

Research Article

Prevalence of Musculoskeletal Disorders Amongst Adult Population of India

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A B S T R A C T

Background: Musculoskeletal Disorders (MSDs) are prevalent across the globe and are one of the commonest causes of long-term pain and disability, affecting millions of people all over the globe. **Objective:** To review the literature on studies conducted in India regarding prevalence of Musculoskeletal disorders and its associated factors in adult population in India.

Methods: The review of literature was done using various online sites such as PubMed and Google Scholar. The National Medical Library was also searched and relevant papers from different journals were selected. **Key words** used in search included: Musculoskeletal disorders or pain, General population, Rural area, India.

Result: The prevalence of MSD's among the adult population was found to range between 6.92% - 76.8%. The studies have shown rural-urban difference in the prevalence as well as the health seeking behaviour for MSD's. There is hardly any screening program existed. The review also shows that factors such as female gender, middle age, lower education status, performing moderate work and repetitive hand movements at work were significantly associated with musculoskeletal pain.

Conclusion: A large proportion of the adult population who suffers from various MSD's goes unrecognized either due to poor understanding of the various factors associated with it or due to less efficient screening and treatment opportunities. Therefore, a clear understanding of the various factors is must to identify these disorders in their earlier course and suitable treatment options to be provided along with the follow-up care.

Keywords: Musculoskeletal Disorders, Joint Pain, Disability

Introduction

Musculoskeletal Disorders (MSDs) are prevalent across the globe and are one of the commonest causes of long-term pain and disability, affecting millions of people.¹

Musculoskeletal disorders are the disorders of the muscles, nerves, tendons, joints, cartilage, and supporting structures of the upper and lower limbs, neck, and lower back.² These disorders cause pain and discomfort which interfere with day to day activities. This fact was recognized and endorsed

by World Health Organization (WHO) and United Nations as they declared '2000-2010' as the "Bone and Joint Decades". These disorders are caused by sudden exertion or prolonged exposure to physical factors (repetition, force, vibration, or awkward posture).²

Musculoskeletal conditions cover 150 diseases and syndromes, are a diverse group with regard to pathophysiology but are linked anatomically and by their association with pain and impaired physical function. They encompass a spectrum of conditions, from those of acute onset and short duration to lifelong disorders, including osteoarthritis, rheumatoid arthritis, osteoporosis, and low back pain. The prevalence of many of these conditions increases markedly with age, and many are affected by lifestyle factors, such as obesity and lack of physical activity. The increasing number of older people and the changes in lifestyle throughout the world mean that the burden on people and society will increase dramatically.³

The clinical presentation of MSDs vary from mild and infrequent symptoms to severe, chronic and debilitating symptoms. They are seen as a consequence of aging; so, as the global population ages, it is expected that the magnitude of the problem will increase and place huge burden, not only on society but also on the health care system.

MSDs were ranked as second commonest cause of disability in terms of Years Lost Due to Disabilities (YLD's). Amongst these, low back pain was the leading cause of Years Lived with Disabilities (YLDs) in 86 countries and second & third leading causes in 67 countries.³ Neck pain and large category of musculoskeletal disorders were ranked in top ten causes of global YLDs between 1990 and 2013.⁴ It is evident that MSDs are significant contributor to global burden of disease.

The 2010 global burden disease study reported that the prevalence of MSDs is increasing in lower and middle-income (LMIC) countries.⁵ It has been also reported that MSDs accounted for 19.2% of all YLDs in lower and middle-income countries. Despite this fact, MSDs do not appear in majority of global NCD initiatives across the globe.

The present review highlights the burden of musculoskeletal disorders amongst adults in India, which will help in planning of services and interventions required based on the identification of the risk factors and the socio-demographic factors in Indian population.

Methods

The review includes widespread search for the studies carried out on burden of musculoskeletal disorders and its risk factors.

Search Strategy

Review of the literature was done with the help of search engines like PubMed and Google Scholar. We used

combination of medical terms i.e. Musculoskeletal Disorder or MSD, prevalence as well as other including criteria for study i.e. rural, India, adults. We identified articles eligible for further review by performing an initial screen of identified titles or abstracts, followed by a full-text review.

