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Research Article

Prevalence of musculoskeletal disorder among male palestrato

Abstract

Context: Musculoskeletal disorder are injuries or pain in the human musculoskeletal system including the joints, ligaments, muscles, nerve, tendon and structure that support limbs, neck and back. These conditions generally results in pain and functional impairments. Prevention strategies are needed early in the apprentice training program to reduce the potential disability associated with work-related musculoskeletal symptom disorders.

Aim: To find the musculoskeletal disorder in male palestrato and what are the common disorder or injuries occur in them.

Method: This study is a survey. Based on inclusion and exclusion criteria 100 palestrato were selected through purposive sampling technique and informed consent was taken. The age group for the study is 20-35 years. The prevalence was ckecked by the Nordic scale and VAS scale.

Measuring scales: Nordic Style musculoskeletal scale and Visual Analog Scale (VAS)

Results: Data Was Meaningfully Assorted through Evaluation of Frequency and Percentage Distribution of the Severity and the region of the body which is most affected and which is least affected.

Conclusion: The study concluded that the 73% of subjects were involved in having MSD and the most common age group was 20-25 years in which the prevalence of MSD was 59%. The majority of the subjects had marked VAS between 4-6 and in the Nordic scale reading, we concluded that shoulder and neck area were severely afftected regions and ankle and hip were least affected.

Abbrevations

MSD: Musculoskeletal Disorders; VSA: Visual Analog Scale; DM: Diabetes Mellitus; UE: Upper Extremity; UWMSD: Upper-limb Work –related Musculoskeletal Disorders; ICC: Intra-Class Correlation Coefficient; SIS: Shoulder Impingement Syndrome

Introduction

Musculoskeletal disorders are injuries or pain in the human musculoskeletal system including the joints, ligaments, muscles, nerve, and tendon and structure that support limbs, neck and back. Musculoskeletal disorders arises from sudden exertion (example lifting a heavy object) or they can arise from making the same motion repeatedly, vibration or awkward posture [1]. The relative risk of disability due to musculoskeletal disorders has been studied with regard to occupation and work load. Disability pensions were more common both in men and women with medium and high physical work load as compared to men with low physical work load [2]. The work related musculoskeletal disorders describes a wide range of inflammatory and degenerative diseases and disorders. These conditions generally results in pain and functional impairments and can affect the joints such as shoulder, neck, elbow, forearm, wrist and hands [3]. The relationship between the workplace factors and work related upper extremity musculoskeletal disorder (UE disorder) was assessed by multiple logistic models generated for each of the four UE areas (neck, shoulder, elbow, hand, wrist) [4]. It is also seen that in workers, that they have associated with many work place physical and psychological factors specific physical factors includes intense, repeated or sustained exertion awkward, sustained or extreme postures of the body, insufficient recovery time, vibration and cold temperature and psychological factors include monotonous works, time pressure, high work load as proved by the epidermiologic study [5]. The musculoskeletal disorders are also linked with the medical conditions, for instance, obesity is a key and potentially modified risk factor in the onset and progression of musculoskeletal disorder of various joints like hip, knee, ankle, foot and shoulder. The unduly raising stress within the connective tissue structure and potential for musculoskeletal injury [6]. The potential of rationalization

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of production system to cause health problem is large in contrast to overall assessment of ergonomic intervention that seems to have limited health effect in the long term [7]. The musculoskeletal disorder are a major cause of work related disability. The low back was site most commonly reported for job related musculoskeletal symptoms, which was also the most common reason for seeking care from a physician. At the beginning of the careers of construction workers, they are prone to MSD [8]. MSD represents a significant occupational issue for a professional nurses worldwide. The overall prevalence of MSD was 70.0% with individual category reported as low back 56.7%, neck 42.8%, shoulder 38.9%, upper back 38.9% [9]. The other most common medical condition which leads to MSD was Diabetes mellitus which is associated with several MSD. The incidence of DM and the life expectancy of the diabetic patient have both increased, resulting in the increased prevalence and clinical importance of Musculoskeletal alteration in diabetic subject, connective tissue disorder, neuropathy, combination of these problem may under lie the increased incidence of MSD in DM [10].

The aim of study is to find the musculoskeletal disorder in male palestrati, the common disorder or injuries which occur in them, to find the region which is commonly involved in them and to find out the common type of MSD. In this way the general population can be made aware about the work of physiotherapists in the fitness training. This study also aim to enhance the employment of Physiotherapists in the Fitness centers and the Physiotherapists can guide and teach the male palestrati about the correct technique so they can prevent their injuries thus it become important to perform fitness training with the prevention strategies in the early apprentice training program to reduce the potential disability associated with work-related musculoskeletal symptom disorders.

