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Original Research Article

MUSCULOSKELETAL DISORDERS AMONG RURAL POPULATION IN SOUTH INDIA – CROSS SECTIONAL ANALYSIS

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Abstract:

Introduction: Musculoskeletal disorders (MSD) are a group of disorders that affect the structures including the nerves, tendons, muscles, joints and inter vertebral disc. MSD could result in pain, injury, illness poor quality of life and reduced productivity. These disorders were equally prevalence among rural population. **Aims & objectives** of this original research was to analyses the prevalence of MSD among rural population of Kanchipuram district southern India. Also, to lay the importance of strengthening tertiary heath care in rural India. **Methods:** Community health screening and treatment by physician, physiotherapist and pharmacist were conducted once a month during the period from October 2016 to January 2017. 600 subjects identified with MSD were evaluated and treated. Home programme was taught to them. Various MSD such as low backache, osteoarthritis, cervical spondylosis, shoulder and other ailments were recorded and treated with physiotherapy specific therapy for MSD. Their level of literacy, occupation tobacco and alcohol habits were recorded and analyzed. **Results:** 62% female subjects have MSD, 31% have osteoarthritis, 26% low backache and 66% of the subjects were between 30-60 years. 18% of the participants were above 60 years. While 53% of male subjects had low backache, female participants had 58% with osteoarthritis knee, 51% with shoulder and 68% with neck ailments related to MSD. **Conclusions:** The findings of the study points at strengthening of our rural health care system, for musculoskeletal disorder prevention and management. Primary health care in India needs to be re- evaluated and immediately reformed. Concrete steps to be taken for effective rural health care planning and delivery so as we can collectively develop with our fellow rural brother.

Keywords: YLD – Years Lived with Disability, MSD – Musculoskeletal Disorder, QOL – Quality of Life, LBA – Low backache, OA – Osteoarthritis

Introduction:

Developing countries health care and its related economy are major concern. In terms of collective growth of their society as a whole, rural public's status of health prevalence of diseases and disorders, level of literacy, accessibility, affordability and availability of timely medical intervention

can save lives and improve the standard of rural population life style.

Providing due health attention is their rights and duty of every medical professional, at the same time urbanization can be halted, if similar living and health care facilities of urban life among our rural brothers and sisters could be extended and made available at their door step, we are assured of our berth as super power and a developed nation, an achievable goal all should bear in mind was the major aim of this original study to be presented.

Nearly 86% of all the medical visit in India are made by rurality's with majority still travelling more than 100 km to avail health care facility of which 70-80% is borne out of pocket landing them in poverty (1). Rural health care is one of the biggest challenges with 70% population living in rural areas and low-level health facilities (2). India accounts for the largest maternity deaths, majority of these are in rural areas where maternal; health care is poor. (3) Have observed among rural Tamil Nadu, India based study where 87.5% of the study subjects belonged to low socio-economic status. Health education should be promoted at community level so that the morbidity associated with MSD will be reduced and the quality of life of rural population improves (4)

Global prevalence of MSD was 8.4%, with its burden increases with age and is ranked as sixth cause of YLD (5). Musculoskeletal disorders are defined as a group of disorders that affect the musculoskeletal system including the nerves, tendons, muscles, joints and supporting structures such as inter vertebral disc (6) and these MSD could result in pain, injury, illness, poor quality of life and reduced productivity (7)

Pain is the most prominent symptom and most determinant of disability in patients with osteoarthritis knee (8). Globally 20% of the adults were affected with pain related to Musculo skeletal disorders (9). Musculoskeletal conditions caused 40% of all chronic conditions 54% of all long-term disability and 24% of all restricted activity days (10)

Aims & objectives of this original research was

1. Analyse the prevalence of MSD among rural population
2. To obtain details of social habits, nature of occupation
3. To evaluate literacy level and utility of health care for MSD

Materials & Methodology:

Among 1150 subjects attending special community health care screening and therapeutic camps conducted at rural areas of Kanchipuram district once a month during October 2016- January 2017, 600 subjects were found to have some or other form of musculoskeletal disorder such as low back ache on cervical spondylosis shoulder and others. This study population represents men and women subjects of all sex attending these camps, community medical team which screened includes general physician, nurses, physical therapist, lab technologist and pharmacist.

