



## Low Back Pain and Related Disability among Students of Islamic Azad University, Tehran Iran

Rahman Panahi<sup>1\*</sup>, Behnam Mohammadi<sup>2</sup>, Ali Karimi<sup>3</sup>, Mohammad Reza Irani<sup>4</sup>, Farzaneh Mostafavi<sup>5</sup>, Omid Javadi<sup>6</sup>

1. Public Health Department, Yazd University of Medical Sciences, Tehran, Iran.
2. Physical therapy Department, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
3. Health Occupational Department, Yazd University of Medical Sciences, Yazd, Iran.
4. Health Care Management Department, Science and Research Branch, Islamic Azad University, Tehran, Iran.
5. Physiotherapy Department, Tehran University of Medical Sciences, Tehran, Iran.
6. Chemical Engineering and VHS Department, Semnan University of Medical Sciences, Semnan, Iran.

**Background:** Low back pain is the most common cause of disability and absence from work among young and middle-aged people. As there is limited knowledge regarding this problem among Iranian students, this study aimed to determine the prevalence of low back pain and its 'related socio demographic factors among students of Islamic Azad University, Tehran, Iran.

**Material and Methods:** This is a cross-sectional study in which 200 students of Islamic Azad University were selected purposively.

Demographic questionnaire and Ronald-Morris Disability Scale were used to collect data regarding characteristics and disability caused by back pain. Data were entered SPSS<sub>16</sub> and analyzed through descriptive and analytic statistics.

**Results:** In total, 190 students including 78 (41%) men and 112 (59%) women were assessed. Of all studied students 113 individuals 65.9% were suffering from low back pain and 91 students (47.8%) were suffering from pain related disability. Body mass index (BMI) was normal in most participants. There was significant negative relationship between low back pain and physical activity (P = 0.006).

**Conclusion:** To sum up, the results of this study verified a significant relationship among low back pain and disability. Moreover, the students who were more active and were living in good socio-economic status were less probably to suffer from low back pain and disability.

**Keywords:** Low Back Pain; Student; Related Disability

### Introduction

Low back pain (LBP) is one of the most common health problems worldwide. In the USA, the prevalence of LBP has been estimated from 15 to 45% according to cross-sectional studies. In United Kingdom, LBP has been considered as the biggest single cause of absence from work (Kamper et al., 2015). This health problem

is well documented as an extremely common health problem which is the leading cause of activity limitation and work absence throughout world (Hoy et al., 2014). Low back pain (LBP) is a major public health problem resulting in individual and society consequences in many communities (Eklund et al., 2014). LBP remains the primary cause of absenteeism and disability worldwide and patients who develop chronic Low Back Pain (CLBP) consume the majority health resources for their pain (Eklund et al., 2014). Chronic pain syndrome (recurrent or continuous) in the lower back region, lasts for at least three months (with or without radiculalgia). Chronic low back pain (CLBP) and identification of risk factors in evolution toward chronicity has been the subject of numerous controversial works (Cougot et al., 2015). The consequences of low back pain such as

Corresponding author: No 002, Department of Public Health, Yazd University of Medical Sciences, Yazd, Iran., P.O. Box: 3146883411, Tel: 0098 9128630373; Fax: 0098 9128630373; E-mail: peimanpanahi63@yahoo.com

Access this article online

Website: [ijmpp.modares.ac.ir](http://ijmpp.modares.ac.ir)

DOI: 10.7508/ijmpp.2016.01.003



disability, loss of employment, sick leave and reduced mental health has made this problem to be considered as social, psychological and economic problem that not only individuals, but also the societies are affected (Kamper et al., 2015). Therefore, not only organic factor, but socio professional and psychological factors could be paid attention in this phenomena (Cougot et al., 2015). In general, the previous studies showed that there were an association between musculoskeletal pain and psychological factors in young people (Murberg & Bru, 2004, Eckhoff & Kvernmo, 2014). Therefore, several levels of stress\_pain interactions, which can be termed neurophysiologic, psycho physiological, cognitive-behavioral, and genetic-behavioral levels, have been suggested in this regards (Hoftun Romundstad & Rygg, 2012; Christensen et al., 2015).

Iran as a developing country has a young population. The majority of this population is studying in schools and universities. Nowadays students-as an important segment of societies-play remarkable roles in the management of every country's future. In Iran, students are sedentary people who can, potentially, have all the disadvantages of inactivity. In addition, their caused back damages are less considerable than of it in any other occupations. Given that the students make up a wide range of Iranian population, paying attention to prevalence of low back pain and related factors can improve back pain healthy preventive, behaviors increase their self efficacy to do more behaviors that finally leading to reduced cost of treatment. As in Iran, there are limited knowledge in this regards, this study aimed to evaluate the prevalence and related factors of low back pain among students studying in West Branch of Islamic Azad University, Tehran.

