer from acute LBP that may be shifted to chronic LBP[13, 14].

ChronicLBPmightbeaccompanied by severe pain, more physical disfunction, poorer prognosis, lower Health Related Quality of Life (HRQoL) and disability [10, 15-17]. It has been estimated that in the year of 2016, 57 million years lived with disability were related to LBP which have increased by more than 50% since 1990 [18]. Chronic LBP patients verified that their quality of life scores

[DOR: 20.1001.1.24765279.2021.6.1.2.4]
[DOI: 10.52547/ijmpp.6.1.433]

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[DOI: 10.52547/ijmpp.6.1.433]

were similar to individuals suffering from a life-threatening diagnosis[19]. Researches suggest that chronic LBP is responsible for the majority of LBP-related societal costs[13]. In the Netherlands, these costs were estimated as 3.5 billion euros in 2007, which has been equal to 0.6% of the Dutch Gross National Product (GNP) [13]. In the United States, the estimated annual total societal cost of LBP was estimated at 100 billion dollars[20, 21]. Lower productivity while being at work, absenteeism, early retirement have been the most important causes of these societal costs[22].

Previous evidences revealed the relationship between severity and/or disability with higher costs and a lower HRQoL [17, 23-26]. Furthermore, relationship between pain severity level and increased direct and indirect costs as well as societal costs amongst LBP patients were confirmed in previous evidence[26]. However, Long lasting, chronic pain and dysfunctional limitations that LBP individuals experience can be resulted in their disability and interfere with their quality of life [24, 27]. Chiarotto and co-workers confirmed a positive correlation between pain severity and disability as well as a negative correlation between pain severity, and HRQoL [28]. Being the importance of LBP in Iran, this study aimed to explore the relationship between LBP and disability among individuals refered to Zanjan University of Medical Sciences (ZUMS).

Methods and Materials

This cross-sectional study was conducted among individuals with LBP who referred to the teaching hospitals of ZUMS The eligible subjects were entered into this study after being informed about the aim and procedures of the research. After obtaining the consent of the participants and signing consent form, the questionnaires were provided for the participants via e-mail or by a trained person residing in the clinics. In case of any questions about the questionnaires, the necessary information was provided to the paricipants. Those who received the questionnaire by e-mail were tracked by telephone to collect the questionnaires .Oswestry low back pain disability questionnaire was used to assess the inability to perform daily activities. Ten sections of this questionnaire to measure pain disability were completed by the participants. Each section had a score of 0-5 that the participants were able to choose or score independently for their disability. Finally, the scores were collected to calculate the total disability of the different sections. There were 10 sections in oswestry low back pain disability questionnaire which included the following areas: Ability to take care of oneself, lifting objects, lying down, sitting, standing, sleeping, having sex, traveling, social life and pain severity.

Van Korf et al.'s questionnaire was used to measure pain intensity with Numerical Pain Rating (NPR) scale. In total, this scale included 7 questions, each of which was rated from 0 to 10. The person was able to choose one of the options from 0 to 10 based on the severity of the pain according to the question. The validity and reliability of this were confirmed by Van Korf et al. To determine the severity of low back pain with the scale in the previous study[29]. The Oswestry Pain Disability Questionnaire was also examined in a previous study [30]. All participants entered the study with personal satisfaction and voluntarily after explaining the objectives of the study. In this regard. it was emphasized that completing this questionnaire would not take more than 10 minutes. After assigning the appropriate codes, the data were entered into SPSS software and analyzed. In the presence of normal distribution, the relationship between low back pain severity and disability was tested with Pearson correlation coefficient. T-test was used to check for correlation. P value less than 0.05

[DOR: 20.1001.1.24765279.2021.6.1.2.4]

[DOI: 10.52547/ijmpp.6.1.433]

indicates a significant difference.

Findings

Totally 238 individuals with mean age of (38.57±0.9) years old including 159 female with mean age of (35.56± 16.12) and 79 male with mean age of (40.06± 13.22) took part in the study and completed the questionnaires. Of all participants, 233 participants (97.9%) were living in urban area and 5 participants (2.1%) were living in rural area. Moreover, 144 participants (60.50%) were married and 90 participants (37.8%) were single. In terms of economic status, the most participants means 148 participants (62.2%) reported they had moderate economic status. According the result of Pearson co-efficient which calculated as 0.66 it was determined that the correlation between disability and pain intensity was direct and significant ($p<0.01$) Figure 1 shows the relationship between pain intensity and total disability score that is direct upward slope. Table 1 shows the degree of disability and pain intensity in the studied participants by gender, age and residency status. Accordingly, women suffer significantly from men both in terms of pain intensity and disability. Furthermore, the participants aged more than 30 years old were suffering from pain intensity and disability than others. As the results, there were no difference between participants who were living in urban and rural areas in terms of pain severity and disability. Table 2 shows the correlation between the disability and pain intensity in terms of age, gender and residency of the participants.

