



# The Relationship between Educational Level and Reducing Musculoskeletal Pain

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## ABSTRACT

**AIM:** Musculoskeletal pain, the most common cause of disability globally, is most frequently managed in primary care. People with musculoskeletal pain in different body regions may have similar demographic characteristics. Therefore, this study aimed to determine the relationship between educational level and reducing musculoskeletal pain.

**Method and Instruments:** This cross sectional study was conducted among academic people working in Tarbiat Modares University from Apr to August 2020. The volunteer subjects were entered into this study after being informed about the aim and procedure of the study and signing the consent form. A researcher – made questionnaire based on the objectives of the study as well as a demographic characteristics questionnaire were used to collect data. In the objective based questionnaire, the participants were asked about their exercise doing and musculoskeletal pain. Data were entered into SPSS version 26 software and analyzed using descriptive/ analytical test.

**Findings:** Totally 93 participants with mean age of  $36.15 \pm 11.42$  years old were participated in the study. Of all participants, . Furthermore, 51 participants (54.8%) were male and 42 participants (45.2%) were female. Mann Whitney's test showed that there was a significant relationship between gender and exercise activity ( $P$  value =  $<.001$ ), which was higher in men than women. However, there was no significant relationship between musculoskeletal pain and educational level. ( $P = 0.401$ ).

**Conclusion:** This study showed that the musculoskeletal pain were in similar severity in different level of education. However, doing further researches with larger sample size is recommended.

**Keywords:** Educational Level, Musculoskeletal Pain, Relationship.

## Introduction

Approximately 100 million adults in the United States (US) suffer from chronic pain, and musculoskeletal pain is the most common type of chronic pain. Moreover, rates of chronic pain has been rising in the US, and are expected to continue to rise <sup>[1]</sup>. This is particularly worrisome because chronic pain is associated with poorer self-reported health status, worse mental health, lower levels of employment, and higher use of medical services <sup>[1]</sup>. Musculoskeletal disorders are a group of disorders that affect musculoskeletal system, that may cause complaints such chronic pain which may remain as a pervasive medical problem and consume a vast amount of

health care resources <sup>[2-5]</sup>.

In European countries, national healthcare and socioeconomic costs associated with chronic pain impose a substantial economic burden on healthcare systems and society <sup>[6-7]</sup>.

Evidences showed exercise as an accessible, cost-effective, and viable therapeutic approach for improving chronic pain conditions as well as mental health, and cardiorespiratory <sup>[8-11]</sup>. Exercise is a subset of physical activity which defined as structured activity with improving physical function <sup>[12]</sup>

It has been argued that marked effects of physical work demands on general health and physical functioning <sup>[13-15]</sup>. Physical demands at work caused a considerable portion of the occupational class

gradient in self-rated health in women and a small contribution observed was for men<sup>[16]</sup>. The contribution of physical demands to the occupational class gradients has been larger for women than men. This suggests a higher vulnerability of women to physical demands at work. <sup>[16]</sup>.

As to our the researchers' experiences, the employees and students in Tarbiat Modares University are low physical active and also there is no evidence regarding relationship between educational level and musculoskeletal pain. In this regard, this study aimed to investigate if there is any correlation between educational level and musculoskeletal pain.

**Methods and Instruments**

This cross sectional study was conducted among academic people working in Tarbiat Modares University from Apr to August 2020. In this study, the relationship between educational level and musculoskeletal pain was investigated.

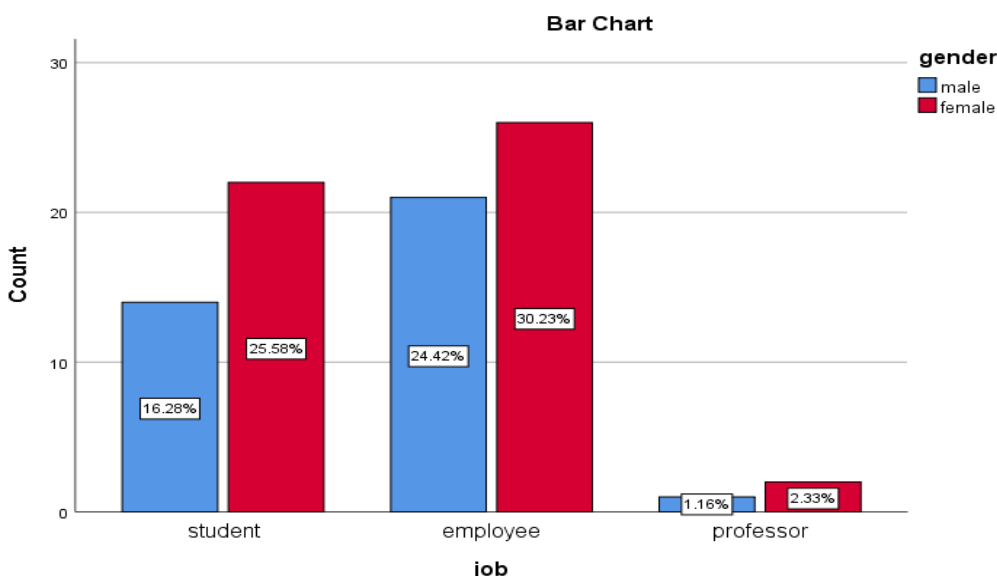
Criteria for entering the study included: having academic background such as student, employee or professor, aged 18 years old and older. The exclusion criteria were suffering from any problem prevent them to exercise

