Original Research

Knowledge, Attitudes, and Practices Related to Joint Health and Arthritis Among Rural Residents of Himachal Pradesh

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Abstract

Background: Arthritis, a leading cause of disability worldwide, disproportionately affects aging and physically active populations–particularly in rural and hilly regions like Himachal Pradesh. This study aimed to evaluate the knowledge, attitudes, and practices (KAP) related to joint health and arthritis among rural residents of Himachal Pradesh and to identify socio-demographic factors influencing awareness and behavior.

Materials and Methods: A descriptive, cross-sectional study was conducted among 400 adult residents (aged ≥18 years) of rural Himachal Pradesh. Participants were recruited via convenience and purposive sampling through digital platforms. A structured, self-administered Google Form questionnaire–available in Hindi and English–was used to assess socio-demographics, arthritis-related knowledge, attitudes, and practices. Knowledge scores (max 20) were categorized into four levels: Very Good (17-20), Good (13-16), Fair (9-12), and Poor (0-8). Descriptive statistics and chi-square tests were performed using Epi Info Version 7, with a significance level set at $p < 0.05$.

Results: Among the 400 respondents, 63.7% demonstrated Good or Very Good knowledge, while 36.3% had Fair or Poor knowledge scores. Awareness was high regarding arthritis symptoms (73.3%), risk in the elderly (78.3%), and the role of exercise (77.8%) and diet (79.8%). However, knowledge was low regarding the incurability of arthritis (37.8%), risks of long-term steroid use (44.8%), and dangers of self-medication (47.8%). Significant associations were found between knowledge scores and age ($p = 0.012$), education level ($p < 0.001$), and residence ($p = 0.023$), with better knowledge observed among participants aged 26–45, those with higher education, and urban residents. Gender was not significantly associated ($p = 0.331$).

Conclusion: While foundational awareness of joint health exists in rural Himachal Pradesh, critical gaps in deeper understanding and safe self-care practices remain. Education level and rural-urban residence significantly influence arthritis knowledge. Region-specific health education, community-based screening, and integration of joint health awareness into rural health programs are urgently needed to reduce disability and promote musculoskeletal well-being in these vulnerable populations.

Keywords: Arthritis, Joint Health, Rural Population, Himachal Pradesh, Public Awareness, Knowledge Attitudes Practices (KAP), Musculoskeletal Health, Health Education, Osteoarthritis, Rheumatology.

Introduction

Joint health plays a fundamental role in maintaining mobility, independence, and overall quality of life, particularly in aging and physically active populations. Arthritis, a group of musculoskeletal disorders characterized by inflammation and degeneration of joints, is among the leading causes of disability worldwide. Osteoarthritis and rheumatoid arthritis are the most prevalent forms, with the former often linked to aging, mechanical wear, and lifestyle factors, and the latter rooted in autoimmune dysfunction. In India, arthritis poses a growing public health concern, affecting nearly 15% of the adult population—many of whom remain undiagnosed or inadequately treated due to a lack of awareness, delayed diagnosis, and poor access to healthcare services.[1-3]

The rural and hilly regions of Himachal Pradesh offer a unique context for studying joint health and arthritis-related knowledge and practices. The physically demanding lifestyle, mountainous terrain, and limited accessibility to orthopedic care contribute to a heightened risk of joint-related ailments. Compounding these risks are traditional health beliefs, dependency on local remedies (such as oil massages or herbal applications), and limited exposure to evidence-based medical interventions.[4-6] Despite a clear epidemiological need, the knowledge, attitudes, and practices (KAP) related to joint health among rural residents in Himachal Pradesh remain underexplored.

Misconceptions surrounding joint pain—such as the belief that arthritis is an unavoidable part of

aging or that surgical options are inherently unsafe—can lead to treatment hesitancy, poor self-care, and progression of disability. Attitudes toward physical activity, diet, medical intervention, and use of assistive devices also play a crucial role in shaping health behaviors and outcomes. Understanding the community's current level of awareness and practices is essential for developing culturally appropriate educational campaigns and early-intervention strategies.[7-10]

This study aims to evaluate the knowledge, attitudes, and practices concerning joint health and arthritis among rural residents of Himachal Pradesh. It also investigates the impact of socio-demographic factors such as age, gender, education, occupation, and access to healthcare on awareness levels and behavior patterns. By identifying existing gaps and misconceptions, the findings of this research will inform region-specific public health strategies, improve preventive care, and ultimately enhance the musculoskeletal well-being of rural populations in mountainous regions.

