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Original Research Article

A Cross Sectional Study to Assess the Health Related Quality of Life among Osteoarthritis Patients in a Tertiary Care Hospital in Chennai

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Abstract:

Background: Osteoarthritis is the most common musculoskeletal disease leading to functional decline and loss in quality of life.

Aim: To assess HRQOL, severity of pain and its impact on functioning and associated factors related to HRQOL among osteoarthritis patients.

Methodology: Cross sectional study was conducted among 237 adult osteoarthritis patients aged ≥18 years attending Orthopaedic OPD, Government Stanley Medical College between July to September-2022 (3 months) through simple random sampling using validated pretested semi-structured questionnaire by face-face interview consisting of European Quality of Life scale 5 Dimension 5 level with Visual Analog Scale to assess HRQOL and Brief Pain Inventory to assess pain severity and interference. Data was entered in Microsoft Excel and analysed in SPSS 16 version. p value <0.05 was considered as statistically significant.

Results: Average age of osteoarthritis patient is 59.53± 10.34. Out of 237 participants, 84% were females, 66.7% had good HRQOL, 70.5% with mild grading of pain severity, and 84% showed low functional interference due to pain. Multiple linear regression analysis showed age of the participant, disease duration, treatment status, pain severity and pain interference had significant impact on quality of life.

Conclusion: Osteoarthritis patients with age, disease duration, pain severity and interference in daily function due to pain had negative impact on the quality of life of osteoarthritis patients.

Keywords: Osteoarthritis; HRQOL, Pain, EQ-5D-5L.

Introduction

Osteoarthritis (OA), multifactorial [1], age related chronic progressive musculoskeletal disease, causing functional deterioration & disability [2] leading to impaired quality of life [3]. Pain is linked with physical movements, thereby influencing personal care, work ability, social participation and household care [3]. Osteoarthritis is associated with cartilage degradation, osteophyte formation, decline of joint space etc [4].

Genetics, gender, trauma, advancing age & obesity some of the reported risk factors [5]. OA is classified into two main types- Primary (no prior abnormalities in joint) and secondary (prior abnormalities in joint) [6,7].

Pain is the most common symptom, contributing to functional limitations [8]. OA is the 15th highest cause of years lived with disability (YLDs) worldwide and contributes to 2% of the total global YLDs [19]. It accounts for 15% among all musculoskeletal disorders [10] causing frequent visits to a primary health-care [11] in India.

Over 40% of the Indians above ≥70 years suffer from OA [12]. The Overall prevalence of OA in knee in India reported is 28.7 % [13]. India is expected to be the capital of chronic disease, having 60 million with arthritis, by 2025 [12].

OA affects both physical and mental health, sleep, work & quality of life [14]. It has high direct and indirect costs and loss of productivity of individuals and their caregivers [15].

Despite the burden and economic impact of OA in India, there is paucity of literature on this topic. Hence, the study was aimed at studying health-related quality of life among Osteoarthritis patients.

Methodology:

Study Design: Hospital based Cross sectional study.

Study Area: Tertiary care centre (Government Stanley Medical College, Orthopaedics Department)

Study period: July to September-2022 (3 months).

Study population: Adult patients aged ≥18years, diagnosed as osteoarthritis for at-least 3 months

Inclusion criteria: Adult (≥18 years) Osteoarthritis patients attending in Orthopaedic Department of Stanley medical College.

Exclusion criteria: Patients who were not willing to participate in the study, not able to communicate, had those with other co-morbidities (psychiatric disorder, significant visual, vestibular, neurological, sensory disorders, any other bone related disorder etc.) were excluded

Sampling method: Simple random sampling with random number table. Sampling frame was obtained from the Outpatient register.

Sample size: Sample size was calculated with p-prevalence of osteoarthritis [13] 28.7%, q - 71.3% with relative precision of 20%, Sample size was calculated using $n = Z^2pq/d^2$, n= 237 participants were interviewed in our study.

Data collection: Participants were informed about the study and written informed consent was obtained. Data was collected using the validated and pretested questionnaires by face-to-face interview.

Study tool: The questionnaire contained two sections.

Part I: Socio-demographic details and clinical data of the study participants and

Part II: Health related Quality of life assessment using European Quality of Life Scale 5 Dimension 5 level (EQ-5D-5L) with Visual Analog Scale (EQVAS) [Indian-version] [16] and pain assessment using Brief Pain Inventory (BPI) scale [17]. The questionnaires were translated into Tamil and back translated into English to check for accuracy and consistency.

European Quality of Life Scale 5 Dimension 5 level (EQ-5D-5L) comprises five dimensions: mobility, self-care, usual activities, pain / discomfort and anxiety / depression. Each dimension has five response levels: no problems (score:1), slight problems (score:2), moderate problems (score:3), severe problems (score:4), unable to/extreme problems (score:5). EQ-5D-5L total score (Range: 5 to 25) was obtained by adding the score of all 5 dimensions. EQ-5D-5L total score is inversely proportional to the quality of life. For classification purpose EQ-5D-5L was categorized into poor (EQ index = ≤0), average (EQ index = >0 to ≥0.5) and good (EQ index= >0.5) by using SPSS syntax algorithm [Indian version].

