

Determinants of Joint Pain Management Among Adults of 45 Years and Above in Migori County, Kenya

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Abstract: **Background:** Globally, approximately 1.71 billion people suffer from musculoskeletal conditions, which account to about 17% of global YLDs. In Kenya, majority of patients (75.14%) with joint pains are 41 years and above. **Problem Statement:** A 2016 survey by KIHBS revealed that Migori County is among the counties with the least proportion of individuals seeking health worker/facility diagnosis of joint pain at 18% against the national average of 28.3%. This leads to a rise in the use of nonconventional methods in joint pain management. **Study Objectives:** The general purpose of this study was to assess the determinants of joint pain management among adults of 45 years and above in Migori County. The specific objectives assessed how socio demographic factors, awareness, and practices affect joint pain management. **Methodology:** An analytical cross-sectional design was used. The study was conducted in Migori County with a sample size of 323 respondents. **Results:** On socio-demographic factors, Marital status ($P = 0.033$) and health insurance ($P = 0.026$) were found to be statistically associated with joint pain management outcome. On awareness factors, awareness of hospital based pain management programs ($P = 0.035$), awareness of hospitals with MOPC programs ($P = 0.050$), and awareness of community based pain management programs ($P = 0.050$) were significant. On practices, taking a class/lesson on joint pain ($P = 0.012$), herbal medication use ($P = 0.050$), and OTC medication use ($P = 0.045$) were significant. Furthermore, a multinomial logistic regression analysis indicated that the number of people living in a household ($p = 0.042$) and having a health insurance ($p = 0.000$) are significantly related to satisfactory outcome in joint pain management. The study recommends increasing awareness and education, particularly in rural areas; expansion of insurance coverage; and expansion of community outreach programs and resources for joint pain management.

Keywords: Arthritis, Community Health Unit (CHU), Joint Pain Management, Musculoskeletal complications, Osteoarthritis (OA), Rheumatic disease.

1. Introduction

Musculoskeletal complications are common causes of disability, measured by years lived with disability (YLDs). The conditions are a threat to healthy aging, thus a critical public health concern (Brennan-Olsen et al., 2017). According to the WHO (2021), about 1.71 billion people worldwide suffer from musculoskeletal conditions, accounting to about 17% of global

YLDs (149 million YLDs). Out of this proportion, Arthritic diseases significantly contribute to the burden associated with the musculoskeletal system.

According to Barbour & Qin (2016), based on a study conducted in the United States between 2002 and 2014, the prevalence of joint pain is higher among adults aged 45-64 years at 30.7%. In Africa, there are few publications reporting the prevalence of joint pain and arthritic symptoms. A systematic review by Usenbo et al., (2015), reveals that the exact prevalence of arthritis is difficult to determine since majority of the studies on the condition are from South Africa (44.4%), making it challenging to use the available data to generalize the prevalence of the condition throughout Africa. The existing statistics place osteoarthritis as the most prevalent form of arthritis in South Africa, ranging from 29.5% in the general population to 55.1% among adults aged 65 years and above. In Kenya, most patients with arthritis are those who involve themselves in heavy level activity like peasantry farming (Nyakwaka, 2021).

Nour et al. (2013) states that surgical management of joint pain is beyond the reach of most Kenyans. In as much as joint pain is a serious public health concern, management of the condition cannot be adequate when socio-demographic factors, awareness factors, and practices present as potential barriers to joint pain management. Nevertheless, with properly instituted pain management programs, individuals with musculoskeletal conditions can live free from pain. Addressing the implications of joint pains thus calls for assessing socio-demographic factors, awareness, and practices as a way of developing a functional framework for joint pain management.

2. Methodology

A. Study design

An analytical cross-sectional study design was adopted. In an analytical cross-sectional study, data collection was carried out on the entire study population at a single point in time to examine the relationship between socio-demographic factors, awareness factors, practices; and Joint pain management outcome.

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B. Sample size

The sample size was calculated using the Fisher's Formula for determining sample size for single populations more than 10,000 people as elaborated by Mugenda & Mugenda (2003).

