Association between Socio-Demographic Factors and Quality of Life for Patients with Knee Osteoarthritis in Baaquba City

Akram Abd Alsalam Najim[1], Asst.Prof.Dr. Ali Husain Faleh[2], Asst.Prof. Aqeel Abbas Noaman[3]

[12] *Middle Technical University / College Of Health and Medical Techniques / community health department /* [3] *Middle Technical University / Technical Institute Baqubah*

Email: **Eac0042@mtu.edu.iq**

KEYWORDS	ABSTRACT
Sociodemographic Factors, Knee Osteoarthritis, Quality Of Life	**Background:** Osteoarthritis is a degenerative joint condition causing joint dysfunction, discomfort, and limited range of motion; it may be affected by poor quality of life. **Aim of the study**: The study aims to investigate the association between socio-demographic factors and the quality of life for patients with knee osteoarthritis in Baquba City. **Methods:** A cross-sectional study at Baquba Teaching Hospital in Iraq analyzed 374 adult patients with knee osteoarthritis, 18 or older, both sexes, and verbal consent. The researchers used a self-structured questionnaire and Dhafar M. et al.'s socioeconomic scale to assess patients' socio-demographic characteristics. Data collection involved direct interviews, and statistical significance was determined using IBM SPSS-29 software. **Results:** The study found that the majority of participants, particularly women, were married and lived in urban areas, with 53.2% having a family history of knee OA. A study shows that many patients with knee osteoarthritis have poor quality of life, with only 0.5% rating it as excellent. The study reveals significant differences in quality of life scores across age groups, with the 50-59 group reporting fair quality of life (40.0%) and the 60-69 group (34.0%). The study found significant disparities in quality of life scores across different occupations, with housewives and retired individuals experiencing higher rates, while employees, married couples, and illiterate individuals reported fair quality of life. **Conclusion:** The study reveals that knee osteoarthritis patients are mostly overweight or obese, with retired individuals and housewives being the largest risk group. They often lack literacy and experience a low quality of life.

1. Introduction

Osteoarthritis (OA) is a degenerative joint condition causing joint dysfunction, discomfort, and limited range of motion, affecting physical activity and quality of life (Kanamoto et al., 2020). Risk factors include obesity, excess weight, female gender, knee injury history, and diabetes, with the development of knee OA often linked to these factors (Musumeci et al., 2015). Obesity remains the leading risk factor for knee osteoarthritis (KOA), with excessive weight on joints potentially damaging articular cartilage (Nedunchezhiyan et al., 2022). . However, no medication therapy can effectively stop the progression of knee OA due to a lack of understanding of its underlying pathological process (Xu et al., 2021). The burden of OA must be compared to other medical disorders, both domestically and globally, to provide accurate estimates (Peat and Thomas, 2021). Osteoarthritis (OA) is a growing global health issue affecting nearly four-fifths of cases, with worsening with age and weight. The World Health Organization, International League against Rheumatism, and experts in osteoarthritis have made significant efforts to address the issue (Cui et al., 2020). OA affects not only pain and physical function but also sleep, mental health, work involvement, and even mortality (Mathers and Pfleger, 2003). As individuals age, they are more likely to develop knee osteoarthritis (OA), which is caused by the accumulation of joint cartilage and decreased joint tissue regeneration and repair (Temple-Wonget al., 2016). The fluid composition of synovial, subchondral bone, and articular cartilage changes withage, and cartilage contains less water due to reduced proteoglycan, increasing its susceptibility to injury (Hawker and King, 2022). Knee OA, a condition affecting 28% of those over 60 (James et al., 2018), is the eleventh largest cause of global disability and the twenty-third highest cause of disability-adjusted life years, according to the 2017 Global burden of disease report, highlighting the global need for a cure (Alenazi et al., 2021). Females aged 50 and over are also at a higher risk for knee

osteoarthritis, possibly due to hormonal fluctuations, biomechanic changes, and gene mutations (Chen et al., 2020). Knee osteoarthritis (KOA) is a significant public health concern in Iraq, but its prevalence

and incidence are understudied despite increasing numbers. The study analyzed the prevalence and incidence of OA in the Gulf Cooperation Council countries, involving 13 studies with an estimated overall prevalence of 16.13% and incidence of 3.5%, based on inconsistent findings from 12 studies (Lespasio et al., 2017).