### Material and methods

This research is a cross-sectional study in which 200 students from the faculty of liberal arts of Islamic Azad University of West Tehran Branch were purposively selected to be assessed. On enrollment, the purpose and procedure of the study were explained for the potential participants. Then the eligible students, who were studying in the art faculty and were satisfied to enter to the study, signed the consent form and entered into the study. However, the students who had history of low back pain due to an accident, being pregnant, or having any other disease were excluded from the study. Ethical committee of Azad University approved the study.

Data collecting tools consist of two parts including demographic data questionnaire and the standard Roland-Morris Disability scale. Information concerning demographic data including age, gender, marital status, employment status, place of residence, smoking, duration of physical activity, socio-economic status, BMI, history of low back pain, and back pain-related disability were collected by means of the questionnaire provided by the author. To determine the extent of disability, Roland-Morris Disability Questionnaire (RDQ) was applied. The RDQ was derived from the Sickness Impact Profile, which is a 136-item health status measure covering many aspects of physical and mental function. RDQ includes 24 items which are related specifically to physical function and are affected by low back pain. This instrument is a health status measurement scale designed to be completed by participants. To completing the RDQ, the participants were asked to place a check mark beside the statement that applied to them at that day. The RDQ score is calculated by summing the number of marked items. Thus, the score of this scale ranged from 0 (no disability) to 24 (maximum disability). Translation of this scale into different languages is available and its validity/reliability is well documented. In this study, the Iranian version of RDQ was used. The validity and reliability of this version has been documented (Mousavi et al., 2006).

As a means to study BMI, people are classified in each of the 5 groups below as thin (less than 18.5); normal (18.5-24.99), overweight (25-29.99), obese (30-39.99); and morbid obesity (40 and higher) (Roche Heymsfield, & Lohman, 1996). To determine the relationship between age and the extent of back pain and disability, research samples were divided into four age groups as younger than 20 years old, between 20 and 29 years old, between 30 and 40 years old, and above 40 years old.

Every student was asked to fill in the questionnaire with absolute honesty to ensure the authenticity of the results. SPSS16 was used to determining the frequency of the variables and relationship between them through descriptive and analytical statistics. Significant changes was considered at level of  $P < 0.05$ .

### Results

Given the reluctance of some students to participate in the study, uncompleted questionnaire as well as the distortion of some questionnaires, finally 190 completely filled questionnaires were obtained from research units. Of the 190 samples under

research, 78 students (41%) were men and 112 students (59%) were women. Body mass index (BMI) was normal in most students and there was no significant relationship between BMI and low back pain ( $P = 0.10$ ). Eighty four percent of students ( $n = 158$ ) reported not being smokers. There was no noteworthy relationship between smoking and low back pain ( $P = 0.74$ ). However, there was an impact full relationship between physical activity and low back pain ( $P = 0.006$ ). Moreover, there were significant relationship between socioeconomic status and low back pain (0.015). The results of present study showed that 65.9% ( $N = 113$ ) of the students had a history of low back pain, of which eighty eight

percent ( $N = 60$ ) of the students suffered from low back pain and disability. Chi-square test showed that there was no remarkable relationship between low back pain and age, gender, marital status and occupation (all  $P > 0.05$ ). The majority of the participants (18.4%,  $N = 35$ ) who suffered from low back pain reported that they have obtained back pain-related information through searching the Internet.

The findings of the present study based on Roland-Morris Disability index revealed that the majority of studied students ( $N = 75$ , 66%) suffered from mild physical disability and 4 students (3.5%) lived with acute disability.