To determine the sample size:

$$n = \frac{z^2 pq}{d^2} \quad (1)$$

Where,

n = The required sample size.

z = The 95% confidence interval which is 1.96.

p = Proportion of those with joint pains. (Prevalence of joint pain is highest among adults aged 45-64 years at 30.7%, (Barbour & Qin, 2016).

$q = 1 - p$

d = The level of statistical significance which is 0.05

$$n = \frac{(1.96)^2 (0.3) (0.7)}{(0.05)^2}$$

$$n=323$$

It is worth to note that non-response occurred during data collection. Out of the 323 questionnaires distributed among the respondents, 22 questionnaires were not returned while 29 questionnaires were returned with incomplete responses. The questionnaires that were valid and analyzed were 272, giving a response rate of 84.21%. According to Mugenda and Mugenda (2003), a response rate exceeding 70% is considered excellent.

C. Sampling Technique

A multi stage sampling technique was used to select the area of study and participants. Purposive sampling was used to select Migori County. Simple random sampling was used to select three sub-counties (Uriri, Suna West, and Rongo) out of the ten sub-counties which formed the sampling frame (Rongo, Awendo, Suna East, Suna West, Uriri, Nyatike, Kuria East, Kuria West, Ntimaru and Mabera). Proportional sampling was then be used to select community units from the three sub counties (Figure 1). In the community units, a community health worker household register was used to identify participants who met the inclusion criteria. The households were randomly selected and participants sampled until a required sample size was achieved (Figure 2).

D. Data Collection Method

A semi-structured questionnaire was used to collect data. The questionnaire was pretested in Central Sakwa ward, which had not been picked for the study to verify the validity and reliability of the instrument. Pretesting of the questionnaire was done in a pilot study. The questionnaire was administered in English, but was interpreted in Dholuo for the respondents who are not literate in English. The process of data collection was done in person with the CHVs being research assistants.

3. Results

Figure 3 shows satisfaction state of the participants with their current methods of joint pain management. A pain assessment

scale (Numerical Rating Scale) was used to objectify the satisfaction status. Those satisfied with their joint pain management method scoring lower on the scale and those unsatisfied scored higher on the pain assessment scale. Majority of the respondents 55.88% (N=152) stated that the results of their current methods of joint pain management was unsatisfactory, while 44.12% (N=120) of the respondents were satisfied with the outcome of their current methods of joint pain management.

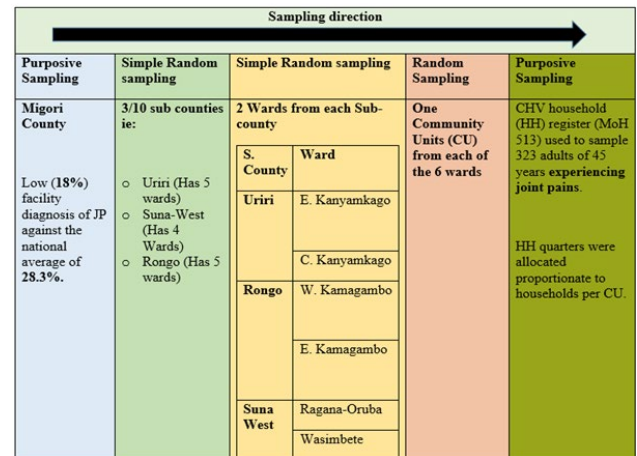


Fig. 1.

Ward	Community Health Unit (CU)	Linked Facility	No. HH Monitored	% sample size	Sample
E. Kanyamkago	Thim Joje #701616	Thim Joje Dispensary	1201	20.2	65
C. Kanyamkago	Central Kawere Rateng #701613	Piny Owacho Dispensary	1060	17.8	58
W. Kamagambo	West Kanyamamba #701579	Verna Health Centre	998	16.8	54
E. Kamagambo	Kambija #701582	Ndege Oriedo Dispensary	785	13.2	43
Ragana-Oruba	Oruba 11 #701370	Oruba Dispensary	1369	23.0	74
Wasimbete	Giribe II #709266	Ogada Health Centre	530	9.0	29
Total			5943	100	323

Fig. 2.