A healthy lifestyle, including a balanced diet, plenty of water, quitting smoking, and moderate alcohol consumption, is crucial for joint health and overall wellbeing. Consuming anti-inflammatory foods like fruits, vegetables, and omega-3 fatty acids, hydration through adequate water intake, and quitting smoking can lower systemic inflammation and improve overall health. Research indicates a correlation between a healthy lifestyle and reduced risk of chronic illnesses like KOA (Cai et al., 2021). Trăistaru's study explores the impact of socio-demographic factors on the quality of life of patients with knee osteoarthritis, a condition that significantly reduces their physical, emotional, and social well-being (Trăistaru et al., 2019).

The study aims to investigate the association between socio-demographic factors and the quality of life for patients with knee osteoarthritis in Baquba City.

2. Methodology

A cross-sectional study was conducted at Baaqubah Teaching Hospital in Diyala Governorate, Iraq. The study collected data from January 16, 2024, to May 9, 2024, in the rheumatology clinic. The hospital, located 60 km northeast of Baghdad, is a governmental institution that provides services to Iraqi citizens. The study was conducted without a follow-up period and selected participants based on inclusion and exclusion criteria. The study involved patients diagnosed with knee osteoarthritis in Baaquba city, a 580 square kilometers area with a population of 268,866, who were willing to participate in the study, including those aged 18 years or older, of both sexes, who offered verbal consent. The study aimed to study 374 adult patients with knee osteoarthritis who had received a diagnosis from rheumatologists. The researchers developed a self-structured questionnaire after reviewing relevant literature and publications, and translated it into Arabic. No other types of osteoarthritis were excluded.

Dhafar M. et al.'s socioeconomic scale was utilized to assess patients' socio-demographic characteristics, including age, sex, occupation, marital status, educational status, residency, and BMI, in a questionnaire involving seven items (Omar et al., 2021). The study used a socioeconomic scale to assess a patient's age, education, residence, and employment status. The questionnaire was reviewed by academic and clinical experts, including five experts with over 10 years of experience. The experts assessed the relevance of each item and provided suggestions. The final questionnaire was completed, and a pilot study was conducted before data collection. The study's content validity and translation were ensured through expert review. The study spanned from January 16 to January 31, 2024, focusing on 20 knee osteoarthritis patients from a Baquba teaching hospital counseling clinic, although this sample was not included in the study. The study's reliability was assessed using the Alpha Cronbach statistical parameter. The results for 20 patients indicate the questionnaire's reliability and sufficient information for future research. Ethically, participants provided verbal consent and confidentiality guarantees. Data collection was conducted through direct interviews with people with knee OA using the questionnaire form. The study's reliability and ethical practices ensured the questionnaire's usefulness for future research.

The study involved working four hours a day, five days a week, from 9:00 a.m. to 1:00 p.m., with each case taking 15-20 minutes. Sample collection involved seven to twelve cases per day. Data was coded, entered, presented, and analyzed using IBM SPSS-29 software. The data was presented in simple measures like frequency, percentage, mean, standard deviation, and range. There were days when more samples were collected or no data was collected. The study used the Pearson Chi-square test for qualitative data. Statistical significance was considered when the P value was equal to or less than 0.05.

3. Result and Discussion

This cross-sectional study involved 374 patients with knee osteoarthritis (KOA), with a mean age of 58.6 ± 10.6 years. The highest percentage of knee OA was in the 50-59 age group (32.1%), while the lowest was in those over 80 years old (2.7%). Females accounted for the highest percentage (64.7%), with the majority married (71.1%) and most living in urban areas (65.1%). 53.2% of the participants had a family history of knee OA.