**Table 1. Demographic profile of the students who participated in the survey.**

Variables	N (%) N = 189	Having low back pain N = 113	No low back pain N = 76	P-Value
<b>Age</b>				
Under 20 years old	15 (7.9%)	10 (66.5%)	5 (33.5%)	P = 0.322
Between 20 and 30years old	128 (67.4%)	74 (58%)	53 (41.5%)	
Between 30 and 40years old	29 (15.3%)	21 (72.5%)	8 (27.5%)	
Over 40 years old	17 (8.9%)	8 (47%)	9 (53%)	
<b>Gender</b>				
Female	112 (59%)	73 (65%)	38 (34%)	P = 0 .068
Man	78 (41%)	41 (52.5%)	37 (47.5%)	
<b>Marital status</b>				
Single	144 (75.8%)	88 (61%)	56 (33%)	P = 0.799
Married	42 (22.1%)	24 (57.1%)	18 (43%)	
Divorced	2 (1.1%)	1 (50%)	1 (50%)	
Widow	1 (.5%)	1 (100%)	(0)	
<b>Socio-economic status</b>				
Excellent	11 (5.9%)	4 (36%)	7 (64%)	P = 0 .015
Good	98 (52.7%)	55 (56%)	43 (43%)	
Average	75 (40.3%)	54 (72%)	21 (29%)	
Weak	2 (1.1%)	0	2 (100%)	
<b>Smoking</b>				
Yes	31 (16%)	19 (63.5%)	12 (36.5%)	p = -0.192
No	158 (84%)	95 (60%)	63 (40%)	
<b>BMI</b>				
Thin	32 (17%)	24 (75%)	8 (25%)	P = 0 .103
Normal	111 (58.7%)	62 (56%)	49 (44%)	
Over weight	40 (21.2%)	22 (55%)	18 (45%)	
Obese	3 (1.6%)	3(100%)	0	
<b>Doing sports</b>				
Everyday	16 (8.5%)	5 (31%)	11 (69%)	P = 0 .006
Often	43 (22.8%)	19 (44%)	24 (56%)	
Sometimes	67 (35.5%)	46 (68.7%)	21 (31.3%)	
Not very often	46 (24.3%)	32 (70%)	14 (30%)	
Never	16 (8.5%)	11 (69%)	5 (31%)	
<b>Occupation</b>				
Just student	104 (54.7%)	63 (60.5%)	41 (39.5%)	P = 0.407
Housewife	9 (4.7%)	6 (67%)	3 (33%)	
Employee	32 (16.8%)	18 (56%)	13 (41%)	
Worker	1 (.5%)	0	1 (100%)	
Self-employed	26 (13.7%)	14 (54%)	12 (46%)	
Unemployed	1 (.5%)	0	1 (100%)	
Other	15 (8%)	12 (80%)	3 (20%)	

**Table 2. Distribution of disability among studied students suffering from low back pain.**

Disability score (RMD score) low back pain	14-24 *N (%)	10-13 N (%)	7-9 N (%)	1-6 N (%)	(No disability) N (%)	Total N (%)	P-Value
Yes	4 (3.5%)	5 (4.4%)	7 (6.1%)	75 (66%)	23 (20%)	114(60)	0.04
No	0	1 (1.35%)	1 (1.35%)	34 (45.3%)	39 (52%)	75(40)	
N (%)	4 (2.1%)	6 (3.1%)	8 (4.2%)	109 (57.6%)	62 (33%)	189(100)	

\*N = Number

Table 2 shows the distribution of disability among studied students suffering from low back Pain. According to these results, there was significant relationship between low back pain and disability degree ( $P = 0.04$ ).

### Discussion

The aim of this study was to evaluate the prevalence of low back pain and its relationship with disability amongst students of Islamic Azad University, West Tehran Branch. The results of present study showed the high prevalence of low back pain among mentioned students that are compatible with the results of a conducted study in Iran (Mousavi et al., 2006).

The results of this study indicated a significant negative relationship between physical activity and low back pain. According, regular and frequent exercise had a positive effect on preventing back pain, meaning that students who were physically active had less back pain. These results are consistent with the results of previous study (Fanucchi et al., 2009).

The present research showed most students who aged between 30 to 40 years old suffered from low back pain. These results indicated that low back pain is more prevalent in this age interval. However, more researches should be done to verify this finding. Preliminary studies suggest that smoking may be in association with low back pain. In a study which was performed on 29,000 people, a significant relationship between smoking and low back pain was discovered (Leboeuf-Yde, Kyvik & Bruun, 1998). However, it is a challenge that in comparison with non-smokers, the risk of developing back pain in smokers is more severe. Thus, doing more researches to explore the real relationship between smoking and lower back pain is recommended.

On the subject of disability, it is possible to say how much an individual can be able to function more and how much pain and difficulty he might face while doing his/her daily tasks such as walking around, lifting things up, sitting down,

doing his/her personal work, standing up, sleeping, doing sexual activity, and traveling. The more tasks a disabled individual is up to do, the higher low back pain can be sensed. Therefore, inability to perform daily activity can cause low back pain and also can be resulted from back pain. Our results stated that there was a significant positive correlation between low back pain and functional disability in studied students. This result is consistent with results of other studies (Tavafian, Jamshidi & Mohammad. 2014) that showed a significant positive correlation between back pain and disability. According to the results of this research, mild disability was reported by majority of students. Even though mild disability does not require specific treatment, doing appropriate exercise and correct vertebra position while doing daily activities as well as modification of physical condition are strongly recommendation. However, as specified by the results of the present study based on Roland-Morris disability questionnaire, there was a significant relationship between low back pain and disability. These results are consistent with results of other studies (Tavafian, Jamshidi & Mohammad. 2011; Tavafian, Jamshidi & Mohammad, 2014). In spite of some strength points of this research, there were some limitations for this study. Firstly, because of summer vacation of the university, only a purposive sample of students took part in the research. Furthermore, the students were recruited just from one faculty of a university. Therefore, as a limitation, this study may not be generalized to all students. In addition, smoking as a related factor for low back pain and disability, was not assessed in this study.

