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Prevalence of low back pain and its related functional disability in ex-servicemen of Indian army

[1] Saurabh Kumar, [2] Anand Kumar Singh, [3] Ankush Sharma

[1] MPT (Neurology) Assistant Professor Department of Physiotherapy, RPIIT Karnal, Haryana, India
[2] MPT (Musculoskeletal) Assistant Professor Department of Physiotherapy, RPIIT Karnal, Haryana, India
[3] Physiotherapist ECHS Polyclinic Bilaspur Himachal Pradesh, India

Abstract
Background: A common, painful condition affecting the lower portion of the spine is known as low back pain (LBP). Spinal pain is the most common complaint among soldiers in both operational and nonoperational environments. In the present study the authors investigate empirically the prevalence of low back pain and its effect on daily living activities/ QOL in ex-servicemen of Indian army.
Method: The descriptive cross-sectional study was performed on 200 ex-servicemen, registered under ex-servicemen contributory health scheme, ministry of defense, government of India. Selection was random sampling. A detailed study based on modified oswestry disability index (MODI) questionnaire was performed to access the functional disabilities due to low back pain.
Result: The main finding of the study was that the prevalence of low back pain is 59% in the ex-servicemen and functional disability due to back pain is 44.06% moderate type and secondly minimal disability 27.97% was found in ex-servicemen of Indian army.
Conclusion: By the data analysis it is concluded that most of the ex-servicemen was suffered by low back pain. And there was mostly minimal to moderate type of disability which affects their daily living activities.

Keywords: LBP, prevalence, soldiers, ex-servicemen, QOL, MODI

Introduction

A common, painful condition affecting the lower portion of the spine is known as low back pain (LBP). Spinal pain is the most common complaint among soldiers in both operational and nonoperational environments. LBP is the primary condition, accounting for approximately 75% of spinal pain syndromes in soldiers. According to a prospective cohort study of demographic and physical risk factors for LBP among soldiers identified the following risk factors: age, wearing body armor, the time spent on walking patrol, the weight of equipment worn and prolonged standing in one position [1]. Static standing (standing in one place without walking for extended periods of time) can lead to back and leg problems due to a lack of proper blood flow [2].

About 80 percent of adults experience low back pain at some point in their lifetimes. It is the most common cause of job-related disability and a leading contributor to missed work days. The magnitude of the burden from low back pain has grown worse in recent years. In 1990, a study ranking the most burdensome conditions in the U.S. in terms of mortality or poor health as a result of disease put low back pain in 6th place; in 2010, low back pain jumped to 3rd place, with only ischemic heart disease and chronic obstructive pulmonary disease ranking higher. The lower back where most back pain occurs includes the five vertebrae (referred to as L1-L5) in the lumbar region, which supports much of the weight of the upper body [3].

According to data of wide European occupational health survey, approximately 46% reported back pain, while 43% had pain in the shoulder, neck and upper limb muscles. In military environment this pathology is frequent considering specific work conditions that comprise non-mechanical risk factors such as: environmental factors (exposure to cold, glare, reflections); work organisation (monotonous or repetitive work, no job control); equipment-related factors (accessibility, usability and comfort, adaptation to user anthropometry, physiology of motion and set movements); psychosocial factors (climate and culture, workplace relationships, support, job satisfaction). Due to heavy physical load on daily basis, musculoskeletal pathology is more common in military personnel [4]. The incidence and prevalence of low back pain are roughly the same the world over, wherever epidemiological data have been gathered or estimates made, but such pain ranks high (often first) as a cause of disability and inability to work, as an interference with the quality of life, and as a reason for medical consultation [5]. Back disorder is multifactorial in origin and may be associated with both occupational and nonwork-related factors and characteristics [6]. Musculoskeletal pathology is one of the most common work–related health problems, as well as an important cause of morbidity. Musculoskeletal pathologies are linked to extrinsic factors such as inappropriate biomechanical loads, vibration, organizational relationships, psychosocial climate and culture, as well as work-related cognitive, sensory and psychosocial load. It is also related to intrinsic factors such as body built, body composition, anthropometric characteristics, and inheritance. Musculoskeletal disorders represent a prevalent source of patient visits, lost work time, hospitalization and disability [7].

Ex-servicemen belong to a special group, unlike any other occupationally-retired groups. It is commonly believed that all military personnel are physically and mentally fit during their service and after retirement. On the other hand, they may be more prone to psychosomatic problems as well as various

other health problems like musculoskeletal, neurological, cardiovascular etc [8].