Table (1) Distribution of the Study Sample according to Demographic Characteristics

Demographic Characteristics	Classes	N=374	%
Age (years)	<40years	13	3.5
	40---49	60	16.0
	50---59	120	32.1
	60---69	104	27.8
	70---79	67	17.9
	=>80years	10	2.7
	Mean±SD (Range)	58.6±10.6 (30-83)	
sex	Male	132	35.3
	Female	242	64.7
BMI (Kg/m^2)	Underweight (below 18.5)	-	-
	Normal(18.5-24.9)	23	6.1
	Overweight (25-29.9)	167	44.7
	Obese (30 and above)	184	49.2
Occupation	Employee	58	15.5
	Worker	34	9.1
	Housewife	201	53.7
	Retired	81	21.7
Marital status	Single	9	2.4
	Married	266	71.1
	Divorced	14	3.7
	Widowed	85	22.7
Educational level	Illiterate	116	31.0
	Primary school	123	32.9
	Intermediate school	64	17.1
	High school	41	11.0
	College	30	8.0
	Postgraduate degree	-	-
Residence	Urban	243	65.1
	Rural	130	34.9

Table 2 shows that a significant number of patients with knee osteoarthritis (KOA) have a poor quality of life, with only 0.5% rating it as excellent, 0.3% as very good, 26.7% as good, 36.9% as fair, and 35.6% as poor. These patients are severely limited in their ability to perform daily activities.

Most patients (90.9%) experience severe limitations in vigorous activities, moderate activities (42.3%), lifting or carrying groceries (47.3%), and climbing stairs (98.4%), even with one flight of stairs. Only 0.3% of patients report no limitations, while 13.9% report no limitations.

A majority (53.7%) of patients have limitations in bending, kneeling, or stooping, with97.1% severely limited in walking long distances and 79.7% severely limited in walking a single block.

Over the past four weeks, participants' physical and emotional health issues havesignificantly impacted their daily activities. 68.2% reported reducing work time due to health issues, while 58.8% felt they accomplished less than desired. 62.3% were limited in their work or activities, and 68.4% experienced difficulty performing them.

Emotional problems like depression or anxiety have reduced work time, with 34.8% feeling less accomplished and 33.7% not performing work as carefully as usual. The study shows that physical and emotional health issues have impacted participants' social activities and bodily pain over the past four weeks, with the most common responses being moderately (32.6%) and quite a bit (24.3%).

The study found that most participants experienced moderate to extreme levels of pain, with the most common responses being "quit a bit" (30.5%) and "moderately" (27.8%). A significant number experienced "severe" (20.9%) or "very severe" (15.0%) pain. Only 1.3% reported no pain. The data also revealed that 28.9% of participants felt "full of life" some of the time or a good bit of the time, while 32 percent felt this way little or none of the time.

The study found that most participants experienced frequent nervousness, with 29.4% feeling nervous all the time and 33.2% most of the time. Only a small minority (9.4%) reported feeling nervous occasionally. 27.0% felt good occasionally, 27% felt down occasionally, and 6.4% did not feel down at all.

The study found that most participants did not feel calm and peaceful most of the time,with 37.7% feeling this way only a little bit of the time and 23.8% not feeling calm at all. Energy levels varied, with 29.7% having a lot of energy and 33.9% having low energylevels. Feeling downhearted and depressed was common, with 24.9% experiencing these feelings most or a good bit of the time. Most participants felt tired frequently, with 15.8% feeling tired all the time and 23.3% most of the time. Physical health or emotional problems interfered with social activities, with 41.4% reporting interference "some" or "all" of the time. Perceptions of health status were also a concern, with 38.8% feeling they get sick more easily than others and 32.9% uncertain about their relative healthvulnerability. Only 30.5% agreed that they are as healthy as others they know, while 36.1% disagreed. A large percentage (33.4%) were unsure, and a majority (73.5%) were uncertain about whether their health would deteriorate. Only 21.1% considered their health excellent,and almost half (48.1%) were uncertain about the quality of their health.

Table (2) distribution of the patients according to quality of life

Quality of life	Variables	No	%
1- In general, would you say your health is	Excellent	2	0.5
	Very good	1	0.3
	Good	100	26.7
	Fair	138	36.9
	Poor	133	35.6
2- Compared to one year ago, how would you rate your health in general now	Much better now than one year ago	-	-
	Somewhat between now than one year ago	4	1.1
	About the same	150	40.1

