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Socio-Demographic Profile and Psychiatric Comorbidities in Patients with Chronic Osteoarthritis: A Comprehensive Analysis

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Abstract **Original Research Article**

Introduction: Osteoarthritis (OA) is a chronic degenerative joint disease that significantly impacts physical function and quality of life, particularly among older adults. The sociodemographic profile of patients suffering from OA with psychiatric comorbidities plays a crucial role in understanding the interplay between social determinants and disease progression. ***Materials and methods:*** A hospital-based, cross-sectional study was conducted at Nil Ratan Sircar Medical College and Hospital, Kolkata. A sample of 100 patients aged 30–60 years, diagnosed with OA (Kellgren-Lawrence Grade ≥2) was recruited. The study was approved by ethical committee of the institute. The data collected was entered into suitable software and analysis was done using appropriate software. ***Results:*** The majority of the study population was female (64%), while the remaining 36% were male. 22% of participants were between 30 and 40 years old, the largest proportion (40%) belonged to the 40–50-year age group, and the remaining 38% were aged between 50 and 60 years. Among the participants, 44% belonged to the lower class, 38% to the lower-middle class, 12% to the upper-lower class, and 6% to the upper-middle class. 80% of the study population was from rural areas, while 20% resided in urban settings. the majority of participants were Muslim (64%), while the remaining 36% were Hindu. Marital status data revealed that 92% of the participants were married, while 8% were unmarried. Family structure analysis showed that 58% of the participants belonged to joint families, while the remaining 42% lived in nuclear family settings. ***Conclusions:*** Future research should focus on longitudinal studies to establish causal relationships and assess the effectiveness of integrated treatment approaches. Exploring the genetic and molecular underpinnings of OA, alongside novel therapeutic interventions, can lead to more personalised treatment plans.

Keywords: Pain, Psychiatric morbidities, socio- demographic profile, Chronic osteoarthritis.

INTRODUCTION

Osteoarthritis (OA) is a chronic degenerative joint disease that significantly impacts physical function and quality of life, particularly among older adults. Beyond its well-documented physical burden, OA is often associated with psychiatric comorbidities, including depression and anxiety, which further complicate disease management and patient well-being [1].

The sociodemographic profile of patients suffering from OA with psychiatric comorbidities plays a crucial role in understanding the interplay between social determinants and disease progression. Factors such as age, gender, socioeconomic status, education level, and access to healthcare services influence both the onset and severity of OA and its associated mental health disorders [2].

Understanding the sociodemographic characteristics of this patient population can aid in developing targeted interventions to improve clinical outcomes. Studies suggest that women, older adults, and individuals with lower socioeconomic status are at higher risk for both OA and psychiatric conditions due to biological, psychological, and social factors [3].

A comprehensive understanding of the sociodemographic profile of OA patients with psychiatric comorbidities is crucial in addressing the biopsychosocial dimensions of the disease. Various demographic and socioeconomic factors influence both the development of OA and the likelihood of experiencing psychiatric disorders.

Age and gender play a significant role, with older adults, particularly postmenopausal women, being disproportionately affected due to hormonal changes, higher pain sensitivity, and lifestyle factors [4].

Socioeconomic status (SES) is another critical determinant, as lower-income groups and individuals with limited access to healthcare are more prone to both OA-related disability and mental health disorders due to financial stress, reduced physical activity, and inadequate pain management [3]. Moreover, educational level, employment status, and social support systems also shape disease outcomes, influencing treatment adherence and coping mechanisms [5].

The interplay between socio-demographic factors and psychiatric comorbidities in OA patients remains a critical area of study. Variables such as age, gender, socioeconomic status, education level, and access to healthcare services can influence both the prevalence and severity of mental health disorders in these individuals. Understanding these associations is essential for developing targeted interventions aimed at improving both physical and mental well-being in OA patients.

This study aims to explore the socio-demographic profile of individuals suffering from chronic osteoarthritis while examining the prevalence and impact of psychiatric comorbidities within this population. By identifying key socio-demographic determinants associated with mental health conditions, this research seeks to highlight the need for a more holistic, multidisciplinary approach to managing OA, addressing not only its physical manifestations but also its psychological consequences.

MATERIAL AND METHODS

A hospital-based, cross-sectional study was conducted at Nil Ratan Sircar Medical College and Hospital, Kolkata. A sample of 100 patients aged 30–60 years, diagnosed with OA (KellgrenLawrence Grade ≥2) was recruited. After obtaining permission from the Ethics Committee of Nilratan Sircar Medical College and Hospital, Kolkata, study was conducted with the aim of investigating mental health in OA patients referred to the Psychiatry dept of the same college and its relationship with demographic and clinical variables. The patients after explaining the purpose of the study signed a form of informed consent.