AIM

Due to the lack of previous similar studies in this area, this study was an attempt to determine the prevalence of low back pain and its related disability in ex-servicemen. Therefore this study was based on data obtained from an ECHS (Ex-servicemen Contributory Health Scheme) Polyclinic. The background population for the study consisted of Ex-servicemen of Indian Army; they were asked to fill in questionnaire focused on how much back pain has affected their ability to manage everyday life.

Material and methods

The descriptive cross-sectional study was designed and performed in a representative sample of ex-servicemen, registered under ex-servicemen contributory health scheme (ECHS), ministry of defense, government of India. The selection process was random sampling. Totally, 200 male ex-servicemen of all ranks who had retired from active service in the National Armed Forces of India and having age between 40-70 years were included in the present study. Their active service had lasted between 17 to 30 years or more was included in the study. Any who was having age bless than 40 years and more than 70 years, service period less than 17 years and having low back pain due to any trauma were excluded from the study. All the subjects from total sample having low back pain were asked to fill the questionnaire focused on how much their ability to manage everyday life affected due to low back pain.

The data was obtained through a modified oswestry disability index (MODI) questionnaire schedule (Appendix 1). The questionnaire consists of 10 items addressing different aspects of function. For each section the total possible score is 5; the first statement is marked the section score = 0 and the last statement is marked = 5, with higher values representing greater disability. If all ten sections are completed the score is multiplied by 2 and expressed as a percentage or calculated as follows:

Calculated score/50 (total possible score) x100 = _ % points

Interpretation of scores

0% to 20%: minimal disability	The patient can cope with most living activities. Usually no treatment is indicated apart from advice on lifting sitting and exercise.
21%-40%: moderate disability	The patient experiences more pain and difficulty with sitting, lifting and standing. Travel and social life are more difficult and they may be disabled from work. Personal care, sexual activity and sleeping are not grossly affected and the patient can usually be managed by conservative means.
41%-60%: severe disability	Pain remains the main problem in this group but activities of daily living are affected. These patients require a detailed investigation.
61%-80%: crippled	Back pain impinges on all aspects of the patient's life. Positive intervention is required.
81%-100%	These patients are either bed-bound or exaggerating their symptoms.

Result

Data was analysed with appropriate statistical tool using the SPSS version 20.0 (SPSS Inc., Chicago, IL, USA) for Windows 7 Professional. The frequency percentage was calculated for the total sample. A total of 200 ex-servicemen from Indian army were participated in the study. Out of which 59% were complaint of back pain while 41% were not having any pain in their back.

The mean age and mean service period was shown in table 1.

Table 1: Mean and Standard Deviation (SD) of Age and Service Period of Ex-servicemen.

Parameters	Mean	Standard Deviation
Age	59.39	7.15
Service Period	23.00	5.32

Table 1 Shows mean Age of ex-servicemen and time of service period served in Indian army. Mean age and time of service period of the subjects is 59.39±7.15. And 23±5.32 respectively. Data graphically shows as bellow in figure 1.

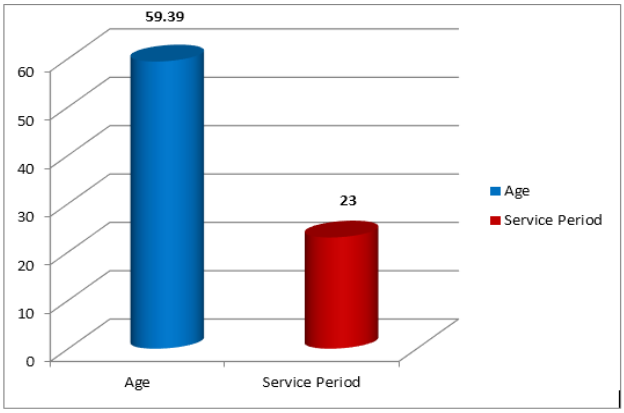

Fig 1: Frequency mean of Age and Service Period of ex-servicemen of Total Sample.