With due permission from the government and local administrative authorities these camps were conducted. Participants were mobilized prior with pamphlet and using public address system. The participants after screening were prescribed and given free medication, after evaluation were treated with single session of physiotherapy and home exercises. Those who require advice with medical specialists were referred to nearby Kanchipuram or Chengalpet government hospitals

Profile of the Study Area:

Kancheepuram district located near Chennai (72 Kms) with Kancheepuram as the administrative headquarters. It has 13 Taluks and 13 development blocks. The district has historical pride of being ruled by palavas, cholas, pandyas, Vijayanagara Empire, the Carnatic kingdom pilgrimage and religious connectivity of the district with Jainism, srivaishavism, shaivism, Buddhism were well evidenced.

Major occupations of this district are silk weaving and agriculture. Also, this district

has more than the national average rate of child labor and bonded labor based on census 2011, The district has a population of 2,012,958 with 1279855 urban males and 730454 rural male population while 1257970 urban females and 722618 rural female population. The district has 29 primary health centers 50 private nursing homes 10 government hospitals, two deemed universities hospitals and 1 Medical college hospital.

Study Design:
Cross sectional study with a sample size of 600, convenient sampling.
Inclusion Criteria:
Men and women of both sex of all age group with MSD
Exclusion Criteria:
Those not attended the camps, bedridden subjects of the district, those who attended but with no MSD

Abbreviations:
LBA – Low Back Ache, OA – Osteoarthritis, CS – Cervical Spondylitis &
Others – Other Musculoskeletal Conditions

Table: 1 Socio Demography Details of the Subjects with MSD

	Level of Literacy No Education Formal	**Utility of Medical Care for MSD**	**Tobacco Consumption Smoking**	**Chewing**	**Alcohol**
Literacy Rate 48 % (288)	(312) 52%	Never 12% (72)			
Male 32% (192)	-				
Female 16% (96)	Middle School (60) 10%	Home Remedies 12% (72)	13% (78)	18% (108)	10% (60)
	High School (54) 9 %	Primary Health Centre 22% (132)			
	HSC (66) 11%	Private 11% (66)	Male 10.5% (63)	Female - 13% (79)	
	Graduate & Above (108) 18%	Govt Hospitals 20%(120)	Female 2.5% (15)	Male 4.8% (29)	
		Unaware of physiotherapy & rehabilitation 24% (144)			

Table: 2 Prevalence of MSD with age and gender wise distribution

		%	>30	31-50	51-60	>60
OA Knee (186) 31%	F	58 (108)	-	16% (26)	28% (54)	14% (28)
	M	42% (78)	-	7% (17)	23 %(36)	12% (25)
LBA (156) 26%	F	44% (68)	6% (8)	8% (12)	16% (25)	14% (23)
	M	56% (88)	3% (5)	15 %(23)	13 %(21)	25 %(39)
Shoulder (42) 7%	F	61% (26)	3% (3)	20% (8)	22% (9)	16% (6)
	M	39% (16)	-	9% (3)	18% (8)	12% (5)
Neck (60) 10%	F	68 %(41)	2% (1)	18% (9)	25% (16)	23% (15)
	M	32 (19)	-	12% (7)	6% (3)	14% (9)

Discussion:

Age and gender wise distribution of MSD: Bangladesh based study among 162 subjects aged between 18-75 years, 7% of osteoarthritis knee, 4% with low back ache 3% neck and others conditions among subjects attending their department (11). A survey report carried out in Canada, USA and Western Europe, the prevalence of physical disabilities caused by a musculoskeletal condition was estimated at 4-5% of the adult population (12). As displayed in table 2, 44% of female 30% of male between the age group of 30-60 years had osteoarthritis knees, 2.4% female participants and 28% of male between 31-60 years had low backache, where as 42% of female and 21% of male with shoulder ailment, 43% of female and 18% male with neck ailment were found to be between productive age of 31-60 years

An interesting finding of this study was 70% of the subjects with MSD aged below 60 years as it signifies with decreasing quality of life, pain and resulting in disability. (13) among 300 rural population 24% **had low back ache concur with results of this study subjects had 26% with low back ache** MSD among geriatric population.

