Evaluation of the prevalence of neuromusculoskeletal dysfunctions in blind veterans in Iran

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Abstract

Introduction: The blindness makes specific kind of locomotion with characteristic bending of body, stepping gate and short steps. These changes in blind locomotion originate stress on neuromusculoskeletal tissue and different neuromusculoskeletal dysfunctions.

Aim: The aim of these study is determining the epidemiology of neuromusculoskeletal pain in blind veterans.

Material and methods: in this cross sectional study we have collected data by questionnaire and have examined from all of 385 blind veteran who have participated in therapeutic and sportive camp of Iranian blinds veterans. (Mashhad, Iran 2005)

Result: this study show high prevalence of neuro musculo skeletal pain in blind veterans. Other finding of our study was high prevalence of postural deformities in blind veterans.

Conclusion: according to the result, the prevalence of neuromusculoskeletal pain in blinds veteran is more than normal population and they should be educated and treated for prevention, care and treatment of neuromusculoskeletal pain.

Keywords: blind veterans, Iran, neuromusculoskeletal pain

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Introduction

Musculoskeletal pain is a major health problem in most industrialized countries with a prevalence of around 35% in the general population. (1)

The development and persistence of musculoskeletal pain is also predicted by several sociodemographic, lifestyle and psychosocial risk factors. (2)

Family history of chronic pain, low educational level, low socio-economic group and lack of social support are other common risk factors. (3-5) Smoking, sedentary lifestyle and obesity are predictive factors that could be targets for intervention.(6-7) The work situation can result in harmful physical load to body structures, but also work with high demands and little control over the work situation have been shown to be predictive for musculoskeletal pain. (8-9)

The postural control systems without visual feedback may be more unstable than those of the sighted persons. Most studies on balancing ability in blind persons have revealed that sighted persons perform better in static or dynamic balance tasks than individuals with visual impairments (10). In a study on falls among the healthy elderly in the community and those who are either blind or deaf, it has been reported that blind elderly have the highest risk of falls (11).

This instability in blinds causes repetitive falling and later musculoskeletal injuries. In other hand some studies show that widespread pain was associated with greatest risk for falls and disability. (13-15).

Very little is known about posture, postural pain or musculoskeletal pain in the blinds. The aim of this study is determination of prevalence of musculo skeletal pain in blinds veteran. We cant find any paper that evaluate musculoskeletal pain in blinds people.

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Material and methods:

This was a cross-sectional study of prevalence of musculo skeletal pain and deformities in blind veterans. In this study we have collected data by questionnaire and examination from all of 385 blind veterans who have Participate in therapeutic and sportive camp of Iranian blind veterans in Mashhad (Iran) at 2005.

A face-to-face questionnaire including sociodemographic characteristics and chief complain and physical examination of musculoskeletal system was used in data collection.

Inclusion criteria were totally double blind veteran. Veterans were excluded, as were severely mentally handicapped and subjects unable to understand Persian language. One cases excluded for psychological problem and two cases excluded for inability in Persian language perception.

SPSS 13.0 was used for performing the data analysis. Descriptive statistics were used to analyze data.

Table 1. Some demographic characteristics of blind veterans (1ran, 2005)

	N*	%
Age Groups		
< 30	36	9.4
30 – 39	69	18.1
40 – 49	223	58.5
50 – 59	40	9.4
60 <	17	4.5
Marital Status		
Married	363	94.2
Single	22	5.8
Educational Level		
Illiterate	0	0
Secondary school	297	72.4
High school	71	18.4
University	26	6.7

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Results:

In the study group, 377 (97.9%) were male and 8 (2%) were female. The socio demographic characteristics of the female and male participants are shown in Table1.

Table2: prevalence of musculo skeletal pain in Iranian blind veterans

Pain location	N*	%
Shoulder	116	30.12
Elbow	56	14.54
Wrist and hand	63	16.36
Hip	35	9.09
Knee	245	63.63
Ankle and foot	118	30.64
Lumbar spine	138	35.84
Cervical and thoracic spine	87	22.59

Table3: prevalence of postural deformities in Iranian blind veterans

Pain location	N*	%
Lordosis	100	25.97
Kyphosis	98	28.45
Round shoulder	131	34.02
Scoliosis	81	21.03
Torticolli	3	0.77

The prevalence of musculoskeletal pain are presented in Table 2. The prevalence of musculoskeletal pain in population showed that: back pain 35.84 percent, knee pain 63.63 %, foot and ankle pain

30.64 %, hip pain 9.09 %, wrist and hand pain 16.36 %, elbow pain 14.54% and shoulder pain 30.12%.