3a- The activities you might do during a typical day. Does your health now limit you in these activities? If so, how much; Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	Somewhat worse now than one year ago	126	33.7
	Much worse now than one year ago	94	25.1
	Yes; limited a lot	340	90.9
	Yes; limited a little	33	8.8
	No; Not limited at all	1	0.3
3b- Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	Yes; limited a lot	162	43.3
	Yes; limited a little	160	42.8
3c- Lifting or carrying groceries	No; Not limited at all	52	13.9
	Yes; limited a lot	49	13.1
	Yes; limited a little	148	39.6
	No; Not limited at all	177	47.3
3d- Climbing several flights of stairs	Yes; limited a lot	368	98.4
	Yes; limited a little	5	1.3
	No; Not limited at all	1	0.3
3e- Climbing one flight of stairs	Yes; limited a lot	304	81.3
	Yes; limited a little	63	16.8
	No; Not limited at all	7	1.9
3f- Bending, kneeling, or stooping	Yes; limited a lot	61	16.3
	Yes; limited a little	140	37.4
	No; Not limited at all	173	46.3
3g- Walking more than a mile	Yes; limited a lot	363	97.1
	Yes; limited a little	10	2.7
	No; Not limited at all	1	0.3
3h- Walking several blocks	Yes; limited a lot	368	98.4
	Yes; limited a little	5	1.3
	No; Not limited at all	1	.3
3i- Walking one block	Yes; limited a lot	298	79.7
	Yes; limited a little	70	18.7
	No; Not limited at all	6	1.6
3j- Bathing or dressing yourself	Yes; limited a lot	2	0.5
	Yes; limited a little	47	12.6
	No; Not limited at all	325	86.9
4a- During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health: Cut down the amount of time you spent on work or other activities	Yes	255	68.2
	No	119	31.8
4b- Accomplished less than you would like 4c- Were limited in the kind of work or other activities	Yes	220	58.8
	No	154	41.2
	Yes	233	62.3
	No	141	37.7
4d- Had difficulty performing the work or other activities (for example, it took extra effort)	Yes	256	68.4
	No	118	31.6
5a- During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious);	Yes	126	33.7
	No	248	66.3

Cut down the amount of time you spent on work or other a			
5b- Accomplished less than you would like	Yes	130	34.8
	No	244	65.2
5c- Didn't do work or other activities as carefully as usual	Yes	126	33.7
	No	248	66.3
6- During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups	Not at all	10	2.7
	Slightly	77	20.6
	Moderately	122	32.6
	Quite a bit	91	24.3
	Extremely	74	19.8
7- How much bodily pain have you had during the past 4 weeks	None	5	1.3
	Very mild	55	14.7
	Mild	102	27.3
	Moderate	78	20.9
	Severe	78	20.9
	Very severe	56	15.0
8- During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)	Not at all	6	1.6
	A little bit	70	18.7
	Moderately	104	27.8
	Quite a bit	114	30.5
	Extremely	80	21.4
9a- How you feel and how things have been with you during the past 4 weeks: Did you feel full of life?	All of the time	17	4.5
	Most of the time	72	19.3
	A good bit of the time	108	28.9
	Some of the time	57	15.2
	A little of the time	63	16.8
	None of the time	57	15.2
9b- Have you been a very nervous?	All of the time	110	29.4
	Most of the time	124	33.2
	A good bit of the time	105	28.1
	Some of the time	22	5.9
	A little of the time	13	3.5
	None of the time	-	-
9c- Have you felt so down in the dumps that nothing could cheer you up?	All of the time	34	9.1
	Most of the time	66	17.6
	A good bit of the time	66	17.6
	Some of the time	83	22.2
	A little of the time	101	27.0
	None of the time	24	6.4
9d- Have you felt calm and peaceful?	All of the time	-	-
	Most of the time	40	10.7
	A good bit of the time	45	12.0
	Some of the time	59	15.8
	A little of the time	141	37.7
	None of the time	89	23.8
9e- Did you have a lot of energy? 9f- Have you felt downhearted and depressed?	All of the time	15	4.0
	Most of the time	61	16.3
	A good bit of the time	111	29.7