Table 2: Distribution of total sample according to prevalence of Low Back Pain

Total Sample	Low back pain			
	Yes		No	
	N	%	N	%
200	118	59	82	41

Table 2 depicts the frequency and frequency percentage of ex-servicemen suffered from low back pain. The data shows that out of total sample (N=200), 59% (N=118) ex-servicemen having low back pain while 41% (N= 82) is not having low back pain. Data was graphically shows as bellow in figure 2:

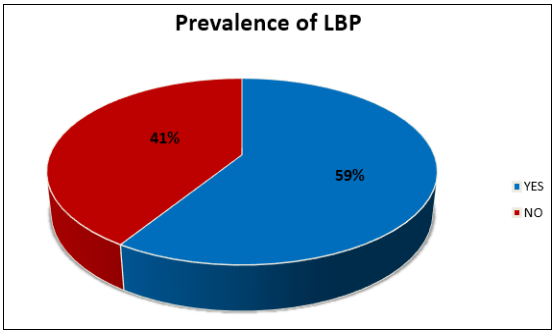

Fig 2: Frequency percentage of prevalence of low back pain in ex-servicemen of Indian army in total sample.

Table 3: Frequency and frequency percentage of total sample according to functional disability due to low back pain.

Total Sample	Functional Disability									
	0-20%		21-40%		41-60%		61-80%		81-100%	
	N	%	N	%	N	%	N	%	N	%
118	33	27.97	52	44.06	24	20.34	9	7.63	0	0%

Table 3 shows the frequency and frequency percentage of functional disability due to low back pain in total sample having low back pain. The data shows that out of 118 (i.e 100%) 27.97% (N=33) minimal, 44.06% (N=52) moderate, 20.34% (N=24) severe and 7.63% (N=9) are having crippled functional disability respectively. It reveals that most of ex-servicemen suffered with moderate functional disability. Data graphically shown in figure 3 as below.

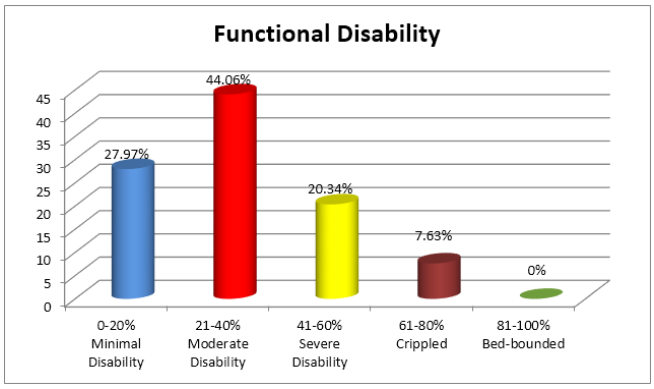

Fig 3: Frequency and frequency percentage of functional disability due to low back pain in ex-servicemen of Indian army.

Discussion

Low back pain is common health problem in today's life. If equally effects both male and females. Now a day's young generation also suffered from back pain. The important precipitating factor is age, prolonged standing, overweight etc. There are many studies on low back pain in general population but there are a few studies on military /army persons. Therefore the present study was done to find the prevalence of LBP and functional disabilities due to LBP in ex-servicemen of Indian army. One of the precipitating or common causes of low back pain in army people is that the prolonged standing during duty hours in the active time of service. Among the study population, 59% subjects reported low back pain while 41% having no pain in their back. And among 59% ex-servicemen there is minimal functional disability (27.97%), moderate functional disability (44.06%), severe functional disability (20.34%). Crippled (7.63%) and bed bounded is (0%). In another study it was found that about 23.5% veterans were complains of musculoskeletal problems in which low back pain is one of them [8]. As the post retirement period of the ex-servicemen increased, the relevance of back pain and other musculoskeletal problems significantly increased. Plavina *t al* in 2016 in their study also found that the musculoskeletal problems like back pain is more in military personnel than civil population [4].

Najafipour *et al* in 2015 also find the Evidence of the LBP risk of working in an awkward posture was summarized in a systematic review, reporting conflicting evidence for an association with LBP. A more recent longitudinal study supported the hypothesis that exposure to awkward positions of the body during work or leisure time was a causal factor of LBP. In spite of MOS, soldiers often work with the body bent, twisted or in other awkward postures. It was found that those reporting doing that most and those working in depots had the highest risks of LBP [9].

Conclusion

From the data analysis it is concluded that most of the ex-servicemen of Indian army was complained of low back pain. In which most of the ex-servicemen were having minimal to moderate functional disability which daily affects their day to day living activities like sleeping, travelling, walking, standing, personal care, employment and homemaking activities etc. Prolonged standing in their active service period, wearing body armor, the time spent on walking patrol and the weight of equipment worn may also having a aggravating factor for the low back pain in later life.

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