Material and Methods

This study is conducted through a survey. Based on inclusion and exclusion criteria 100 palestrati who were doing workout in fitness centres in Ludhiana city were selected through purposive sampling technique and informed consent was taken. Prevalence of Musculoskeletal disorder in palestrati was determined using Nordic Style Musculoskeletal scale, VAS (Visual Analogue Scale) and orthopedic/physiotherapy assessment. The data was collected, compiled and analyzed.

Inclusion Criteria: The subject's age group was 20-35 years. Palestrati doing workout in fitness centers for at least 1-2 hours daily and who were enrolled for the past 10-12 months were included in the study.

Exclusion Criteria: Male Palestrati with medical conditions, with history of trauma and Palestrato who were previously suffered from musculoskeletal disorders are all excluded from the study.

Procedure

The informed consent was obtained from the subjects. Nordic Style musculoskeletal scale and Visual Analog Scale (VAS) was filled by the participants.

Nordic-style questionnaires: Nordic-style questionnaires exploring symptoms in the past year can be considered as useful tools for the surveillance of UWMSD, especially if they include numerical scales on symptom severity. The physical examination remains essential to establish a medical or clinical diagnosis. For other purposes, questionnaires remain useful tools, giving information on functional, psychological and psychosocial dimensions of musculoskeletal disorders. Sensitivity was excellent in all situations (from 82.3% to 100%). Specificity was variable, from 51.1% in the "Pays de la Loire" survey to 82.4% for score ≥ 2 based on the severity of symptoms [11].

VISUAL ANALOG SCALE (VAS): Researchers have found Visual Analogue Scale, a reliable and valid tool. Reliability was assessed using the intra-class correlation coefficient (ICC) between VAS scores taken 1 minute apart, supplemented by a Bland-Altman analysis. The minimum clinically significant difference in pain was defined as the mean difference between sequential VAS scores obtained 30 minutes apart when the patient noted a "little less" or "little more" pain. Differences in VAS scores increased linearly as pain descriptors escalated from "much less" to "much more" pain ($P < .001$). Reliability was high, ICC - 0.99 [95% CI 0.989 to 0.992] for 0 and 1 minute VAS scores [12].

Results

Data was meaningfully assorted through evaluation of frequency and percentage distribution of the severity and the region of the body most affected.

The table 1 shows the percentage of the socio demographic data of the male palestrati who were involved in musculoskeletal disorder. The table is divided into three categories age, gender, and occupation with their own percentage of involvement. The age is further divided into three categories according to their involvement, age from 20-25 is 59% involved, age from 26-30 is 34% involved and age from 31-35 is 7% involved so the age group of young adults 20-25 year have the highest involvement in MSD which is 59%. The second category is gender in which only male were taken as sample. The third category is occupation it is further divided into two categories students and workers the students has 64% of involvement and workers has 34% of involvement.

The table 2 and figures 1-4 shows the percentage of extent of severity of musculoskeletal disorder in male palestrati. The

Table 1: Shows the percentage of the socio demographic data of the male palestrati who were involved in musculoskeletal disorder.

SECTION-1 SOCIO DEMOGRAPHIC PROFORMA		Percentage (%)	Frequency(f)
Age in Years	20-25	59%	59
	26-30	34%	34
	31-35	7%	7
Gender	Male	100%	100
	Female	0%	0
Occupation	Student	64%	64
	Worker	36%	36
	Other	0%	0

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score of VAS is divided into three categories, mild which rangers from 0-3, moderate which ranges from 4-6 and severe which ranges from 7-10. The percentage of severity for mild is 28%, moderate is 58.0% and for severe is 14%. The table represents that the moderate category with 58.0% is most severe.

The table and figure 5 shows that 73% are the total percentage of male palestrati which were involved in musculoskeletal disorder. The table is divided into 20 question and table showing the percentage of answers in the form of yes or no, this table is showing the percentage of involvement of the body regions. In this table, we got to know that majority of subjects i.e. Palestrato were more prone to shoulder pain

Table 2: Shows the severity of pain in musculoskeletal disorder.

CRITERIA MEASURE OF VAS SCORE		
Category Score	**Percentage**	**Frequency**
Severe(7-10)	14.0	14
Moderate(4-6)	58.0	58
Mild(0-3)	28.0	28

Maximum Score=10
Minimum Score=0

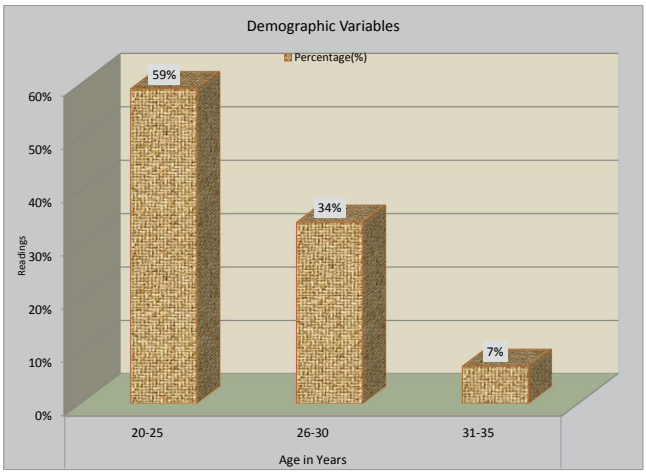

Figure 1: Shows the age variables.