or not being satisfied to be studied.

A researcher – made questionnaire based on the objectives of the study as well as a demographic characteristics questionnaire were used to collect data. In the objective based questionnaire the participants were asked about their exercise doing and musculoskeletal pain. The response options to the questions were as Yes or No. Finally, the data were entered into SPSS version 26 software and statistically analyzed using descriptive analysis as frequency/ percent and analytical analysis as chi-square test. All ethical principals were considered in this study. The objective and procedure of the study were explained to the potential participants and if they were satisfied to be studied they were entered into the study.

**Findings**

Totally 93 participants with mean age of 36.15±11.42 years old were participated in the study. Furthermore, of all participants, 51 participants (54.8%) were male and 42 participants (45.2%) were female. Table 1 shows the rest demographic characteristics of them. The frequency of participants based on job and gender is shown in Figure 1. Furthermore, Figure 2 shows the frequency



**Figure 1.** Gender and Job chart of the studied participants

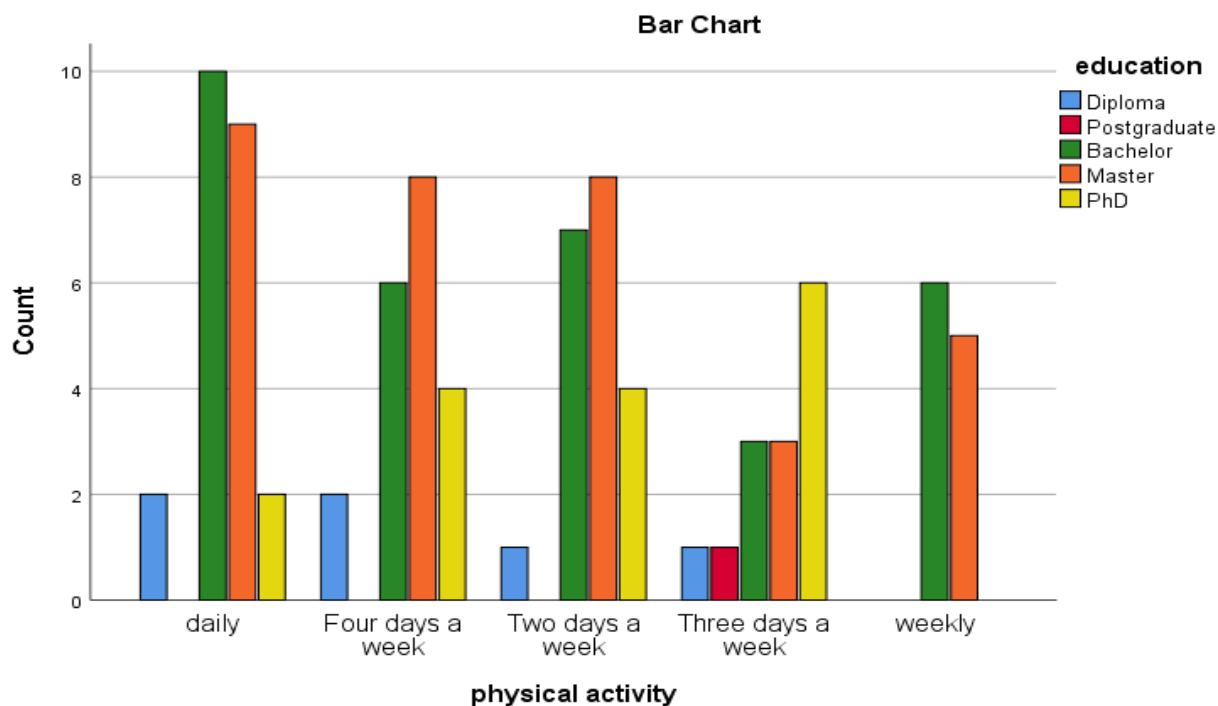


Figure2. Educational level and physical activity chart of the studied participants