However, the present study showed the high prevalence of low back pain among Iranian youth that are similar to many previous researches. Due to extensive effective factor on back pain, it is recommended to conduct a multi central research in which other students in different universities could take part.

## Conclusion

This study showed the high prevalence of low back pain among students. Furthermore, this study verified students with low back pain were more probably to suffer from disability. Moreover, the students who were more active and living in good socio-economic status were less probably to suffer from low back pain and disability.

## Conflict of interests

The authors declare that they have no conflicts of interest.

## Acknowledgments

All authors have special thanks to all the students who voluntarily participated in this survey and helped to collect data. Authors, also, express their special gratitude and appreciation towards the dean of liberal arts faculty, West Tehran Branch and all those people who have, directly and indirectly, contribution to the development of this study.

## Author contribution

RP, Study Importation, Data collection and analysis, writing the first draft of the Paper.

RP, BM, AK, MRI: Study design and data analysis, editing and confirming the final draft of the paper.

FM, OJ: Study design, confirming the final draft of the paper.

## Funding/Support

No declared.

## References

Christensen, J., Fisker, A., Mortensen, E. L., Olsen, L. R., Mortensen, O. S., Hartvigsen J et al., (2015) Comparison of mental distress in patients with low back pain and a population-based control group measured by Symptoms Check List–A case-referent study. *Scandinavian Journal of Public Health*. 43 (6), 638-47.

Cougot, B., Petit, A., Paget, C., Roedlich, C., Fleury-Bahi, G., Fouquet, M., et al. (2015) Chronic low back pain among French healthcare workers and prognostic factors of return to work (RTW): a non-randomized controlled trial. *Journal of Occupational Medicine and Toxicology*. 10, 40.

Eckhoff, C. & Kvernmo S. (2014) Musculoskeletal pain in Arctic indigenous and non-indigenous adolescents,

prevalence and associations with psychosocial factors: a population-based study. *BMC Public Health*. 14, 617.

Eklund, A., Axén, I., Kongsted, A., Lohela-Karlsson, M., Leboeuf-Yde, C. & Jensen, I. (2014) Prevention of low back pain: effect, cost-effectiveness, and cost-utility of maintenance care–study protocol for a randomized clinical trial. *Trials*. 15, 102.

Fanucchi, G. L., Stewart, A., Jordaan R., & Becker P. (2009) Exercise reduces the intensity and prevalence of low back pain in 12-13 year old children: a randomised trial. *Australian Journal of Physiotherapy*. 55 (2), 97-104.

Hoftun, G. B., Romundstad, P. R. & Rygg M. (2012) Factors associated with adolescent chronic non-specific pain, chronic multisite pain, and chronic pain with high disability: the Young-HUNT Study 2008. *The Journal of Pain*. 13 (9), 874-883.

Hoy, D., March, L., Brooks, P., Blyth, F., Woolf, A., Bain, C., et al. (2014) The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. *Annals of the Rheumatic Diseases*. 73 (6), 968-74.

Kamper, S. J., Apeldoorn, A., Chiarotto, A., Smeets, R., Ostelo, R., Guzman, J. & van Tulder, M. (2015) Multidisciplinary biopsychosocial rehabilitation for chronic low back pain: Cochrane systematic review and meta-analysis. *BMJ*. 350, h444, 1-11.

Leboeuf-Yde, C., Kyvik, K. O. & Bruun, N. H. (1998) Low Back Pain and Lifestyle: Part I: Smoking. Information From a Population based Sample of 29, 424 Twins. *Spine*. 23 (20), 2207-2213.

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.

Murberg, T. A. & E. Bru. (2004). School-related stress and psychosomatic symptoms among Norwegian adolescents. *School Psychology International*. 25 (3), 317-332.

Roche, A., Heymsfield, S. & Lohman, T. (1996) Human body composition. Champagne. *Human Kinetics*.

Tavafian, S. S., Jamshidi, A. R. & Mohammad, K. (2011) Treatment of chronic low back pain: a randomized clinical trial comparing multidisciplinary group-based rehabilitation program and oral drug treatment with oral drug treatment alone. *The Clinical Journal of Pain*. 27 (9), 811-818.

Tavafian, S. S., Jamshidi, A. R. & Mohammad, K. (2014) Treatment of low back pain: randomized clinical trial comparing a multidisciplinary group-based rehabilitation program with oral drug treatment up to 12 months. *International Journal of Rheumatic Diseases*. 17 (2), 159-164.

**How to cite this article:** Panahi, R., Mohammadi, B., Karimi, A., Irani, M. R., Mostafavi, F., Javadi, O., Low Back Pain and Related Disability among Students of Islamic Azad University, Tehran Iran. *IJMPP*. 2016; 1 (1): 17-21