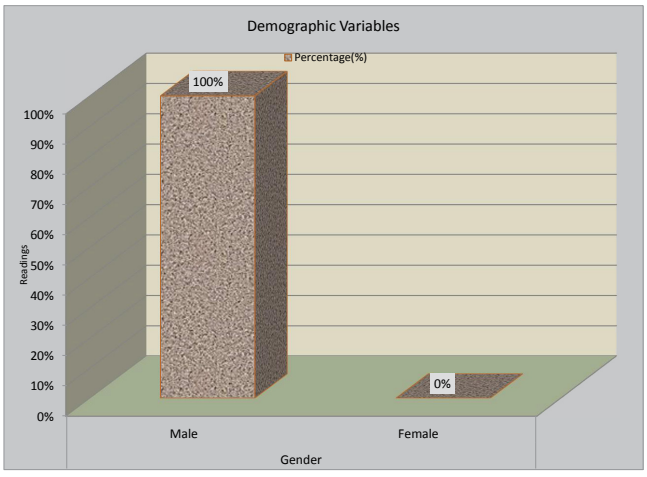

Figure 2: Shows the gender variable.

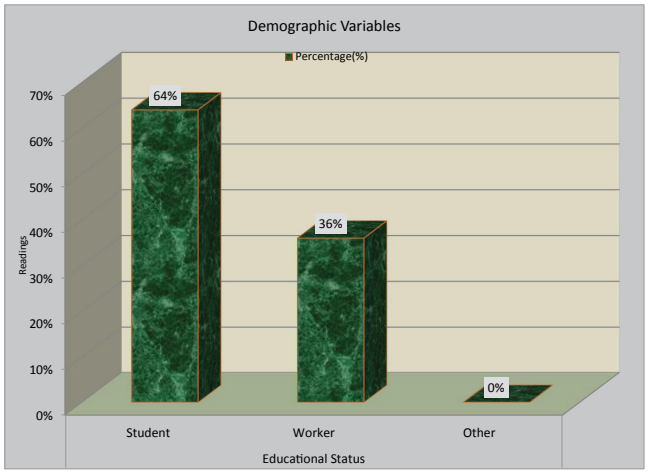

Figure 3: Shows the occupational variables.

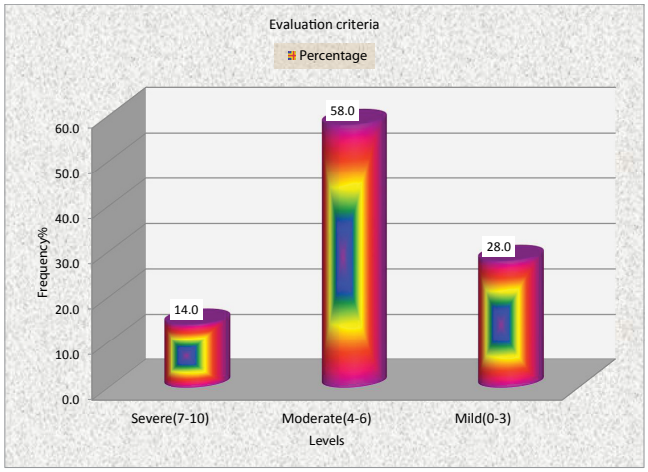

Figure 4: Shows the evaluation criteria for VAS Scale.

(32%), followed by neck pain (25%), lower back pain (19%), elbow pain (17%), upper back pain (13%), wrist pain (13%), knee pain (8%) and ankle pain (7%), hip (5%). We got to know that region which is most commonly involved is shoulder complex.

Discussion

The study is to see the Prevalence of Musculoskeletal Disorders among male palestrato. The result of the present study show that the shoulder region is most commonly affected followed by neck pain, low back pain and other regions. This might be because in adolescent athletes, glenohumeral instability is an important underlying pathomechanical basis for shoulder pain, overuse stress injury of the proximal humeral physis is important to recognize early in order to prevent later complications. Shoulder impingement syndrome (SIS) is a general term used to describe multiple underlying lesions and relatively uncommon in young athletes [13].