Patient fulfilling the inclusion criteria of (a) aged between 30-60 years of age, (b) diagnosed with osteoarthritis according to Kellgren-Lawrence grading scale >=2, (c) has provided informed consent and excluded if they have (a) any history of significant medical and neurological illness other than osteoarthritis or any other rheumatologic disease like gouty arthritis ,fibromyalgia etc (b) present of any psychiatric illness prior to the onset of osteoarthritis (c) history of any substance use disorder prior to the onset of osteoarthritis (d) any family history of any psychiatric disorders are taken in this study. Detailed history with sociodemographic profile (gender, age, socio economic status, residence, religion, marital status, family status) and family history was obtained using Predesigned, pre-tested semi structured questioner. Socio economic status was obtained by modified B G Prasad Scale. Presence of psychiatric comorbidity will be assessed by GHQ 12 (general health questionnaire 12). Those who screens positive their specific psychiatric comorbidity was assessed by clinical intervention according to ICD10DCR.

The study was approved by ethical committee of the institute. The data collected was entered into suitable software and analysis was done using appropriate software.

RESULTS

This study included 100 patients diagnosed with chronic osteoarthritis. The majority of the study population was female (64%), while the remaining 36% were male. Regarding age distribution, 22% of participants were between 30 and 40 years old, the largest proportion (40%) belonged to the 40–50-year age group, and the remaining 38% were aged between 50 and 60 years. Socioeconomic status was assessed using the Modified B.G. Prasad Scale. Among the participants, 44% belonged to the lower class, 38% to the lower-middle class, 12% to the upper-lower class, and 6% to the uppermiddle class. Notably, no participants were from the upper-class group. In terms of residence, 80% of the study population was from rural areas, while 20% resided in urban settings. Regarding religious affiliation, the majority of participants were Muslim (64%), while the remaining 36% were Hindu. Marital status data revealed that 92% of the participants were married, while 8% were unmarried. Family structure analysis showed that 58% of the participants belonged to joint families, while the remaining 42% lived in nuclear family settings. Among the study population 50% shows psychiatric diagnosis according to ICD10-DCR. Majority that is 20% has Depressive episode, 12% has somatoform disorder, 11% has GAD (generalised anxiety disorder), 3% has mixed anxiety and depressive disorder and 3% has anxiety disorder and 1% has OCD (obsessive compulsive disorder).

Table 1: showing distribution of socio demographic profile of the study population

		N=100
GENDER	M	36
	F	64
AGE	30-40 yrs	22
	40-50 yrs	40
	50-60 yrs	38
Socioeconomic status (Modified BG Prasad Scale)	Upper class	0
	Upper middle class	6
	Lower middle class	38
	Upper lower class	12
	lower class	44
Residence	Urban	20
	Rural	80
Religion	Hindu	36
	Muslim	64
Marital status	Married	92
	Single	8
Family status	Joint	58
	Nuclear	42

Table 2: showing psychiatric diagnosis according to the ICD10-DCR

ICD diagnosis	Frequency	PERCENTAGE (%)
Depressive episode	20	20
GAD	11	11
Mixed anxiety and depressive disorder	3	3
OCD	1	1
Somatoform disorder	12	12
Panic disorder	3	3
No ICD diagnosis	50	50
Total	100	100

DISCUSSION

Our study provides valuable insights into the sociodemographic factors associated with osteoarthritis (OA) and its psychiatric comorbidities. The findings contribute to the growing body of evidence highlighting the interplay between OA, socioeconomic status, and mental health outcomes.

Gender Distribution and Osteoarthritis Prevalence

Our study observed a higher prevalence of OA among females (64%) compared to males (36%).

This is consistent with findings from The Lancet (2023), which reported that 61% of OA cases occur in women, with the disparity attributed to genetic, hormonal, and anatomical factors (6). Oestrogen depletion after menopause, increased joint laxity, and biochemical differences are known contributors to the heightened risk of OA in females [6]. Another contributing factor is obesity, which is more prevalent among women and is a well-established risk factor for OA [7]. Excess weight increases mechanical stress on weight-bearing joints and contributes to metabolic inflammation, further exacerbating joint degeneration. Studies have also highlighted that women tend to experience more severe OA symptoms, including higher pain sensitivity and functional impairment, which may be linked to differences in pain perception and psychological distress [7].