	Some of the time	60	16.0
	A little of the time	64	17.1
	None of the time	63	16.8
	All of the time	19	5.1
	Most of the time	69	18.4
	A good bit of the time	93	24.9
	Some of the time	78	20.9
	A little of the time	89	23.8
	None of the time	26	7.0
9g- Did you feel worn out ?	All of the time	26	7.0
	Most of the time	62	16.6
	A good bit of the time	87	23.3
	Some of the time	86	23.0
	A little of the time	88	23.5
	None of the time	25	6.7
9h- Have you been a happy person?	All of the time	7	1.9
	Most of the time	81	21.7
	A good bit of the time	148	39.6
	Some of the time	72	19.3
	A little of the time	40	10.7
	None of the time	26	7.0
9i- Did you feel tired?	All of the time	59	15.8
	Most of the time	87	23.3
	A good bit of the time	82	21.9
	Some of the time	87	23.3
	A little of the time	54	14.4
	None of the time	5	1.3
10- During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?	All the time	70	18.7
	Most of the time	77	20.6
	Some of the time	155	41.4
	A little of the time	69	18.4
	None of the time	3	0.8
11a- I seem to get sick a little easier than other people	Definitely true	84	22.5
	Mostly true	61	16.3
	DNK	123	32.9
	Mostly false	46	12.3
	Definitely false	60	16.0
11b- I am as healthy as anybody I know	Definitely true	65	17.4
	Mostly true	49	13.1
	DNK	125	33.4
	Mostly false	68	18.2
	Definitely false	67	17.9
11c- I expect my health to get worse	Definitely true	42	11.2
	Mostly true	22	5.9
	DNK	275	73.5
	Mostly false	23	6.1
	Definitely false	12	3.2
11d- My health is excellent	Definitely true	30	8.0
	Mostly true	49	13.1

DNK	180	48.1
Mostly false	48	12.8
Definitely false	67	17.9

The study reveals a significant difference in quality of life scores across different agegroups, with participants aged 50-59 reporting a fair quality of life (40.0%) and the 60-69age group (34.0%) reporting poor quality of life (34.0%). The youngest and oldest groups reported poor quality of life compared to middle-aged groups. There was no significant difference in quality of life scores between males and females, but females reported aslightly higher percentage of poor quality of life compared to males (30.8%). There was no significant difference in quality of life scores across different BMI categories, with themajority of participants in both overweight and obese categories reporting a fair quality of life (46.5%). As shown in table 3.

Table (3) Association between General Characteristics of the Study Variables and Quality of Life

		Quality of life (1-158)				P value
		Poor (<79)		Fair (79-118)		
		No	%	No	%	
Age (years)	<40years	4	2.5	9	4.2	0.0001*
	40---49	7	4.4	53	24.7	
	50---59	34	21.4	86	40.0	
	60---69	54	34.0	50	23.3	
	70---79	51	32.1	16	7.4	
	=>80years	9	5.7	1	.5	
sex	Male	49	30.8	83	38.6	0.119
	Female	110	69.2	132	61.4	
BMI (Kg/m2)	Underweight	-	-	-	-	0.428
	Normal	8	5.0	15	7.0	
	Overweight	67	42.1	100	46.5	
	Obese	84	52.8	100	46.5	

*Significant difference between percentages using Pearson Chi-square test (χ^2-test) at 0.05 level.

The study (table 4) found significant differences in quality of life scores across different occupations, with housewives and retired individuals reporting higher percentages of poor quality of life (60.4% and 32.1%, respectively). Employees had a higher percentage reporting a fair quality of life (22.8%). Marital status also showed a significant difference, with married participants reporting a fair quality of life (88.4%), while widowed participants reported a high percentage of poor quality of life (45.3%). Educational level also showed variations, with illiterate individuals reporting a higher percentage of poor quality of life (38.4%) compared to those with higher education levels. Primary schooleducation had the highest percentage reporting a fair quality of life (33.5%). No significant difference was found between urban and rural residents, with both reporting similar percentages for poor and fair quality of life.

Table (4) association of quality of life with occupation, marital status, educational level, and residence

		Quality of life (1-158)				P value
		Poor (<79)		Fair (79-118)		
		No	%	No	%	
Occupation	Employee	9	5.7	49	22.8	0.0001*

	Worker	3	1.9	31	14.4	
	Housewife	96	60.4	105	48.8	
	Retired	51	32.1	30	14.0	
Marital status	Single	4	2.5	5	2.3	0.0001*
	Married	76	47.8	190	88.4	
	Divorced	7	4.4	7	3.3	
	Widowed	72	45.3	13	6.0	
Educational level	Illiterate	61	38.4	55	25.6	0.057
	Primary school	51	32.1	72	33.5	
	Intermediate school	25	15.7	39	18.1	
	High school	12	7.5	29	13.5	
	College	10	6.3	20	9.3	
	Postgraduate degree	-	-	-	-	
Residence	Urban	101	63.5	142	66.4	0.570
	Rural	58	36.5	72	33.6	

*Significant difference between percentages using Pearson Chi-square test (χ^2-test) at 0.05 level.