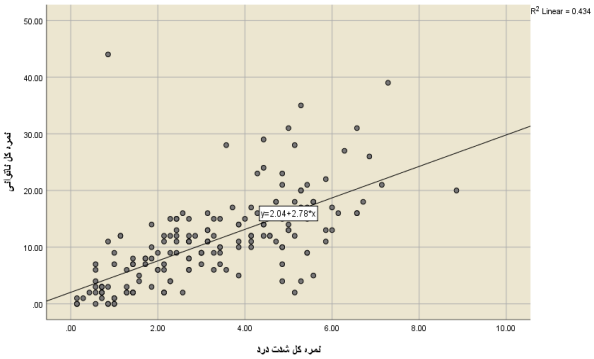

Figure 1) Distribution chart relationship between pain intensity and disability in research units

Table 1) Disability rate and pain intensity in subjects by gender, age and residency status

Sub-scales	Subgroups	M(SD)	T	P value
Pain severity (PNR)	Male	2.53 (1.84)	-2.722	0.007
	Female	3.25 (1.94)		
Disability (Oswestry)	Male	8.81 (8.10)	-2/419	0.017
	Female	11.75 (7.58)		
	Age (yrs)			
Pain severity (PNR)	≤30	2.39 (2.01)	-4.44	<0.001
	≥30	4.48 (1.74)		
Disability (Oswetry)	≤30	8.76 (7.24)	-5.88	<0.001
	≥30	11.40 (7.44)		
	Residency status			
Pain severity (NPR)	Urbun	3/01 (1.93)	-0.246	0.806
	Rural	2.80 (2.12)		
Disability (Oswestry)	Urbun	10.68 (7.82)	-0.08	0.937
	Rural	11.00 (11.31)		

** Significance at the level of 0/01

Table 2) Correlation coefficient between pain intensity and disability in terms of age, gender and residency of the participantss

Variables	sub-groups	Correlation coefficients
Gender	Men (N= 79)	0.53**
	Women (N=159)	0.72**
Residency status	Rural (N= 5)	0.95**
	Urban (N=233)	0.64**
Age	≤30 years (N=94)	0.38**
	> 30 years (N=144)	0.23**

** Significance at the level of 0.01

Discussion

This study was performed to investigate the relationship between LBP and disability. The present study was a cross-sectional study that showed a positive and uniform linear relationship between pain intensity and disability. In this regard, It was cleared that this positive and direct relationship existed in terms of age, gender and residency status. Accordingly, women suffer significantly more than than men both in terms of pain intensity and disability. Furthermore, the participants aged more than 30 years old were suffering from pain intensity and disability than others. As the results, there were no difference between participants who were living in urban and rural areas in terms of pain severity and disability. This finding might be due to the small number of participants of the present study who were living in rural area, so it is recommended this result be confirmed in further future studies with larger sample size. In this study, we found a strong association between pain intensity and disability, which is consistent with the results of a study that conducted by Turner et al[31]. In addition, as mentioned above, we observed a strong linear relationship between pain intensity and disability, which is stronger in women than men. Although, the risk factors that increase the severity of pain, especially LBP in women compared to men, are not known exactly. However, there is evidence of gender differences in self-reported pain in which women may have lower pain thresholds and tolerance than men and so, report pain and disability more than men[32]. This finding is consistent with previous researches [33-36]. To justify the causes of more severe pain and disability among older participants, It has been argued that aging usually leads to decreased physical activity, and so, studies have shown that decreased physical activity and inactivity are associated with a prevalence of LBP and diability among this group of people [37].Various previous studies have shown that appropriate interventions could reduce the rate of disability and disability. Therefore, training of spinal posture skills and reducing risk factors can play a very effective role in decreasing LBP and disability.

Like other existing studies, this study has its strengths and weaknesses. It's most important strength is the large sample size which helps the accuracy of the results. One of the weaknesses of this study is the information bias of pain and disability because of data collection through self-reporting. Moreover, the collection of information during the outbreak of coronavirus caused the method of collection

[DOR: 20.1001.1.24765279.2021.6.1.2.4]
[DOI: 10.52547/ijmpp.6.1.433]

to be done electronically, and this in itself can lead to information bias in the entry of information by participants, which may affect the final results.

Conclusion

This study showed that the rate of low back pain and disability in the subjects has a high ratio and there is a direct relationship between the severity of low back pain and disability so that people who suffer from more low back pain have more disability. However, doing more researches to confirm these results is strongly recommended in order to be able to design more studies to determine risk factors of LBP and disability and designing proper intervention subsequently.

Acknowledgment

The authors thank the research deputy of ZUMS for its official supports of this study.

Author contribution: This study deprived from a general physician thesis. RM was the main researcher and conducted the study. MHP was the supervisor of the study. FM entered the data into SPSS software, analyzed the data and wrote the manuscript. NM and MS were advisors of the study. All authors wrote the manuscript.

Conflict of Interest: There is no conflict of interest for this study.

Ethical permission: Al ethical principals were considered in this research. This study approved in ethical committee of ZUMS with the code of IR.ZMUS>REC>1399.237

Funding/ support: No funding

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