Another Chandigarh based geriatric study where 53% of female to have osteoarthritis knee (14). Among 400 geriatric people in rural Andhra Pradesh 21% had back ache and 33% had osteoarthritis knee, 67% of women had back ache and 33% of men had low back ache (4). Geriatric study by (15) found 48% had knee joint pain. (16) among geriatric rural Karnool, Andhra Pradesh based study have recorded 55% of the subjects belonged to 60-69 years. **This rural based study has recorded geriatric subjects with 18%. Among which 26% had osteoarthritis knee, 29% had low backache 28% had shoulder ailment, 37% has neck ailments.**

Utility of Health for MSD:

With government reluctant toward the health care with .9% of the GDP allocated for health care (17) and spending average on health care by the poor house hold in Tamil Nadu at 1.3% suggests peoples reluctance towards health care putting it in a side corner than other priorities (18). **Its worthy to note here that participants in this study 20% were treated in Govt hospitals and 11% of the subjects were treated in private hospitals for MSD**

Rural Indian Health Care Scenario:

(19) in a rural Gadchiroli India study on health seeking behavior for back and joint pain have found that 68% took treatment from private practitioners, 23.5% from PHC and 50% were unaware of the role of physiotherapy and surgery. In concurrence with these reports this study subjects as seen in table 24% were unaware of physiotherapy and rehabilitation, 22% had treatment from PHC.

(20) in a rural west Bengal based evaluation on rheumatic care have recorded only .5% were treated by rheumatologists and more than 50% were treated by quacks. **This study with 62% of the participants were women having MSD adds more concern with health care to minimize pain and disability among women.**

Level of Literacy:

India has 28.7 crore illiterates was the largest number of adults without basic literacy skills in 2010-2011. With country literacy rate at 7.04% with male 82% female 65% Tamil Nadu state was 80.33%, with 82% Male, 64% Female and Kancheepuram district where the study was carried out has an average literacy rate at 84.49, with male 89% and female literacy at 79% but urban and rural male literacy was at 90% and 86%, female urban 84% were literate and 68% of rural population were literate (21). **This study finding among rural subjects where the literacy rate was 48% with male 32% and female 16 % were literate.**

Utilization of health care services was based on the literacy level, as 70% illiterate rural women haven't availed no ANC care where as 43% of literate women and utilized ANC care, but 74% urban women have availed ANC services (22)

Alcohol Consumption:

Prevalence of alcohol consumption in India is around 21% among men and 2% among women (23). More than 11% of Indians were binge drinkers against global average of 16% (24)

Alcohol affects pancreas directly besides liver, gastro intestinal tract and central neuros system, influences glucose metabolism (25) 20-30% of esophageal cancer, liver cancer, homicide, epilepsy motor vehicle accidents. Worldwide 1.8 million deaths and 58.3 million DALYS are attributed to the use of and 15 Indian die every day with alcohol (26). A rural study from rural Faridabad, Haryana state of India among elderly subjects where 16% of men and .8% of women were regular alcoholics (27). **Which was similar to findings of this research with 10% of this study male and .9% female participants were alcoholics (28)** have reported that 20.3% men and 5.3% of women consume alcohol in a Thailand based rural study. (29) in a Tamil Nadu based rural study have recorded 62.4% as alcoholics.

Tobacco consumptions:

Tobacco consumptions is a serious public health problem in many countries including India as its associated health hazards. Globally 47% of men and 12% of women smoke. Tobacco use alone is currently ranked fourth in the world for loss of life (30) which can be preventable. Smoking causes 71% of lung cancer, 42% of chronic respiratory diseases and 10% of cardio vascular disease (31)

Tamil Nadu, India based study has revealed 23.7%, rural 19.4% urban smokeless tobacco chewers and 39.6% male, 5% female smokers (32), **however as displayed in table 2, 0.5% male and 2.5% female were smokers, among smokeless tobacco chewing 13% of this study participants were female and 4.8% were male. More awareness among rural population towards ill effects of alcohol and tobacco consumption needs to be focused as preventive strategies.** A high prevalence of smoking is a common phenomenon in rural India (33). Prevalence of tobacco was higher among rural as compared to urban in a recent National survey conducted with rural male 61% vs urban male 50% and rural female 13 vs 11% urban female (34). A high prevalence of smoking with 57% was recorded in a study conducted by all India institute of medical sciences Delhi among elderly subjects (27). Another cross-sectional study conducted in 11 villages of rural Tamil Nadu have recorded 37.6% male and 15.1% female were smokers, tobacco chewing among 16% of the subjects (29)

Other Relative Observational Findings and Critical Analysis:

- Also observed as part of this routine community health screaming camp we have noted the hygiene; mainly oral and physical hygiene were poor requiring further dental care. Poverty was baseline findings as with most of the participants depend on agriculture as daily labourers for their livelihood. Steps to further enhance added livelihood should be considered by government authorities. Few physically and mentally challenged who have attended the camp were unaware of rehabilitation facilities, hence a door to door disability evaluation and delivery with due care should be made.
- Government projects such as *Sarva Shiksha Abhiyan* may benefit upcoming generation, but as participants in this study were above 30 years, hence other informal means of literacy promotion could benefit an overall upliftment including healthcare of this society.
- An important aspect was 62% of the participants were women with MSD, potential danger of ill treatment, dependency, abused by family and society could be hazardous hence primary health care delivery and rural health care system needs more strengthening with on par urban healthcare available at our every rural area of our country is possible with

presently available technology resources.

Limitations and Further Recommendations:

More sample size could be added with other study variables such as blood pressure, diabetes, obesity is recommended. Monthly once physiotherapy with lack of continuity of therapy and follow up in other days without qualified physiotherapist were major limitations. Also, the subject's diagnosis, differential diagnosis has to be confirmed with laboratory and radiological investigations and this study relies on clinical findings with evidence.

Conclusion:

Pain limiting movements due to fall, ageing, after an illness could lead to musculoskeletal disorders. This may further diminish the quality of life of the subject, affects the family with drop in earning source. Also, proper rehabilitative measures were not easily available in our rural areas. Lack of literacy belief in home remedies and non-availability and un approachable could further limit the due health measures for those with MSD.

Hence due health care planning, execution and proper means delivery are our country's priority and responsibility were the core of this original study.

References:

1. Kumar R. Academic institutionalization of community health services: Way ahead in medical education reforms. J Family Med Prim Care. 2012; 1:10–9.
2. National Rural Health Mission: Rural Health Care: Towards a Healthy Rural India. July 2013: / gramvani / Page 1-6. http: ww.mird.org.in/brgf/
3. Purty AJ, Bazroy J, Kar M, Vasudevan K, Veliath A, Panda P. Morbidity pattern among the elderly population in the rural area of Tamil Nadu, India. Turk J Med Sci 2005;36(2006):45–50.
4. Harshal Gajanan Mendhe , Narni Hanumanth1 , Gangi Harika. A study on musculoskeletal disorders distribution and health-seeking behavior among geriatric people in the field practice area of rural health and training centre of a tertiary care hospital. International Journal of Medical Science and Public Health 2016 - Vol 5: Issue 11. PP: 2226-2229
5. Smith E, Hoy DG, Cross M, Vos T, Naghavi M, Buchbinder R, Woolf AD, March L. The global burden of other musculoskeletal disorders: estimates from the Global Burden of Disease 2010 study. Ann Rheum Dis. 2014 Aug; 73(8):1462-9.
6. Osborne A, Blake C, McNamara J, Meredith D, Phelan J, et al. (2010) Musculoskeletal disorders among Irish farmers. Occup Med (Lond) 60: 598-603.
7. Bihari V, Kesavachandran C, Pangtey BS, Srivastava AK, Mathur N (2011) Musculoskeletal pain and its associated risk factors in residents of National Capital Region. Indian J Occup Environ Med 15: 59-63.
8. van Baar ME, Dekker J, Lemmens JA, Oostendorp RA, Bijlsma JW. Pain and disability in patients with osteoarthritis of hip or knee: the relationship with articular, kinesiological, and psychological characteristics. Journal of Rheumatology 1998;25:125-33
9. Woolf AD, Pfleger B (2003) Burden of major musculoskeletal conditions. Bull World Health Organ 81: 646-656.
10. Badley EM, Rasooly I, Webster GK. Relative importance of musculoskeletal disorders as a cause of chronic health problems, disability, and health care utilization: findings from the 1990 Ontario Health Survey. Journal of Rheumatology 1994; 21:505-14.
11. Md. Salah Uddin, Muhammad Millat Hossain, Md. Shofiqul Islam, Md. Obaidul Haque, Umma Kulsum, Ehsanur Rahman , Mohammad Habibur Rahman , Md. Fazlul Karim Patwary. Prevalence of Obesity among Musculoskeletal Patients. International Journal of Physiotherapy and Research,

Int J Physiother Res 2015, Vol 3(1):889-93.