The prevalence of postural deformities are presented in Table 3. The prevalence of postural deformities in population showed that: Lordosis 25.97 percent, Kyphosis 28.45 percent, scoliosis 21.03 percent, round shoulder 34.02 percent and Torticolli 0.77 percent

Conclusion:

In summary, Muskuloskeletal Pain in blind veterans, is as much as in others. Pain prevalence increases with age and is higher in women than in men. Although many blinds report certain limitations in daily activities as a result of their pain, health service consultation is low, and serious disability and hospitalization is rare.

A number of studies have shown an association between physical lifestyle and Muskulo Skeletal Pain, though most studies have been cross sectional in design and are, therefore, unable to examine the temporal nature of any such relations. Prospective studies, however, have been unable to show

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any consistent evidence suggesting an increase in the risk of Muskulo Skeletal Pain associated with prior levels of physical or sedentary activity. (15,16)

Moreover, the studies reported that impaired visual function was associated with poor scores on the physical performance such as standing balance and walking scores. (17)

High prevalence of Muskuloskeletal Pain in blind veterans' more than normal population can be related to low physical performance of them. Decrease in range of motion in all joints because of limited movement is related to short stepping in lower limb and Absence of visual field in spine (especially cervical spine) can generate musculo skeletal dysfunction.

In other hand there is strong evidence highlighting the role of psychosocial and behavioural factors. A number of authors have shown cross sectional associations between adverse psychological or psychosocial factors and the occurrence of Muskulo Skeletal Pain, and others have shown these factors, in absence of Muskulo Skeletal Pain, with significantly predict the future onset of symptoms. (18)

However, those who exists are providing increased evidence, so that psychological and psychosocial factors play an important role in the etiology of Muskulo Skeletal Pain. Further studies are required to examine the role of potential risk factors in the longer term particularly psychological and social factors.

Other findings of these study presented high prevalence of postural deformities in blind veterans. Blind patients lack the optical righting reflex that, along with the tonic labyrinthine reflex, helps to maintain the upright and vertical posture of the head. Chusid outlines the neuroanatomy of the optic nerve connection to the superior colliculi to the pontine nuclei, via the corticopontine tract, for postural reflexes.(19) Welsh and Blasch observed that anterior head carriage and an increased thoracic kyphosis were common postural findings in the blind.(20) These postural findings, have observed in the blind veterans in present study.

Very little is known about posture, postural pain or musculoskeletal rehabilitation in the blinds. Further study is required on these populations. An observation by Welsh and Blasch, that anterior head carriage and an increased thoracic kyphosis were common findings in the blind, suggests that postural problems may be more prevalent in this population. Our study in blind veterans shows that prevalence of kyphosis and round shoulder in blind veterans is more than normal population.

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Eugeniusz Bolach shows that Lordotic type of body posture occurred to be the most frequent in the group of blinds. (21) Our data in these study support Bolasch result.

Eugeniusz Bolach shows that scoliosis is greater between groups with dimness of vision than blinds group, however in blinds it was also statistically significant. Our study also shows high prevalence of scoliosis in blind veterans versus normal population.

We propose preventive strategies for prevention of musculoskeletal pain. Lack of smoth and safe movement and limited motion in blind cause habitual decrease in range of motion of joints and muscle imbalance followed it. Muscle spasm and tautness is a major cause of acute musculoskeletal pain. The special kind of posture or locomotion in blinds cause muscle imbalances as some muscles become inhibited and weak, while others become tight. Such imbalances lead to tissue (musculotendonous and ligamentous) changes that may result in inappropriate patterns of movement. In other hand muscle imbalance over the time caused joint degenerative disease that is a major cause of chronic musculoskeletal pain.

Further studies are also needed on the special needs of the blind for rehabilitation of postural problems, given their lack of visual and environmental cues.

The limitations of this study should be addressed. The study was confined to older blind volunteers living in the population. In order to improve the generalisability of the results, further studies is recommended with subjects from more and different types of population in Iran or from other ethnic groups. Also, a congenital blind sample of subjects should be selected from the participating populations.

Another limitation of this study was that only totally blindness of the subjects was measured. Apart from visual acuity, contrast sensitivity, depth perception, and glare impairment should be included in the examination of vision for the subjects. These additional factors may also be related to a factor associated with musculoskeletal performance.

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