Age and Osteoarthritis Susceptibility

OA predominantly affected middle-aged and older adults in our study, with the highest proportion (40%) in the 40–50-year age group, followed by 38% in the 50–60-year range. The International Journal of Environmental Research and Public Health (9) reported similar findings, emphasizing that OA is highly prevalent in individuals aged 40–60 years due to cumulative joint wear, decreased cartilage regeneration, and long-term occupational strain. Ageing is one of the most significant risk factors for OA, as prolonged mechanical stress leads to the gradual breakdown of articular cartilage. Over time, the cartilage matrix undergoes molecular changes, such as collagen degradation and decreased proteoglycan content, which compromise its ability to withstand joint loads [8].

Socioeconomic Status and OA Burden

The study found that a significant proportion of OA patients belonged to lower socioeconomic strata, with 44% classified under the lower class and 38% in the lower-middle class based on the Modified B.G. Prasad Scale. Previous studies, such as the Swedish

Study on SES and OA [10], and the Guangzhou, China Study [11], indicate that individuals with lower socioeconomic status (SES) are disproportionately affected by OA. Lower SES is associated with limited healthcare access, poor nutrition, and higher occupational exposure to physically demanding tasks, all of which contribute to increased OA prevalence and worse long-term outcomes.

Rural vs. Urban Disparities

Our study revealed that 80% of OA patients resided in rural areas, while 20% were from urban settings. This aligns with findings from the World Health Organization's SAGE project [12], which demonstrated a higher prevalence of OA in rural populations, potentially due to increased physical labor, lower awareness regarding disease management, and inadequate access to healthcare facilities.

Religious Distribution and OA

The religious composition of our study population included 64% Muslims and 36% Hindus. While religion itself does not directly impact OA prevalence, differences in lifestyle, dietary habits, and socioeconomic conditions between religious groups may play a role. Similar demographic distributions have been observed in previous studies, such as the WHO SAGE project [12], which examined OA prevalence across different religious and cultural groups.

Marital Status and Mental Health in OA Patients

A significant proportion of OA patients in our study were married (92%), with only 8% unmarried. The International Journal of Research in Orthopaedics [13], found a similar trend, highlighting the role of spousal support in disease management. However, marital status alone does not safeguard against psychiatric comorbidities, as chronic pain and disability in OA patients may contribute to anxiety, depression, and social withdrawal, regardless of marital status.

Family Structure and Its Role in OA and Mental Health

Our findings indicate that 58% of OA patients lived in joint families, while 42% belonged to nuclear families. Studies published in the Journal of Orthopaedic Surgery and Research and BMC Public Health [13], suggest that joint family structures provide better emotional and caregiving support, which may mitigate psychiatric distress among OA patients. However, living in a nuclear family may increase the psychological burden due to social isolation and lack of adequate caregiving.

Psychiatric Comorbidities in OA Patients

Emerging evidence suggests a strong association between OA and psychiatric disorders, particularly depression and anxiety. Chronic pain, functional limitations, and reduced quality of life contribute significantly to mental health deterioration. A study in BMC Musculoskeletal Disorders [14], found that nearly 40% of OA patients reported moderate-to-severe depressive symptoms. Similarly, a meta-analysis published in Arthritis Care & Research [15], highlighted that anxiety prevalence in OA patients ranged from 20% to 30%. These findings underscore the necessity of integrating mental health assessments into OA management protocols.

CONCLUSIONS

Our study underscores the critical role of sociodemographic factors in shaping the burden of osteoarthritis and its associated psychiatric comorbidities. The findings highlight significant disparities based on gender, socioeconomic status, and geographic location, emphasising the necessity for targeted interventions tailored to these specific demographics. Women, individuals from lower socioeconomic backgrounds, and rural populations are particularly vulnerable, necessitating comprehensive and accessible healthcare strategies.

Moreover, the strong association between OA and mental health disorders, such as depression and anxiety, highlights the importance of a multidisciplinary approach to patient care. Effective management of OA should extend beyond pharmacological and surgical interventions to include psychological support, physical rehabilitation, and lifestyle modifications. A holistic treatment strategy that incorporates mental health assessments and interventions can significantly improve overall well-being and quality of life for OA patients.

Given the progressive nature of OA and its substantial impact on daily functioning, early screening and prevention strategies should be prioritised. Community-based awareness programs, workplace ergonomic improvements, and policy-driven healthcare initiatives can aid in early detection and disease management. Additionally, advancements in regenerative medicine, including stem cell therapy and biologic treatments, hold promise for altering the disease trajectory and improving long-term outcomes.

Future research should focus on longitudinal studies to establish causal relationships and assess the effectiveness of integrated treatment approaches. Exploring the genetic and molecular underpinnings of OA, alongside novel therapeutic interventions, can lead to more personalised treatment plans. By addressing the interplay between sociodemographic determinants, biological mechanisms, and psychosocial factors, a more comprehensive approach to OA management can be achieved, ultimately enhancing patient outcomes and reducing the global burden of the disease.

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