Selection Criteria

Articles were considered for inclusion if the study was cross-sectional, case-control, or cohort; studies conducted among adult populations (≥ 18 years old), studies were on prevalence, burden and risk factors for musculoskeletal disorder. Articles were excluded if they were letters, conference proceedings, reviews, and meta-analysis on interventions, not conducted on humans, not including rural population, focused on merely one entity of MSD and targeted only on occupational groups.

Data extraction and Analysis

Full-text articles were retrieved for the selected titles. Reference lists of the retrieved articles were searched for additional publications. Data were also searched manually from national medical library and institutional library. Data was analysed for range of prevalence of MSD and their associated factors in rural parts of India.

Result

By using key words musculoskeletal disorder or MSD, prevalence, rural, India, search engine PubMed showed 90 articles. Among these articles 40 articles were not related to the study title. 35 articles were focussed on particularly one entity of MSD or particular on occupational group or study conducted in urban area of India. Five articles were collected from PubMed and rest of literature were taken from other sources mentioned in methodology. Results are depicted in detail.

Kirubakaran S et al. (2019) conducted a Mixed-method study in rural Tamil Nadu on chronic musculoskeletal pain among 405 elderly and found that prevalence of chronic pain was 47.6%. Most common site for chronic pain was knee joint (64.5%) followed by a low backache (21.7%).⁶

A cross-sectional study conducted by Mendhe HG et al (2016) in Andhra Pradesh revealed that overall prevalence of MSD was 61%. Joint pain was the most common symptom in the study participants (47.7%), 16% had joint stiffness, 19.75% had muscle pain, 20.7% had spine or back pain, and 23.25% had joint swelling.⁷

Majumdar A et al. (2015), conducted a study in rural Puducherry with the sample size of 296 and revealed that one-year prevalence of musculoskeletal pain was 33.9% and prevalence of joint related complaints (other than pain) was 29.7%. When current pain and one-year prevalence of pain was considered, lower back was most commonly involved (10.2% and 14.5% of participants respectively),

followed by hips/thighs and knees. When joint complaints were asked, knees were most commonly involved (current joint complaint in 18.1%- and one-year pain in 23.4% participants), followed by hips/thighs and ankles. They found that in middle age, lower education status, not being currently married, performing moderate work, and having repetitive hand movements at work were statistically significant association with musculoskeletal pain.⁸

Deshmukh SA et al. (2014) conducted a population based cross - sectional study in Rural Gadchiroli, India and found that the individuals with back and/or joint pain in rural Gadchiroli was 76.8%.⁹

Banerjee A et al. (2012) conducted a community based cross-sectional study in Pune with sample size of 2633 and reported the prevalence of MSDs as 7.2 percent (female-8.6%, male-5.9%). The prevalence was high in the elderly people (48.78%) and was 18.18% in farmers, and slightly more in people with desk jobs (10.34%) compared with manual workers (9.12%). The prevalence was twice as high in rural areas (13.17%) compared with urban areas (6.51%). Backache was the most common condition (34.21%) of all MSD.¹⁰

A cross-sectional study conducted by Sharma R et al. (2012) in Delhi, Dibrugarh and Jodhpur, revealed that the prevalence of MSDs in Delhi, Dibrugarh and Jodhpur is 7.08% (Urban-7.23%, Rural-6.92%), 11.52% (Urban-13.38%, Rural-9.68%) and 9.53% (Urban-8.57%, Rural-10.58%), respectively. Across all the three study centres the prevalence of MSDs was lowest in the age group of 18-30 years and it gradually increased with increasing age groups from 40 years and above. About 9.31% of the patients in Delhi, 8.31% in Dibrugarh and 4.32% in Jodhpur reported absence from work due to MSDs and at least some functional limitation has been observed in 84.10% of patients in Delhi, 86.20% in Dibrugarh and 66.44% in Jodhpur.¹¹

In another community based cross-sectional study, conducted by Bihari V et al. (2011) in Gurgaon and Noida with sample size of 2080, prevalence of Musculoskeletal pain was found to be 25.9 percent. Pain was found to be more frequent among females (31.3%) as compared with males (20.9%). Significant association of pain in joints/limbs/knee/lower legs with obesity and high body fat was established. More than 50% of the subjects complained of backache.¹²