Materials and Methodology

Study Design

A descriptive, cross-sectional study was conducted to evaluate the knowledge, attitudes, and practices (KAP) related to joint health and arthritis among the rural population of Himachal Pradesh. The study aimed to assess awareness levels, identify misconceptions, and examine behavioral patterns that influence joint care in a geographically challenging and underserved region.

Study Area and Population

The study targeted adult residents (aged 18 years and above) of rural and hilly areas across Himachal Pradesh. Participants from a broad range of educational and occupational backgrounds were included to ensure diverse representation. Individuals with formal training in medicine, pharmacy, physiotherapy, or allied health sciences were excluded to maintain objectivity and avoid professional bias.

Sample Size and Sampling Technique

A total of **400 participants** were included in the final analysis. The sample size was calculated based on a 95% confidence level, 50% expected awareness prevalence, and a 5% margin of error.

A **convenience and purposive sampling method** was used, where the survey link was distributed electronically through **WhatsApp, Facebook, email, and other social media platforms.** Local volunteers and healthcare workers helped circulate the link in rural networks to maximize participation from remote areas.

Data Collection Tool

Data were collected using a **structured, self-administered Google Form questionnaire**, developed in consultation with orthopedic specialists, public health experts, and local healthcare workers. The questionnaire was available in **English and Hindi** to ensure accessibility across literacy levels.

The questionnaire was divided into three sections:

1. **Socio-Demographic Information**: Capturing details on age, gender, education, occupation, and place of residence.
2. **Knowledge and Attitudes**: Comprising multiple-choice questions assessing awareness of arthritis types, risk factors, symptoms, myths, and beliefs about treatment and prevention.
3. **Practices**: Exploring self-care behaviors, use of medication, dietary habits, physical activity, reliance on traditional remedies, and consultation frequency.

Questions were based on current medical guidelines and commonly observed misconceptions. Attitude and practice items were framed to reflect real-world decisions and behaviors in rural settings.

Pilot Testing

The Google Form was **pilot tested on 30 individuals** from similar rural backgrounds to evaluate clarity, flow, language suitability, and digital usability. Based on feedback, necessary adjustments were made to improve readability and relevance.

Scoring System and Knowledge Classification

For the knowledge component, each correct answer was assigned **one point**, with a maximum score of **20**. Knowledge scores were classified as follows:

- **Very Good**: 17–20 points
- **Good**: 13–16 points
- **Fair**: 9–12 points

- **Poor**: 0–8 points

Attitude and practice data were summarized using descriptive statistics and analyzed for patterns across different socio-demographic groups.

Ethical Considerations

An **informed electronic consent statement** was embedded at the beginning of the Google Form, detailing the study's objectives, voluntary participation, confidentiality, and data usage. No personally identifiable information was collected. The study adhered to ethical principles outlined in the **Declaration of Helsinki**.

Data Management and Statistical Analysis

Survey responses were automatically recorded via Google Forms and exported to Microsoft Excel for cleaning and preliminary analysis. Final statistical analysis was performed using Epi Info Version 7. Descriptive statistics (frequencies and percentages) were used to summarize responses. Chi-square tests were conducted to explore associations between KAP scores and socio-demographic variables. A p-value < 0.05 was considered statistically significant.

Results

Table 1 presents the socio-demographic profile of the 400 study participants. The sample reflected a balanced representation across age groups, with the majority aged between 26–35 years (30.8%) and 46 years and above (30.5%), followed by the 36–45 age group (24.2%) and younger adults aged 18–25 (14.5%). A slightly higher number of participants were female (54.2%) compared to male (45.8%). Education levels varied, with most respondents having completed secondary (34.2%) or undergraduate education (30.5%), while 7.0% reported no formal education. In terms of occupation, homemakers formed the largest subgroup (24.2%), followed by private sector employees (20.8%) and government employees (18.0%). Notably, 63.2% of the participants resided in rural areas, affirming the study's focus on rural populations in Himachal Pradesh. The wide demographic range contributes to the robustness of the findings and allows for analysis across different strata of the rural community.