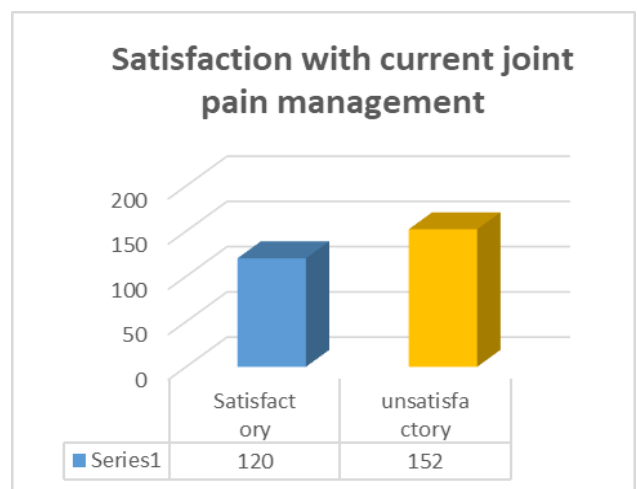


Fig. 3

Table 1
Relationship between socio-demographic factors and joint pain management outcome

	Joint Pain management Outcome		
	Satisfactory	Unsatisfactory	Significant Test
Age Category			
45-54	43(35.83)	41(26.97)	$\chi^2= 4.349$ df = 3 P value = 0.226
55-64	42(35.00)	50(32.89)	
65-74	27(22.50)	44(28.95)	
75 and above	8(6.67)	17(11.18)	
Gender Category			
Male	74(61.67)	75(49.34)	$\chi^2= 4.112$ df = 1 P value = 0.28
Female	46(38.33)	77(50.66)	
Marital status			
Single	18(15.00)	23(15.13)	$\chi^2= 8.753$ df = 3 P value = 0.033
Married	44(36.67)	32(21.05)	
Widowed	39(32.50)	63(41.45)	
Divorced/separated	19(15.83)	34(22.37)	
Level of Education			
No formal education	38(31.67)	34(22.37)	$\chi^2= 6.191$ df = 4 P value = 0.18
Primary	26(21.67)	25(16.45)	
Secondary	19(15.83)	28(18.42)	
Tertiary	24(20.00)	39(25.66)	
University	13(10.83)	26(17.11)	
Source of Income			
Employed	43(35.84)	43(28.29)	$\chi^2= 4.907$ df = 3 P value = 0.179
Office Work	36(30.00)	38(25.00)	
Agriculture	31(25.83)	49(32.24)	
None/Retired	10(8.33)	22(14.47)	
Monthly Household income			
Below KES 10,000	48(40.00)	46(30.26)	$\chi^2= 4.740$ df = 3 P value = 0.192
KES 10,000-20,000	33(27.50)	39(25.66)	
KES 20,000-30,000	31(25.83)	49(32.24)	
Above 30,000	8(6.67)	18(11.84)	
Number of people in a household			
1-2	18(15.00)	23(15.13)	$\chi^2= 7.146$ df = 3 P value = 0.67
3-4	39(32.50)	29(19.08)	
5-6	37(30.83)	54(35.53)	
More than 6	26(21.67)	46(30.26)	
Has a health insurance			
Yes	83(69.17)	85(55.92)	$\chi^2= 4.982$ df = 1 P value = 0.026
No	37(30.83)	67(44.08)	
Primary Mode of Transport			
Walking	17(14.17)	19(12.50)	$\chi^2= 5.621$ df = 4 P value = 0.229
Bicycle	37(30.83)	31(20.39)	
Motorbike	24(20.00)	30(19.74)	
Public Transport	27(22.50)	44(28.95)	
Private car	15(12.50)	28(18.42)	

A. Sociodemographic Factors

To determine the association between socio-demographic factors and joint pain management outcome, a chi-square analysis indicated that joint pain management outcome is statistically independent of age at 5% significance level (P value = 0.226). Joint pain management outcome was also found to be statistically independent of gender at 5% level of significance (P value = 0.28). Association between marital status and joint pain management outcome was, however, found to be statistically significant with $p < 0.05$ (P value = 0.033). Joint pain management outcome was found to be independent of the level of education (P value = 0.18) and independent of employment status (P value = 0.179) (Table 1). Moreover, joint

pain management outcome was found to be independent of monthly household income (P value = 0.192) and independent of the number of people in a household at 5% significance level (P value = 0.67). Having a health insurance, however, is statistically associated with joint pain management outcome (P value = 0.026). Joint pain management outcome is nonetheless independent of the primary mode of transport (P value = 0.229). (Table 1).

