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Musculoskeletal Disorders among Afghan Immigrants Living in the Cities of Tehran and Qom, Iran

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Background: Nowadays, Musculoskeletal disorders are of great concern in job health issues due to their prevalence rate which is relatively high among various occupations. Afghan immigrants working in Iran are exposed to the risk of musculoskeletal disorders. This study aimed to determine the prevalence rate of musculoskeletal disorders among Afghan refugees living in Tehran and Qom.

Methods and Materials: This study was a cross-sectional descriptive study. The study population included 185 parents of Afghan refugee secondary and high school students living in Tehran and Qom in 2016. Data collection tool was Orebro Musculoskeletal Pain Screening Questionnaire. Data were analyzed using SPSS software version 13 for descriptive and statistical analysis.

Results: The results showed that the highest prevalence rate of musculoskeletal disorders was related to the legs with 49.7%, and the lowest rate was related to the lower back with 17.3%. The results showed that the neck disorder was significantly associated with the three variables of age, sex, and education level; lower back disorder was associated with age, and education level; arm disorder was associated with age; and leg disorder was associated with the level of education (p <.05) while no significant correlation was observed between the upper back disorder and age, gender, and education level (p >.05)

Conclusion: According to the high prevalence rate of musculoskeletal disorders among Afghan refugees living in Iran, the need for educational interventions designed to reduce musculoskeletal disorders seems necessary.

Keywords: Prevalence, Musculoskeletal disorders, Afghan immigrants

Background

Musculoskeletal Disorders (MSDs) can be defined as damage or disorder in the muscles, nerves, tendons, joints, and cartilage discs between the vertebrae. Skeletal-muscular disorders are one of the most common causes of occupational injuries and disability in industrialized nations and developing countries (Choobineh et al., 2006; Choobineh et al., 2007; Choobineh, Tabatabaei, & Behzadi, 2009). Work-related Musculoskeletal Disorders (WMSD) are mainly due to poor physical condition, manual lifting and carrying loads, repetitive movements, and not properly designed work space (Holder et al., 1999). Skeletal disorders and pain make a person to feel tired and eventually lead to the disease, in which limited limb movement or loss of muscle strength can be seen (Graves et al., 2004). The results of various studies show that despite the increasing mechanization and automation processes, the bulk of the work activities are yet performed manually by humans. Hence, the high prevalence rate of work-related musculoskeletal disorders at work is the main cause of loss in work time, the absence of workers, rising costs (Waters et al., 1993; Ohlsson, Attewell & Skerfving, 1989), reduced productivity, injury and disability due to workforce, and economic losses (Mattila & Vilkki, 1999). According to the Bureau of Labor Statistics America, WMSDs form 44% of the illnesses caused by working in the country. Accordingly, this amount was about 33% in 1994 in Finland. The cost of their treatment in 1999 in Scandinavian countries was estimated to be 3 to 5% of GDP. In

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Europe, this amount was estimated to be more than 0.5 to 2% of Europe's GDP (Chaffin 2006; Collins, Nelson & Sublet, 2006). According to the International Labor Organization in 2013, about 232 million international migrants exist in the world, of which 207 million are in the working age, 15 years and over. Of this number, 150 million immigrants work or have economic activities, and more than 11 million international immigrants are as tiny elevators that are part of this group, who have taken refuge in industrialized countries, and most of them are living in developing countries (International Labour Organization (ILO), 2015). In the meantime, Iran is one of the countries receiving immigrants, especially immigrants from Afghanistan. In order to evaluate prospects and the status of Afghan refugees' families in the Islamic Republic of Iran, in 2009, a research was conducted by the Bureau of International Labor Organization. The results showed that according to the census carried out in 2005, a total of 920 thousand Afghan refugees are living in Iran, of which 58.3% are between the ages 64-15 years. According to the reports, 50.4% of the immigrants are in the construction sector, 35.7% in services, 11.3% in industry, and 2.7% in the agricultural sector. All are doing the hard works, and due to low literacy levels, they lack the necessary skills to do the job properly. Due to long working time during a day and bad work conditions for the workers who are at risk of musculoskeletal disorders, paying attention to this vulnerable group of society is necessary (Wickramasekara et al., 2009). Given the urgency of this matter and the lack of scientific studies in this field, this study aimed to investigate the prevalence rate of musculoskeletal disorders among Afghan refugees living in Tehran and Qom, Iran in 2016.