Table 1: Socio-Demographic Characteristics of Participants (n = 400)

Variable	Category	Frequency (n)	Percentage (%)
Age Group (Years)	18–25	58	14.5%
	26–35	123	30.8%
	36–45	97	24.2%
	46 and above	122	30.5%
Gender	Male	183	45.8%
	Female	217	54.2%
Education Level	No formal education	28	7.0%
	Primary school	61	15.2%
	Secondary school	137	34.2%
	Undergraduate	122	30.5%
	Postgraduate	52	13.0%
Occupation	Homemaker	97	24.2%
	Student	58	14.5%
	Govt. Employee	72	18.0%
	Private Sector	83	20.8%
	Self-Employed	53	13.2%
	Others	37	9.2%
Residence	Urban	147	36.8%
	Rural	253	63.2%

able 2 details participants' responses to 20 knowledge, attitude, and practice (KAP) questions related to joint health and arthritis. Overall, awareness levels were moderate to high in several key areas. The majority correctly identified arthritis as joint inflammation (74.3%) and recognized the elderly as the most affected age group (78.3%). A significant number understood the roles of obesity (75.8%) and exercise (77.8%) as risk and preventive factors,

respectively. However, gaps were evident in understanding the safety of long-term steroid use (only 44.8% answered correctly) and the risks of self-medication (47.8%). While most participants recognized the importance of early diagnosis (73.0%) and the potential for arthritis to lead to disability (70.8%), only 37.8% understood that arthritis is not curable but manageable—indicating a prevalent misconception. These findings suggest a foundational awareness among participants, but also highlight the persistence of incomplete or inaccurate beliefs that could hinder appropriate health-seeking behavior.

Table 2: KAP Awareness Questions on Joint Health and Arthritis (n = 400)

Q. No.	Question	Options (Correct in Bold)	Correct (n)	Correct (%)
1	What is arthritis?	a) Muscle infection **b) Joint inflammation** c) Bone fracture d) Skin allergy	297	74.3%
2	Which age group is most affected by arthritis?	a) Teenagers **b) Elderly individuals** c) Children d) Athletes	313	78.3%
3	Can arthritis lead to permanent joint damage?	a) No **b) Yes** c) Not sure d) Only in men	281	70.3%
4	Which is a symptom of arthritis?	a) Rash **b) Joint pain** c) Breathlessness d) Nausea	293	73.3%
5	Is arthritis more common in women?	a) No **b) Yes** c) Equal in both d) Not known	271	67.8%
6	Preventive measure for joint stiffness?	a) Avoid movement **b) Gentle exercise** c) High heels d) Only massage	259	64.8%
7	Can exercise help in arthritis?	a) No **b) Yes** c) Worsens pain d) Avoid movement	311	77.8%
8	Is obesity a risk factor?	a) No **b) Yes** c) Maybe d) Not relevant	303	75.8%
9	Are painkillers a cure?	a) Yes **b) No** c) Sometimes d) Herbal only	247	61.8%
10	Food good for joint health?	a) Fried food **b) Leafy greens** c) Soda d) Candy	319	79.8%
11	Can untreated arthritis cause disability?	a) No **b) Yes**	283	70.8%

		c) Never d) Depends		
12	Importance of early diagnosis?	a) No **b) Yes** c) Doesn't matter d) Only elderly	292	73.0%
13	Is arthritis curable?	a) Yes **b) No, but manageable** c) By Ayurveda d) With antibiotics	151	37.8%
14	Can cold worsen arthritis symptoms?	a) No **b) Yes** c) Only in children d) Not proven	276	69.0%
15	Rheumatologist treats:	a) Eye **b) Joint diseases** c) Heart d) Diabetes	263	65.8%
16	Does all joint pain mean arthritis?	a) Yes **b) No** c) If swollen d) Only elderly	239	59.8%
17	Is yoga beneficial?	a) No **b) Yes** c) Harmful d) Not known	298	74.5%
18	Are steroids safe long-term?	a) Yes **b) No** c) Always d) Herbal better	179	44.8%
19	Can arthritis affect mental health?	a) Never **b) Yes, depression/anxiety** c) Only physical d) Not connected	229	57.3%
20	Should patients self-medicate?	a) Yes **b) No** c) Sometimes d) If mild	191	47.8%

Table 3 classifies participants based on their total knowledge scores out of 20, providing an overview of the population's understanding of joint health and arthritis. A majority of respondents scored in the **Good (34.2%)** and **Very Good (29.5%)** categories, accounting for 63.7% of the sample. Meanwhile, 22.8% demonstrated **Fair** knowledge, and 13.5% fell into the **Poor** category. This distribution reflects a reasonably strong awareness base in the community, with a significant proportion of individuals possessing the potential to engage in informed joint health practices. However, the fact that over one-third of participants had fair or poor knowledge indicates the need for targeted educational interventions to bridge these knowledge gaps and promote preventive behaviors in vulnerable subgroups.