The other reason behind the MSD is due to overexertion in lifting, injuries due to pushing and pulling objects, injuries due to overexertion in holding, carrying or turning objects [14]. The common musculoskeletal complaints include pain and stiffness

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Table 3: This table shows the percentage of each region of body and which region is most commonly involved in musculoskeletal disorders.

Itemwise Analysis	Yes%(f)	No%(f)
Qno.1	73%	27%
Qno.2	34%	66%
neck3	25%	75%
Qno.3 B	00%	00%
shoulder4	32%	68%
Qno.4 B	00%	00%
elbow5	17%	83%
Qno.5B	00%	00%
wrist6	13%	87%
Qno.6B	00%	00%
upper back 7	13%	87%
Qno.7B	00%	00%
lower back 8	19%	81%
Qno.BB	00%	00%
hip 9	5%	95%
Qno.9B	00%	00%
knees10	8%	92%
Qno.10B	00%	00%
ankle 11	7%	93%
Qno.11B	00%	00%

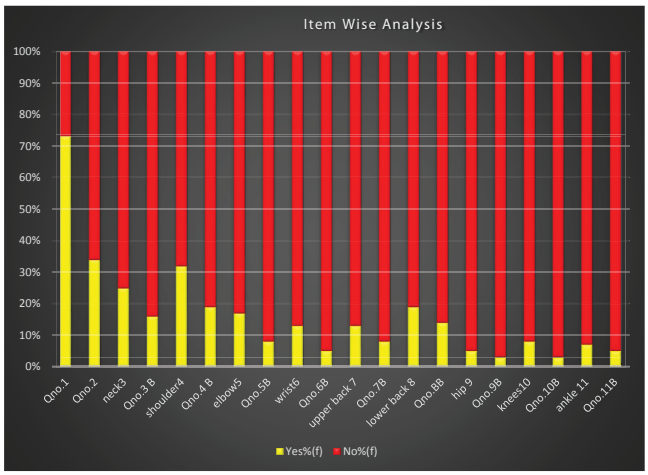

Figure 5: Item Wise Analysis

in various regions of body like neck, shoulder and lower back and wrist, because of the high usage of computer, the integration of biomechanical factors such as static muscle overload will lead to MSD [15]. Ergonomic intervention may have greater impact in prevention of hand, wrist, and complaints [16]. Standing and sitting positions are frequently adopted, twisting of the spine connected with excessive tightening of some tissue and the straining of others could be source of painful disorder and diseases of musculoskeletal system [17]. The musculoskeletal problems are significant problem within the European Union with respect to ill health, productivity [18]. The reviews show that mechanical factors such as heavy lifting, psychosocial factors such as low control over work pace, and organizational factors such as safety climate are all associated with increased injury risk for young Nordic workers, this leads to the decrease in productivity due to absence from work, chronic diseases and health expenditures lead to estimated annual spending of 2.1 billion Euros in the Netherlands and about 45 to 54 million Dollars in the United States [19,20].

The physical therapist are more prone to have low back, wrist and hand problem as they have to lift and transfer the dependent patients. Physical therapist have the knowledge about MSD but do not constitute an immunity to their over work related MSD [21]. The increased use of computer and mouse has increased the risk of developing musculoskeletal disorder especially in neck and upper extremity and MSD is more prevalent among women than men. Hand and wrist pain is also common with long term use of mouse and keyboard [22]. Back pain is the most commonly introduced musculoskeletal disorder by the women because of awkward posture like continuous bending, weight lifting, transferring the dependent patients [23]. However, it is known that the overuse of certain muscle groups, performing repetitive movements with or without required located effort, postures during work, short rest interval and stress imposed by the work organization predisposes musculoskeletal dysfunctions [24,25]. The age group between 20-25 years are dominant because the gym culture is growing fast and there are opportunity for the youngsters to assess the heavy equipments. It rejuvenates there mental stress. Hence, the performance of the students become more and more better.

The knowledge about the MSD become crucial for the male palestrati during workout to prevent the undue stress and strain over the body. It will also help us to focus on the region with alter biomechanics so that a physical therapist advise the palestrato to use the correct techniques during physical activities.

Limitations

Prevalence of MSD on male palestrato were not considered regarding the various exercises done by them in gym.

Future scope

Further study can be done by increasing number of samples.

Subjects will be taken from different districts of Punjab or all over the India.

Age criteria can be extended.

Timing of the gyming activities can be altered or modified

Conclusion

The study concluded the satisfying results regarding the Prevalence of musculoskeletal disorder among palestrato. Majority of the subjects have marked VAS between 4-6 as shown in table 5.1. From Nordic scale reading, we conclude that shoulder and neck area are severly afftected and 73% of subjects are involved in having MSD as shown in table 5.3. The most common age group is 20-25 involved from which most of

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them students are shown in table 5.1.

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