Materials and Methods

This cross-sectional study aimed to determine the status of musculoskeletal disorders among the parents of Afghans refugee students residing in Tehran and Qom, Iran in May 2016. In this study, 100 middle and high school students randomly were selected from among four schools in the provinces of Tehran and Qom. The questionnaires were put at the disposal of the students to have their parents to complete them. A total of 185 parents completed the questionnaires. Musculoskeletal Pain Screening Örebro questionnaire, developed by the doctor Linton in Sweden in 1998, was used to determine the status of musculoskeletal disorders among the participants. Its Persian translation, localization, and validity verification were previously carried out by Mokhtarinia and colleagues (Mokhtarinia, Asrin Shafiee, & Pashmdarfard, 2015). The questionnaire had three parts. In the first part, the participants' demographic characteristics were elicited such as age, sex, marital status, education level. The second part contained 13 questions related to the complications and discomfort in the neck, shoulders, arms, legs, and upper and lower parts of the back. The questionnaires were completed by the parents and the students. Finally, after data collection, SPSS software version 13 was used for descriptive and statistical analysis.

Results

Demographic: In this study, male (89, 48.1%) and female (100, 54.1%) participants were divided into two groups. In this study, 25 (13.5%) patients were single, and 160 (86.5%) were married. Participants were divided in to 3 age groups of 20-35 years, 36-50 years, and 51-65 years. The highest number of the participants was observed in the age group of 20-35 (48.1%), and the lowest was observed in the age group of 51-65 (10.3%) with mean age of 37-39 years. In terms of education level, a significant percentage of the participants (83, 44.9%) were illiterate, and only 21 (11.4%) had high school qualification. (Table 1).

Table 1. Distribution of participants by age groups and education level.

Variables	Category	Number (%)	Mean (SD)
Age	20-35	89 (48.1)	37.39 ± 9.16
	36-50	77 (41.6)	
	51-65	19 (10.3)	
Gender	Male	85 (45.9)	
	Female	100 (54.1)	
Marital Status	Single	25 (13.5)	
	Married	160 (86.5)	
Educational Level	Illiterate	83 (44.9)	
	Primary	62 (33.5)	
	Guidance	19 (10.3)	
	High School	21 (11.4)	

In examining the prevalence rate of musculoskeletal disorders in one or more limbs, the highest rate of the incidence of skeletal abnormalities was observed in foot with 49.7%, and the lowest rate was observed in lower back with

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17.3%. During the past 18 months, the prevalence rate of disorders in areas such as neck (32.4%), shoulder (33%), arm (23.2%) and upper back (25.4%) caused 16 patients (8.6%) to be absent from the work for more than a year. (Table 2).

Table 2. Prevalence rate of Musculoskeletal Disorders (MSD) in different organs of the study participants.

Area disorder	Prevalence The number (%)
Neck	60 (32.4%)
Shoulder	61 (33%)
Arm	43 (23.2%)
Leg	92 (49.7%)
Upper back	47 (25.4%)
Lower back	32 (17.3%)

The relationship between musculoskeletal disorders and age, sex, and education level in the study participants are shown in Table 3.

The chi-square test assuming an alpha error of 5% was used to determine the relationship between MSD and age, sex and education level. The following Table 3 exhibits the obtained correlation between extremity MSD and age, sex, and level of education. The neck disorder had a significant correlation with the three variables of age, sex and level of education (p <.05). There was also a significant correlation between lower back disorder and age and level of education (p <.05). The correlation between the arm disorder and age and level of education was also significant. Upper back pain showed a significant association with the three variables (p <.05). (Table 3).

Table 3. Correlation between Musculoskeletal Disorders (MSD) and age, sex, and the level of education obtained by *p*-value.