Table 1. Demographic characteristics of the participants

Variables	Number	Percent (%)
<b>Gender (N=93)</b>		
Female	42	45.2
Male	51	54.8
<b>Occupation (N=86)</b>		
Student	36	41.8
Employee	47	54.6
Professor	3	3.6
<b>Education level (N=91)</b>		
Diploma	6	6.6
Postgraduate	1	1.01
Bachelor	33	36.3
Master	34	37.4
Ph.D.	17	18.7
<b>Marital status (N=89)</b>		
Single	43	48.3
Married	46	51.7

of physical activity and educational level of participants. Table 2 shows no significant relationship between educational level and reduction of musculoskeletal pain ( $p>0.05$ ).

**Table 2.** Viewpoints of participants regarding musculoskeletal pain reduction based on educational level

Questions	Diploma N (%)	Bachelor N (%)	Master N (%)	PhD N (%)	P valu
Does neck exercise reduce pain?					
Yes	3(50.0)	24(77.4)	20(66.7)	8(57.1)	0.489
No	3(50.0)	7(22.6)	10(33.3)	6(42.9)	
Does back exercise reduce pain?					
Yes	4(66.7)	28(84.8)	20(64.5)	11(73.3)	0.403
No	2(33.3)	5(15.2)	11(35.5)	4(26.7)	
Does knee exercise reduce pain?					
Yes	3(50.0)	22(71.0)	23(76.7)	9(64.3)	0.653
No	3 (50.0)	9(29.0)	7(23.3)	5(35.7)	
Does shoulder exercise reduce pain?					
Yes	3(50.0)	24(75.0)	24(80.0)	9(60.0)	0.401
No	3 (50.0)	8(25.0)	6(20.0)	6(40.0)	
Does wrist exercise reduce pain?					
Yes	3(60.0)	24(77.4)	20(66.7)	10(66.7)	0.787
No	2 (40.0)	7(22.6)	10(33.3)	5(33.3)	
Does hip exercise reduce pain?					
Yes	4(66.7)	23(76.7)	23(74.2)	9(60.0)	<0.745
No	2(33.3)	7(23.3)	8(25.8)	6(40.0)	
Does ankle exercise reduce pain?					
Yes	3(50.0)	22(73.3)	20(66.7%)	11(73.3)	<0.747
No	3(50.0)	8(26.7)	10(33.3)	4(26.7)	

The Chi-square test showed that there was no statistically significant difference between exercise and marital status ( $P=0.456$ ).

Mann Whitney's test showed that there was a significant relationship between gender and exercise activity ( $P < .001$ ), which was higher in men than women. However, Mann Whitney's test showed that there was not a significant relationship between gender and educational level ( $P > 0.05$ ).

### Discussion

The results of the present study which were designed to determine the relationship between educational level and reducing musculoskeletal pain, indicate that there was not a significant relationship between educational level of the participants and their viewpoints regarding reducing pain due to musculoskeletal exercise. It was expected that participants with a higher level of education should be more active because they were more aware of the benefits of exercise because according to many studies, participants who exercised daily had more pain relief and consequently reduced muscle soreness [8-11]. It has been argued that this mismatch could be due to the social and economic conditions and the busy schedule of the people.

In this regard, research conducted in 2009 with the aim of the Level of education and back pain in France [17] revealed a significant positive correlation between educational level and low back pain (LBP). Education is often considered first as a proxy for socioeconomic status in childhood or early adulthood and then as a determinant of occupation.

The present study suggests that the role of education remains important in adulthood. A low educational level seems to predict career-long exposure to occupational factors, even within occupations often considered homogeneous for physical

exposure. The effects might be slightly different for men and women, both for the level of exposure and for the number of years of exposure. In manual occupations, a low educational level may also limit the possibility of upward mobility or transfer to less physically demanding tasks [17]. This study suggests that the main pathways from education to LBP are through occupational exposure and lifestyle factors. Height had a special position, for it is both a risk factor for LBP and associated with a higher educational level [17].

Ramezani et al in 2015 argued that there was not relationship between back pain and education level. However, two issues are raised about education level. First, the significant level of relationship between education and reducing musculoskeletal pain due to exercise in the present study was borderline ( $P= 0.056$ ), which was probably due to low sample numbers in people with low levels of education, and second, looking at the number of samples in different degrees of education, it can be said that people with higher levels of education are more in the healthy group [18].