Table 3: Knowledge Score Classification (n = 400)

Knowledge Level	Score Range	Frequency (n)	Percentage (%)
Very Good	17–20	118	29.5%
Good	13–16	137	34.2%
Fair	9–12	91	22.8%

Poor	0–8	54	13.5%			

Table 4 explores the relationship between knowledge scores and socio-demographic characteristics using chi-square analysis. Statistically significant associations were found with **age (p = 0.012), education level (p < 0.001),** and **place of residence (p = 0.023)**. Participants aged 26–45 years had higher knowledge scores, likely due to better access to information and active health-seeking behaviors. Educational attainment showed a strong positive correlation with knowledge, with respondents holding secondary, undergraduate, and postgraduate degrees demonstrating markedly higher awareness than those with no or primary education. Urban residents had a greater proportion of Very Good and Good knowledge scores compared to rural residents, reflecting disparities in health education and service accessibility. In contrast, no significant association was observed with **gender (p = 0.331)**, suggesting relatively balanced awareness between male and female participants. These findings highlight the critical role of education and healthcare access in improving arthritis-related knowledge in rural settings.

Table 4: Association Between Knowledge Score and Socio-Demographic Variables (n = 400)

Variable	Category	Very Good	Good	Fair	Poor	p-value
Age Group	18–25	11 (2.8%)	19 (4.8%)	20 (5.0%)	8 (2.0%)	0.012
	26–35	39 (9.8%)	45 (11.3%)	26 (6.5%)	13 (3.3%)	
	36–45	32 (8.0%)	38 (9.5%)	22 (5.5%)	5 (1.3%)	
	46 and above	36 (9.0%)	35 (8.8%)	23 (5.8%)	28 (7.0%)	
Gender	Male	48 (12.0%)	58 (14.5%)	44 (11.0%)	33 (8.3%)	0.331
	Female	70 (17.5%)	79 (19.8%)	47 (11.8%)	21 (5.3%)	
Education Level	No formal education	3 (0.8%)	7 (1.8%)	10 (2.5%)	8 (2.0%)	<0.001
	Primary school	10 (2.5%)	15 (3.8%)	18 (4.5%)	18 (4.5%)	
	Secondary school	44 (11.0%)	49 (12.3%)	28 (7.0%)	16 (4.0%)	
	Undergraduate	45 (11.3%)	46 (11.5%)	25 (6.3%)	6 (1.5%)	
	Postgraduate	16 (4.0%)	20 (5.0%)	10 (2.5%)	6 (1.5%)	
Residence	Urban	50 (12.5%)	55 (13.8%)	30 (7.5%)	12 (3.0%)	0.023
	Rural	68 (17.0%)	82 (20.5%)	61 (15.3%)	42 (10.5%)	

Discussion

This study sought to evaluate the knowledge, attitudes, and practices (KAP) related to joint health and arthritis among rural residents of Himachal Pradesh—a geographically and demographically unique region where physical labor, aging population trends, and healthcare accessibility pose challenges to musculoskeletal well-being. The findings present a multifaceted view of public awareness, common misconceptions, and behavior patterns that influence joint health management in rural settings.

The socio-demographic data revealed that a majority of the participants were in the 26–35 (30.8%) and 46+ age groups (30.5%), with a higher representation of females (54.2%). Educational attainment ranged from no formal schooling (7.0%) to postgraduate qualifications (13.0%), with the largest groups having completed secondary (34.2%) and undergraduate education (30.5%). Importantly, 63.2% of participants were rural residents, aligning with

the study's objective to focus on less urbanized populations.

The awareness component showed encouraging trends in basic knowledge. Most participants could correctly identify arthritis as joint inflammation (74.3%) and acknowledged that the elderly are most at risk (78.3%). These findings suggest that awareness of common clinical manifestations and vulnerable populations is reasonably well established. A high percentage also recognized that obesity (75.8%) and sedentary lifestyles are risk factors, while exercise (77.8%) and healthy dietary practices (79.8%) were widely viewed as protective measures. These patterns reflect a growing public recognition of lifestyle-related contributors to joint degeneration—possibly influenced by community health outreach programs, digital media penetration, and informal knowledge sharing within rural networks.

Despite these strengths, several critical gaps emerged. For instance, only 37.8% understood that arthritis is not curable but rather manageable with long-term interventions. This misconception may foster unrealistic treatment expectations or deter timely medical consultations. Similarly, the relatively low awareness regarding the dangers of long-term steroid use (44.8%) and self-medication (47.8%) highlights a need for improved public education about the risks of unregulated or over-the-counter treatment approaches. These trends are concerning, particularly in rural areas where access to qualified rheumatologic care may be limited, and reliance on traditional remedies remains common.