Discussion

The study involved participants aged 30-83, with a mean age of 58.6 years. The majority were in the 50-59 and 60-69 age groups, representing 32.1% and 27.8% of the sample, respectively (Sasaki et al., 2020). This aligns with a Japanese study indicating that knee osteoarthritis predominantly affects middle-aged and older adults, confirming the disease'sepidemiology (Sasaki et al., 2020). The study found that women (64.7%) experience osteoarthritis more frequently than men (35.3%), possibly due to higher fat mass and lower extremity muscle mass (Sasaki et al., 2020).

The study found that the majority of participants were overweight (44.7%) or obese (49.2%), with none underweight. Only 6.1% had a normal BMI. This high prevalence aligns with a 2017 study at Al-Sadder Hospital in Baghdad, which highlighted the risk of excess body weight for knee osteoarthritis (Al-Yasseri et al., 2019). Effective weight management is crucial to ease symptoms and slow the disease's onset. The study foundthat retired individuals accounted for 21.7% of the sample, followed by 15.5% employeesand 9.1% workers, aligning with a Mosul hospital study revealing housewives as the largest group (74.6%) (Ahmad and Al-Jwary, 2023).

The sample's heavily represented housewives and retired persons are older adults at risk of osteoarthritis. Most participants lack literacy (31.0%) or only received primary school education (32.9%). Fewer have intermediate or high school education (17.1%) or college (11.0%), and 8.0% have attended college, with none having completed a postgraduate degree.

This study supports Ji Yeon Lee et al.'s research that poor income, supervisory positions,and insufficient education are linked to a higher prevalence of knee OA (Lee et al., 2021). Education can influence participants' healthcare information skills, which in turn affect disease management and outcomes.

The study on knee OA patients' quality of life ratings provides insight into the patient experience and the burden of the illness. Only 0.5% of participants rated their quality of life as "excellent" or "very good," indicating that few individuals with knee OA experiencea small effect from their condition. However, 36.9% of patients considered their quality oflife fair, as per research by Wojcieszek et al. from 2019 to 2020 (Wojcieszek et al., 2022).

Knee osteoporosis patients often experience a low quality of life that is correlated with sociodemographic factors and knee function. Studies by (Jinghui C et al., 2023 and

Kawano et al., 2015) also show that individuals with osteoarthritis experience functional limitations, pain, and functional capacity, sensing a low quality of life.

The research showed that 98.4% of participants have serious limitations while climbingstairs due to their knee osteoarthritis (OA). The study by Vitaloni, M. et al. highlights the significant impact of knee OA on physical function, revealing restrictions in 91.1% of participants. (Vitaloni et al., 2020).

The study found that 53.7 percent of participants experience some level of limitation in bending, kneeling, or stooping due to knee osteoarthritis (OA). The study by Ali A et al. in Saudi Arabia revealed that severe pain significantly impacts limited activities like bending, kneeling, and stooping in individuals with knee osteoarthritis (Vennu et al., 2023b).

The study indicates that many patients with knee osteoarthritis (OA) experience difficultywith flexion movements due to pain, joint stiffness, and muscle weakness around the knee joint. These limitations significantly impact their daily activities and quality of life. A study by Vishal V et al. found that 97.1% of patients with osteoarthritis (OA) struggle to walk long distances, a finding consistent with a cross-sectional study by Vennu et al. (Vennu et al., 2023a). The research highlights the extent to which knee OA limits people's ability to perform everyday activities and move, highlighting the significant impact of this condition on mobility.

Physical health issues significantly impact people's daily functioning and work performance. A majority of respondents (68.2%) reported cutting down work/activity time due to these issues, affecting productivity. 58.8% expressed dissatisfaction with their achievements, whether personal or professional. 62.3% of respondents reported limitations in work or activities due to physical health constraints. Most respondents, particularly 68.4%, had some level of disability in functional aspects of work, highlighting the challenges they face in fulfilling their duties. Depression and anxiety exacerbate these challenges. The survey's practical implications are expected to demonstrate the practical implications of these issues.