One of the limitations of the present study is that this study was performed as cross-sectional design and this issue can affect the causal relationships in this study. It is suggested that further studies in this field be done prospectively to further control the precedence and latency of events. Second, we conducted this study in a work environment and in a unique geographical environment. Thus subsequent studies are proposed as multi-center and in different work environments.

### Conclusion

This study showed that the musculoskeletal pain were in similar severity in different level of education. However, doing further researches with larger sample size is

recommended.

### Acknowledgments

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### Ethical permission.

In this study all ethical principals were considered . All participants were provided by explanation regarding aim and procedures of the research and then completed a written consent form.

### Conflicts of Interests

No conflict of interest has been declared by the authors.

### Author's contribution

FM has done all stages of the research and wrote the manuscript.

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### References

1. Pizzo P. Relieving pain in America: a blueprint for transforming prevention, care, education, and research. 2011.
2. Bernard BP, Putz-Anderson V. Musculoskeletal disorders and workplace factors; a critical review of epidemiologic evidence for work-related musculoskeletal disorders of the neck, upper extremity, and low back. 1997.
3. Kilbom S , Armstrong T, Buckle P, Fine L, Hagberg M, Haring -Sweeney M, et al. Musculoskeletal disorders: work-related risk factors and prevention. *Int. J. Occup. Environ. Health.* 1996;2(3):239-46.
4. Garg A, Moore J. Epidemiology of low-back pain in industry. *Occup Med (Philadelphia, Pa).* 1992;7(4):593-608.
5. Christensen J, Bilde L, Gustavsson A. Socio-economic consequences of painintensive diseases in Denmark. Danish Institute for Health Services Research: Copenhagen. 2011.
6. Gustavsson A, Bjorkman J, Ljungcrantz C, Rhodin A, Rivano-Fischer M, Sjolund KF, et al. Socio-economic burden of patients with a diagnosis related to chronic pain—Register data of 840,000 Swedish patients. *Eur J Pain.* 2012;16(2):289-99.
7. Gaskin DJ, Richard P. The economic costs of pain in the United States. *J. Pain Res.* 2012;13(8):715-24.
8. Busch AJ, Barber KA, Overend TJ, Peloso PMJ, Schachter CL. Exercise for treating fibromyalgia syndrome. *Cochrane Database Syst. Rev.* 2007(4).
9. van der Heijden RA, Lankhorst NE, van Linschoten R, Bierma-Zeinstra SM, van Middelkoop M. Exercise for treating patellofemoral pain syndrome. *Cochrane Database Syst. Rev.* 2015(1).
10. Press O. Part a: Executive Summary. *Nutr. Rev.* 2009;67(2):114-20.
11. Control CfD, Prevention. From the Centers for Disease Control and Prevention. Escherichia colio157: H7 outbreak linded to commercially distribrted dry-cured salami-Washington and California, 1994. *J Am Med Assoc.* 1995;273:985-6.
12. Global Strategy on Diet, Physical Activity and Health 2017. Available from: <http://www.who.int/dietphysicalactivity/pa/en/>. [Internet]. 2017.
13. Lundberg O. Causal explanations for class inequality in health—an empirical analysis. *Soc. Sci. Med.* 1991;32(4):385-93.
14. Schrijvers CT, van de Mheen HD, Stronks K, Mackenbach JP. Socioeconomic inequalities in health in the working population: the contribution of working conditions. *Int. J. Epidemiol.* 1998;27(6):1011-8.
15. Aittomäki A, Lahelma E, Roos E. Work conditions and socioeconomic inequalities in work ability. *Scand. J. Work Environ. Health .* 2003;159-65.
16. Aittomäki A, Lahelma E, Rahkonen O, Leino-Arjas P, Martikainen P. The contribution of musculoskeletal disorders and physical workload to socioeconomic inequalities in health. *EJPH.* 2007;17(2):145-50.
17. Leclerc A, Gourmelen J, Chastang J-F, Plouvier S, Niedhammer I, Lanoë J-L. Level of education and back pain in France: the role of demographic, lifestyle and physical work factors. *INT ARCH OCC ENV HEA .* 2009;82(5):643-52.
18. Ramezani M, Taghizade G, Abdolvahab M, Lajavardi L, Saeidi Brojeni M. Investigating of risk factors related to chronic non-specific low back pain in military men. *Journal of Modern Rehabilitation.* 2015;9(3):54-63.