B. Awareness factors

In determining the relationship between awareness and joint pain management outcome, a Chi-square test found joint pain management outcome to be statistically associated with awareness of hospital-based pain management programs (P

value = 0.035), statistically associated with awareness of hospitals with MOPC programs (P value = 0.050) and statistically associated with awareness of community outreach pain management (P value = 0.050) (Table 2).

Table 2

Relationship between awareness and joint pain management outcome			
Joint Pain management Outcome			
	Satisfactory	Unsatisfactory	Significant Test
Awareness of hospital-based pain management programs			
Yes	57(47.50)	53(34.87)	$\chi^2 = 4.442$
No	63(52.50)	99(65.13)	df = 1
			P value = 0.035
Awareness of Hospitals with MOPC programs			
Yes	57(47.50)	52(34.21)	$\chi^2 = 5.911$
No	60(50.00)	91(59.87)	df = 2
Not sure	3(2.50)	9(5.92)	P value = 0.05
Awareness of community outreach Pain management programs			
Yes	60(50.00)	54(35.53)	$\chi^2 = 5.815$
No	28(23.33)	44(28.94)	df = 2
Not sure	32(26.67)	54(35.53)	P value = 0.05

C. Practices

Table 3 shows that when tested at a 5% significant level, joint pain management outcome was independent of seeing a doctor (P value = 0.103) and independent of the current level of physical activity status (P value = 0.131). Nevertheless, when tested at a 5% significant level, joint pain management outcome was found to be statistically associated with taking a class/lesson on joint pain (P value = 0.012), use of herbal medications (P value = 0.050), and use of OTC medications (P value = 0.045).

Table 3

Relationship between practices and joint pain management outcome

Joint Pain management Outcome			
	Satisfactory	Unsatisfactory	Significant Test
Seen a doctor concerning Joint pains			
Yes	87(72.50)	96(63.16)	$\chi^2 = 2.659$
No	33(27.50)	56(36.84)	df = 1
			P value = 0.103
Currently Physically active			
Yes	40(33.33)	38(25.00)	$\chi^2 = 2.277$
No	80(66.67)	114(75.00)	df = 1
			P value = 0.131
Taken a class or lesson on joint pain			
Yes	65(54.17)	59(38.82)	$\chi^2 = 6.371$
No	55(45.83)	93(61.18)	df = 1
			P value = 0.012
Use herbal medications			
Yes	81(67.50)	85(55.92)	$\chi^2 = 3.780$
No	39(32.50)	67(44.08)	df = 1
			P value = 0.050
Use of OTC medications			
Yes	94(78.33)	104(68.42)	$\chi^2 = 3.327$
No	26(21.67)	48(31.58)	df = 1
			P value = 0.045

D. Multinomial Logistic Regression Analysis

The researchers conducted a multinomial logistic regression analysis with the reference category being the “not satisfied” (those unsatisfied with their joint pain management outcome). The results of the multinomial logistic regression analysis indicates that the number of people living in a household (p = 0.042), having a health insurance (p = 0.000*), awareness of a hospital-based pain management program (p = 0.036), awareness of hospitals with MOPC programs (p = 0.048), and taking a lesson/class on pain management (p = 0.042) are significantly (with a 95% confidence level) related to the satisfactory outcome of joint pain management (Table 4).