Emotional problems have led to a decline in work output, with 34.8% of respondents reporting reduced productivity and 33.7 percent not doing their work as carefully as theyused to. Additionally, 25.69% reduced work or activity time due to these issues, and 81.12% experienced role limitations due to emotional problems, as reported by Fatih et al. (Özden et al., 2020).

The analysis revealed that 27.3% of patients experienced mild pain, while 20.9% considered themselves moderately pain-prone. A significant number reported severe or very severe pain, limiting their movement, work, and functioning. A quarter of respondents (25.6%) reported significant bias, while 30.5% acknowledged a "quite a bit" of bias. These results suggest that a significant number of patients recognize significant pain that interferes with their daily lives. The findings highlight the importance of understanding and managing pain levels to improve patient outcomes.

21.4 percent of participants reported extreme pain, a significant subset that severely restricts their ability to perform normal activities.

The survey revealed that 29.4% of participants were always nervous, while 33.2% weremost nervous. This suggests that many people may be very nervous. Additionally, 37.7%of participants reported feeling uncomfortably calm and peaceful most of the time. This suggests that many people may not experience calm and relaxation in their everyday livesdue to higher stress/anxiety states. This finding is consistent with a 2010 study by John Aet al., which found an increased risk of mood disorders in patients with osteoarthritis due to increased stress.

A Turkish study by Tulay and Fatma found that 33.9% of participants with knee osteoporosis reported low energy levels, indicating a significant number of individuals experiencing fatigue and lack of energy, impacting their daily functioning and overall well- being (Fertelli and Tuncay, 2019).

The study found that age significantly impacts quality of life. Individuals under 40 yearshad a poor quality of life, while those over 50 and over 60 had fair quality. The elderly, particularly those over 80, experienced a potentially challenging phase, with only 0.5% reporting fair quality.

The quality of life varies significantly among different occupational groups, with employees reporting a higher percentage of fair quality of life (22.8%), workers reporting a lower percentage of fair quality (14.4%), housewives reporting a lower percentage of fair quality (48.8%), and retirees reporting a lower percentage of fair quality (14.0%). Thissuggests that retirees are more likely to have a poor quality of life. Research in Brazil and South Korea reveals that low-educated individuals often engage in manual labor or frequent physical activity in their professional lives. Additionally, those over 60 and females may be more susceptible to the progression of knee osteoporosis, which is linkedto a worse quality of life (Reis et al., 2014; Jhun et al., 2013).

The study found a significant difference in the quality of life of single patients (2.5%) and married patients (88.4%), with the former reporting a fair quality of life and the latter reporting a poor quality of life (47.8%).

The study found no significant difference in quality of life based on educational level, but notable differences were observed. Illiterate individuals (25.6%) reported a fair quality of life, while 38.4% reported poor quality. Primary school (33.5%) and college (9.3%) reported a fair quality of life, while 6.3% reported poor quality. This contradicts a 2015 Brazilian study by Kawano et al., which found a significant relationship between education and osteoarthritis (Kawano et al., 2015). The study found no significant difference in quality of life based on residence, with urban (66.4%) reporting a fair quality of life and rural (33.6%) reporting a fair quality of life, compared to 36.5% reporting a poor quality of life.

4. Conclusion and future scope

The study reveals that the majority of participants with knee osteoarthritis are overweight or obese, with retired individuals and housewives being the largest risk group. Most lack literacy or only received primary school education, with poor income, supervisory positions, and insufficient education linked to higher prevalence. Knee osteoarthritis patients often experience low quality of life, with 98.4% experiencing serious limitations while climbing stairs and 53.7% experiencing some limitations in bending, kneeling, or stooping.

Recommendations

Patients with knee OA should consult with healthcare providers early, develop a family history of obesity programs, and incorporate weight management into therapy. Systematic management strategies involve a team of healthcare providers, including physicians, physiotherapists, and nutrition specialists. Whole-person care engagement increases the chances of positive patient outcomes and maintaining control over knee OA.

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