12. Reynolds DL, Chambers LW, Badley EM, Bennett KJ, Goldsmith CH, Jamieson E, et al. Physical disability among Canadians reporting musculoskeletal diseases. Journal of Rheumatology 1992; 19:1020-30.
13. Nazeer M, Rao SM, Soni S, Ravinder M, Ramakranthi T, Bhupati S. Low back pain in South Indians: causative factors and preventive measures. Sch J App Med Sci 2015;3(1D): 234–43
14. Sharmi MK, Swami HM, Bhatia V, Verma V, Bhatia SPS, Kaur G. An epidemiological study of correlates of osteoarthritis in geriatric population of UT Chandigarh. Indian J Community Med 2007;32(1):77–8. 13.
15. Kaur P, Walia I, Saini SK. Study on intensity of knee joint pain by "Application of Moist Heat" among geriatric population. Nurs Midwifery Res J 2007;3(4):162–71.
16. Madhu T, Sreedevi A. A study of socio-demographic profile of geriatric population in the field practice area of Kurnool Medical College. Int J Res Dev Health 2013; 1(2):69–75.
17. Sandeep Singh and Sorabh Badaya. Health care in rural India: A lack between need and feed. South Asian J Cancer. 2014 Apr-Jun; 3(2): 143–144.
18. Iyengar S, Dholakia RH. Access of the rural poor to primary healthcare in India. Rev Market Integr. 2012; 4:71–109.
19. Deshmukh SA, Kalkonde YV, Deshmukh MD, Bang AA, Bang AT. Healthcare seeking behavior for back and joint pain in rural Gadchiroli, India: a population-based cross-sectional study. Indian J Community Med 2014; 39(4):229–34.
20. Santra G. Assessment of quality of rheumatology care in a rural area of West Bengal, India. Indian J Pain 2015; 29(3):166–71.
21. Census 2011. Available at: www.gktoday.in/indias-elderly-population (last accessed on 02-02-2015)
22. Saha UC, Saha KB. A trend in women's health in India - What has been achieved and what can be done. Rural Remote Health. 2010; 10:1260
23. Raekha Prasad. Alcohol on the rise in India. Lancet medical journal vol 373 Jan 2009.
24. The per captia consumption of alcohol in India increased 38 percent, from 1.6 liters in 2003 -05 2.2 liters in 2010-12, according to a world health organization (WHO) report, which also revealed that more than 11 percent of Indians were bring drinkers, against the global average of 16 percent.
25. Venkatachalam J, Nuthu Rajesh E, Zile Singh, Sathya GR. Alcohol Consumption and Diabetes: A case control study in a rural area of Kanchipuram district of Tamil Nadu. IOSR journal of Dental and Medical Sciences (IOSR – JDMS). Volume 4, Issue 6, PP: 83-86
26. As the debate over alcohol bans grows across India, 15 people die every day or one every 96 minutes – from the effects of drinking alcohol, reveals as India spend analysis of 2013 National crime records bureau (NCRB) data, the latest available.
27. Anil Goswami, V.P. Reddaiah, Guresh Kumar. Tobacco and alcohol use in rural elderly Indian population. Indian J Psychiatry. 2005 Oct-Dec; 47(4): 192–197
28. Swaddiwudhipong W, Lerdlukanayounge P, Chaovakiratipong C, etal Screening assessment of the elderly in rural Thailand by a mobile unit. Trans R Soc Trop Med Hyg. 1996; 90-223
29. Kaur P, Rao SR, Radhakrishnan E, Ramachandran R, Venkatachalam R, Gupte MD. High prevalence of tobacco use, alcohol use and overweight in a rural population in Tamil Nadu,

India. J Postgrad Med. 2011 Jan-Mar; 57(1):9-15.
30. Adejuwon GA (2009) Tobacco use and second-hand smoke as risk factors for diseases in Nigeria: Implications for collaborative research and multilevel tobacco control strategies. Afr.J. Med Med Sci 38 Suppl 2:21-29.
31. WHO (1997) Tobacco or Health: A global status report. World health organization ISBN 94 4 156184 X (NLM Classification: WM 290)
32. Kolappan Chockalingam, Chandrasekaran Vedhachalm, Subramani Rangasamy. Prevalence of tobacco use in urban, semi urban and rural areas in and around Chennai city, India. www.plosone.org. Volume- 8, issue – 10, PP: 1-9.
33. Lal S, Mohan B, Punia MS. Health and social status of senior citizens in rural areas. Indian J Community Med. 1997: 9: 10-17.
34. International Institute for population sciences. National family health survey 2005-06 (NFHS). Mumbai: IIPS; 2007