Table 4
Multinomial logistic regression

Parameter Estimates							95% Confidence Interval for Exp (B)	
Do you feel the current method you are using to manage your joint pains is satisfactory? ^a		B	Std. Error	Wald	Df	Sig.	Exp(B)	
Satisfactory (YES)	Intercept	1.09	1.780	.381	1	.537		
	Age group	.245	.687	.127	1	.722	1.277	.332
	Gender	.219	.645	.115	1	.735	1.244	.351
	Marital status	.016	.572	.001	1	.978	1.016	.331
	Highest level of education	-	.523	.127	1	.722	.830	.298
		.186						
	Average monthly household income	.017	.704	.001	1	.980	1.018	.256
	Household size	.629	.682	.851	1	.042	1.876	.493
	Health insurance	-	.981	239.7	1	.000	2.517	3.678
		15.1						
	Awareness of any hospital-based pain management program	.458	1.359	.113	1	.036	1.581	.110
	Awareness of hospitals offering Medical Out-Patient Clinics	-	.806	1.452	1	.048	.378	.078
		.972						
	Awareness of community outreach programs targeting pain relief	-	.906	.070	1	.792	.787	.133
		.239						
	Doctor consultation	.966	1.124	.739	1	.390	2.629	.290
	Currently physically active	-	.696	.222	1	.638	.721	.184
		.328						
	Intention to increase level of physical activity	.196	.885	.049	1	.825	1.216	.214
	Taking a lesson or class on management of joint pains	-	.847	.554	1	.050	.532	.101
		.631						
	OTC medicines use	-	1.066	1.062	1	.303	.333	.041
		1.09						
	Herbal medication use	14.5	.000	.771	1	.303	.965	.965

a. The reference category is: Not Satisfactory

4. Discussion

A. Socio-Demographic Factors and Joint Pain Management

This study found that majority of those experiencing joint pain more frequently are in the 55-64 age group. This suggests a need for targeted health interventions and policies that address the specific needs and challenges faced by this demographic. Nevertheless, of the socio-demographic factors, the study found only marital status and possession of a health insurance cover to be statistically associated with joint pain management outcome. This implies that while other socio-demographic variables could play a role in joint pain management outcome, they do not have a direct bearing on determining the quality of management outcome like marital status and insurance cover. The findings of this study are inconsistent with Raghupathi & Raghupathi (2020) which found that adults with a higher level of education experience and having high income to have a better health and lifespan as compared to their less-educated and less financially stable counterparts. The findings of this study thus speaks of a need to invest in developing stable social relations and investing in robust health insurance packages for quality healthcare outcomes.

B. Awareness Factors and Joint Pain Management

The study found a general lack of awareness regarding joint pain management programs available in the community. Many respondents were unaware of hospital-based pain management programs, community outreach programs, or educational resources related to joint pain. The general lack of awareness leads to misconceptions about a health condition. In the context of this study, there was a wide range of beliefs about the causes of joint pain, with many attributing it to aging, heavy physical activity, or previous injuries.

The results of this study indicate that the relationship between awareness and joint pain management outcome is not due to random chance and there is a significant linear relationship between awareness and joint pain management outcome. These findings are in line with those of Johnson and Hariharan (2017) which supports the position that awareness increases the likelihood of an individual, their families, and healthcare providers to engage in health promoting and illness preventing practices. As a result, this study found that lack of awareness of the cause of joint pain, lack of awareness of hospital based pain management programs, low awareness of MOPC and community outreach programs poorly influence the pain management outcome. As a result, increasing awareness through community health education and outreach programs could improve the management of joint pain and overall health outcomes.

C. Practices and Joint Pain Management

The findings of this study suggests that uptake of formal and hospital based joint pain diagnosis and intervention approaches led to higher levels of satisfaction with the joint pain management outcome as compared to uptake of lay practices

which contribute to lower satisfaction with the joint pain management outcome. The findings of this study also reveal that beliefs and attitude significantly affect practices on joint pains, with those having strong beliefs on conventional approaches highly likely to uptake practices involving conventional methods like doctor prescription and pain management programs. The findings of this study confirm to those of Steven *et al.* (2018) which found a positive relationship between positive health outcomes and conventional health practices.

5. Conclusion

This study sought to assess the determinants of joint pain management among adults of 45 years and above in Migori County, Kenya. The study concludes that in the less developed regions like Migori County, majority are unsatisfied with their joint pain management outcomes. Factors that were found to have association with joint management outcome include: Marital status, health insurance, awareness of hospital-based pain management programs, awareness of MOPC programs, awareness of community outreach programs, taking a class/lesson on pain management, herbal medication use, and OTC medication use.

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