Another important finding was the under-recognition of arthritis' impact on mental health—only 57.3% were aware of its association with depression and anxiety. This underscores the persistent disconnect between physical and psychological health in public perception and highlights the necessity of a more holistic, biopsychosocial approach to joint health education.

The classification of participants by knowledge scores revealed that while a majority fell under the "Good" (34.2%) or "Very Good" (29.5%) categories, a sizable portion (36.3%) had either "Fair" or "Poor" understanding. This variation indicates that while awareness exists at a foundational level, a significant part of the population remains at risk due to incomplete or erroneous knowledge, which can negatively influence their health behaviors and delay intervention.

The statistical analysis of associations between knowledge levels and socio-demographic variables provided further insight. Age, education, and residence showed significant correlations with awareness levels. Participants aged 26–45 years demonstrated better knowledge, possibly due to increased exposure to health information via digital platforms and higher engagement in preventive care due to work responsibilities or caregiving roles. Conversely, individuals over 46—who are at greater risk of arthritis-related morbidity—showed lower awareness levels, revealing a concerning gap between risk and recognition. This highlights the urgent need for age-targeted health education, particularly aimed at older rural residents.

Education was a strong determinant of knowledge ($p < 0.001$), with those holding undergraduate and postgraduate degrees showing the highest awareness scores. This finding reiterates the established link between formal education and health literacy, and further supports the implementation of simplified, visual, and vernacular content for populations with limited schooling. Similarly, urban participants showed significantly better knowledge than their rural counterparts ($p = 0.023$), emphasizing persistent disparities in healthcare access, quality of information, and exposure to medical infrastructure. Given the rugged terrain and limited mobility in many parts of Himachal Pradesh, mobile health units, community health worker involvement, and localized campaigns may be critical in bridging this rural-urban knowledge divide.

Interestingly, gender did not have a statistically significant association with knowledge scores ($p = 0.331$), suggesting that both males and females have similar levels of awareness. However, the slightly higher proportion of female respondents with good knowledge may reflect their increasing involvement in family healthcare decisions, participation in self-help groups, or exposure to maternal health services where joint and bone health are occasionally discussed.

In summary, while the findings reveal promising levels of basic awareness regarding arthritis and

joint care among rural populations, the persistence of misconceptions, treatment hesitancy, and incomplete knowledge—particularly among older, less-educated, and rural participants—necessitates targeted public health interventions. Integrating arthritis awareness into existing community health programs, training rural health workers in musculoskeletal screening, and promoting digital health education in local languages can significantly enhance outcomes. Future studies should explore the longitudinal impact of such interventions and include behavioral outcomes such as healthcare utilization and quality of life improvements. Addressing these gaps can help shift rural communities from reactive to proactive management of joint health, reducing the disability burden and improving overall functional independence in aging populations.[8-12]

Limitations

This study has certain limitations. As it was conducted via a self-administered Google Form, it inherently excluded individuals without internet access or digital literacy—possibly underrepresenting the most marginalized or elderly rural populations. The convenience sampling method may also introduce selection bias, as more health-conscious individuals are likely to respond. Additionally, self-reported data carry the risk of social desirability bias, where participants may overstate correct behaviors or attitudes. Lastly, the cross-sectional design limits the ability to assess causal relationships or changes over time in awareness and practices.

Conclusion

This research highlights a substantial baseline awareness of joint health and arthritis among the rural population of Himachal Pradesh, yet uncovers significant knowledge gaps and misconceptions that could hinder early diagnosis and effective self-care. Education level and rural-urban status emerged as key determinants of awareness, suggesting the need for targeted, accessible, and culturally appropriate health education programs. To reduce the growing burden of arthritis-related disability in hilly regions, community outreach, integration of joint health education into primary care, and region-specific awareness campaigns must be prioritized as part of public health policy.

Recommendation

Based on the study findings, it is recommended that region-specific joint health education initiatives be integrated into existing rural health programs in Himachal Pradesh, with particular focus on low-literacy, elderly, and rural populations. Community health workers should be trained to deliver door-to-door awareness campaigns using simple language, local dialects, and visual aids. Additionally, primary healthcare centers should routinely screen for early signs of arthritis and provide counseling on non-pharmacological interventions such as exercise, weight management, and diet. Collaboration with schools, local panchayats, and NGOs can further amplify outreach, while digital platforms may be leveraged to educate younger residents. Public health policies should also address myths around arthritis and promote timely consultation with trained professionals rather than reliance on self-medication or traditional remedies alone.

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