Variables Area Disorder	Age		Gender		Level of Education	
Neck	$X^2 = 66.27$	p =. 001	$X^2 = 10.90$	p= .004	$X^2 = 14.56$	p = .002
Shoulder	$X^2 = 38.23$	p = .24	$X^2 = 1.93$	p = .38	$X^2 = 6.39$	p = .09
Arm	$X^2 = 55.72$	p = .008	$X^2 = 0.637$	p = .72	$X^2 = 4.28$	p = .23
Leg	$X^2 = 39.74$	p = .19	$X^2 = 5.68$	p = .058	$X^2 = 11.88$	p = .008
Upper back	$X^2 = 36.56$	p = .3	$X^2 = 4.36$	p = .11	$X^2 = 8.84$	p = .031
Lower back	$X^2 = 51.91$	p = .01	$X^2 = 0.44$	p = .802	$X^2 = 12.61$	p = .006

Discussion

According to the existing literature, this study was one of the first studies specifically designed to evaluate the prevalence rate of musculoskeletal disorders and related factors among the Afghan immigrants residing in Iran. Afghan refugees in Iran are active in various sectors, among them the salesmen are often more exposed to the risk of musculoskeletal disorders. The obtained results showed that the prevalence rate of musculoskeletal disorders is high among the participants, especially in the leg, shoulder, and neck so that these disorders are highly relevant with age, gender, and level of education. According to the results, the highest prevalence rate of musculoskeletal disorders was observed in the leg, neck, shoulders, and back. These results are consistent with the study by Salehi Sahlabad, in which the musculoskeletal disorders were mostly common in areas such as the feet, neck, shoulders, and back (Salehi Sahlabadi et al., 2009). In terms of the relationship between demographic variables and different areas of abnormalities, the results showed a significant relationship between the age and impaired lower back area, consistent with the results of the study by Nasl-saraji among construction workers (Nasl-seraji et al., 2007). The study by Bolqhanabadi in food production staff is consistent with our results so that the chances of suffering from lower back disorders in older age groups is more than in the lower age groups (Bolqhanabadi, Dehghan & Pour, 2014). The results showed that the relationship between age and impaired neck is significant; so these results are consistent with Karami Matin et al.'s study conducted among the quarry and stone industries

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workers (Karami Matin et al., 2013). It should be noted that the neck disorders are significantly higher in older age than in early age. Research has shown that younger people become adjusted to safety techniques faster and easier than old people (Kjellberg, Lagerstrom, & Hagberg, (2003). There was also a significant correlation between the arm disorder and age. Research shows that with increasing age, body size and muscle strength decrease, and consequently, the rate of musculoskeletal disorders increases (Trinkoff et al., 2002). Therefore, the aging decreases naturally motor function and physical capacity which causes weakness on work techniques, and due to less flexibility and more difficult situations, the prevalent pain due to musculoskeletal disorders increases (Haghdoost, Hajihosseini, & Hojjati, 2011; Heiden, Weigl, & Angerer, 2013). Many cross-sectional studies have shown that musculoskeletal system of the human body continues to grow in early adulthood, but in middle age, the trend is declining and failing. As with aging, the mechanical-tensile strength of bones and flexibility of muscles and joints dramatically reduce. Thus, it can be concluded that occupational musculoskeletal disorders are created during the musculoskeletal jobs, and the accumulative property over time and the effects of age and physical and mechanical tensions intensified and as an expression of their distress or impairment (Battevi, Bergamasco, & Girola, 1998). In this study, the prevalence of musculoskeletal disorders were mainly related to the legs, shoulders, neck, lower back areas, caused by bad postures, manual material handling, standing for a long time throughout the work. So paying attention to risk factors related to disorders in these areas and eliminating them in the workplace can be effective in improving working conditions and in preventing this disorder to occur. Therefore, any prevention program should focus on controlling the risk factors related to vulnerable areas.

Conclusion

According to the results, the prevalence rate of musculoskeletal disorders is high among Afghan immigrant, so regarding their characteristics and conditions it seems necessary to implement training programs in order to increase their abilities and skills in doing their works and to reduce musculoskeletal disorders among the Lanny-member immigrants.

Conflict of Interest

There is no conflict of interest for this article.

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Author contribution

SMRH: Study implementation, data collection and analysis, writing the first draft of Paper.

SMRH: Study design and data analysis, editing and confirming the final draft of the paper.

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