Table I. List of studies showing prevalence of musculoskeletal disorder in India

Authors	Year	Study Population	Tools	Prevalence
Kirubakaran S et al	2019	405 elderly in rural Tamil Nadu	Predesigned and pretested questionnaire	chronic pain- 47.6%.
Mendhe HG et al	2016	400 geriatric population in rural Andhra Pradesh	Predesigned and pretested questionnaire	MSD -61%
Majumdar A et al	2015	296 adults in rural Puducherry	Predesigned and pretested questionnaire	Musculoskeletal pain-33.9%
Deshmukh S A et al	2014	280 adults, age between 30-60 years from rural Gadchiroli, Maharashtra	Questionnaire for back pain and joint pain	Backache-76.8%
Banerjee A et al	2012	500 rural population of Pune	Questionnaire based on Community Oriented Program for Control of Rheumatic Diseases (COPCORD).	MSD in rural population-13.17%
Sharma R et al	2012	Delhi, Dibrugarh, Jodhpur	WHO-ILAR COPCORD,	Delhi-6.92 Dibrugarh-9.68 Jodhpur-10.58
Bihari V et al	2011	2086 rural population of Noida and Gurgaon	Predesigned and pretested questionnaire	25.9%
Mathew A J et al	2011	7650 rural population of Kerala	Validated version of health assessment questionnaire (HAQ), Bhigwan (India), COPCORD	musculoskeletal pain- 26.08%
Mahajan A et al	2003	Rural area of Jammu and Kashmir	WHO-ILAR CCQ questionnaire	MSD in rural area- 25.05%

Table 2. Significantly associated factors with musculoskeletal disorders

S.No.	Authors	Significant Associated Factors
1	Kirubakaran S et al	Older age and presence of at least one chronic morbidity
2	Mendhe HG et al	Female sex
3	Majumdar A et al	Middle age, lower education status, not being currently married, performing moderate work, and having repetitive hand movements at work
4	Banerjee A et al	Female sex and rural population
5	Sharma R et al	Female sex, rural population, increasing age
6	Bihari V et al	Obesity and high body fat
7	Mahajan A et al	Female sex and increasing age

Mathew A J et al. (2011) conducted a study in rural area of India and revealed that prevalence of musculoskeletal (MSK) pain in the area was 26.08%. They found that about 8% of the respondents reporting MSK pain had to stop work and 4% had chronic depression.¹³

A study conducted by Mahajan A et al. (2003) in Jammu on prevalence of major rheumatic disorders revealed that 24.05% subjects (132 females and 113 males) had rheumatic diseases. Point prevalence of rheumatic diseases was 25.05% in rural population and 23.14% in the urban population. Point prevalence of rheumatic diseases increased with increasing age both for males and females. Rheumatic diseases were most common in manual workers and least common in sedentary workers.¹⁴

Discussion

The findings of this literature review have been drawn from 8 articles, each of which had measured musculoskeletal disorders using different methods. As most studies had used self-developed questionnaires, it appears that these are commonly accepted methods for measuring the prevalence of MSD. Other methods used included questionnaires such as the Health Assessment Questionnaires and WHO-ILAR COPCORD questionnaire.

It's been reported by the studies undertaken for review purpose in this article that in India, the prevalence of Musculoskeletal disorders varies from 6.92% to 76.8% with urban- rural variation as it has been found that prevalence of Musculoskeletal disorders is more in rural areas as compared to urban areas. Almost all the studies have documented factors such as female sex, old age and sedentary lifestyle to be associated with presence of

Musculoskeletal Disorders. Occupation and nature of work are important factors found to be associated with MSD. Heavy work load was found to be associated with higher prevalence of MSD.

Conclusion

A large proportion of the adult population who suffers from Various MSD's goes unrecognized either due to poor understanding of the various factors associated with it or due to less efficient screening and treatment opportunities. Therefore, a clear understanding of the various factors is must to identify these disorders in their earlier course and suitable treatment options to be provided along with the follow-up care.

As MSDs were found to be more commonly prevalent in females, and the elderly, the use of a simple screening tool in these two groups can help identify patients with MSD and initiate appropriate treatment to limit morbidity. Those with history of trauma had a higher prevalence of MSD, therefore the general population should also be educated about measures for prevention of trauma, Road Traffic Accidents (RTA) and falls. There are very few studies that document the prevalence of MSDs amongst adults in rural India so attempt should be made to further research the prevalence of MSDs in adults of rural areas.

Conflict of Interest: None

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