European Quality of Life Scale - Visual Analog Scale (EQVAS): The EQ VAS records the respondent's overall current health on a vertical visual analogue scale, where the endpoints are labelled 'The best health you can imagine' and 'The worst health you can imagine'. EQVAS is directly proportional to the quality of life. The EQVAS provides a quantitative measure of the patient's perception of their overall health. EQ – VAS classified as best (score= ≥70), poor (score= 30 to 70) and worst health (score= <30). The Euro-QOL Research Foundation permitted us to use the Indian version of the EQ-5D-5L with EQVAS (registered ID: 50203)

Brief Pain Inventory (BPI) scale consists of "sensory" dimension of pain (intensity, or severity) and the "reactive" dimension of pain (interference with daily function). Pain severity was quantified by four items: pain at its "worst," "least," "average," and "now" (current pain). Each of these items was scored from 0 to 10, and the total score ranges between 0 and 40, which was converted into a 10-point scale (dividing the total score by 4), then the Pain severity scale was classified as mild (score= ≤ 4), moderate (score= 5 - 6) and severe (score= >6). Pain interference in daily functions was measured by items which included general activity, walking, work, mood, enjoyment of life, relations with others, and sleep. Each of these items was scored from 0 to 10, and the total score ranges between 0 and 70, which was converted into a 10-point scale (dividing the total score by 7), then the Pain interference scale was classified as low (score= ≤ 5) and high pain interference (score= >5).

Analysis: Data was tabulated in MS Excel and analysed using SPSS version 16.0. Quantitative variables were expressed as mean and standard deviation (SD) for normally distributed data or median and interquartile range (IQR) for skewed data. Categorical variables were expressed as frequency and percentage. We used histogram and skewness value (skewness between -0.5 to +0.5: normal distribution) to evaluate the normality of quantitative data. Log transformation was done for variables not normally distributed.

Independent sample t test and one way ANOVA were used to assess the statistical association between independent variables and dependent variables (Quality of life - EQ5D5L & EQVAS separately). P value of <0.05 was considered as statistically significant. Correlation analysis was done and correlation coefficient was obtained. Statistically significant independent variable with

the correlation coefficient value - 0.3 and above was considered for linear regression analysis. Multiple linear regression analysis was done to determine the specific independent variables that were independently associated with quality of life.

Ethical clearance details: Government Stanley medical college and hospital, Chennai – Institutional Ethics Committee approved our study on 13.07.2022.

Results: A total of 237 osteoarthritis patients participated in our research study. The mean age of our study participants was 59.53 ± 10.34 (mean ±SD) years and 48.5% (115) participants belonged to age group 46-60 years. Table 1 showed the socio-demographic details, personal habits and distribution of clinical characteristics of study population. Majority of the participants were female [84% (199)], literate [65.4% (155)], employed [63.3% (150)], upper lower socio-economic class [47.3% (112%)] and married [67.1% (159)]. On assessing their personal habits, most of them were non-smokers [90.7% (215)] and non-alcoholic [89% (211)]. We also assessed the clinical characteristics related to osteoarthritis and it was found that 68.4% (162) had the disease for less than 5 years, 76.4% (181) affected with one painful joint, 97% (230) had no history of previous trauma, 88.2% (209) were on treatment, 60.3% (143) had co-morbidities and 76.4% (181) participants were not on physical activities.

Table 1: Socio demographic and clinical characteristics of the study participants

Socio-Demographic Details (n= 237)	
Variables	**Frequency (%)**
Gender	
Male	38 (16)
Female	199 (84)
Total	**237 (100)**
Age	
30 to 45 years	17 (7.2)
46 to 60 years	115 (48.5)
60 to 75 years	90 (38)
76 to 90 years	15 (6.3)
Total	**237 (100)**
Education	
Illiterate	82 (34.6)
Literate	155 (65.4)
Total	**237 (100)**
Employment status	
Unemployed	87 (36.7)
Employed	150 (63.3)
Occupation	
Unemployed	87 (36.7)
Semi-skilled	83 (35)
Skilled	23 (9.7)
Clerical	41 (17.3)
Semi professional	3 (1.3)
Total	**237 (100)**
Socio-economic status (Modified Kuppusamy 2022)	
Upper middle	19 (8)
Lower middle	106 (44.7)
Upper lower	112 (47.3)
Total	**237 (100)**

Marital status	
Widow	75 (31.6)
Married	159 (67.1)
Unmarried	3 (1.3)
Total	**237 (100)**
Personal Habits (n= 237)	
Smoking	
Yes	22 (9.3)
No	215 (90.7)
Total	**237 (100)**
Alcohol intake	
Yes	26 (11)
No	211 (89)
Total	**237 (100)**
Clinical Characteristics (n= 237)	
Disease duration	
Less than 5 years	162 (68.4)
6 to 10 years	53 (22.4)
11 to 15 years	15 (6.3)
16 to 20 years	7 (3.0)
Total	**237 (100)**
Number of Painful joints	
One joint	181 (76.4)
2 joints	42 (17.7)
≥ 3 joints	14 (5.9)
Total	**237 (100)**
Previous trauma	
Yes	7 (3)
No	230 (97)
Total	**237 (100)**
Treatment	
Yes	209 (88.2)
No	28 (11.8)
Total	**237 (100)**
Co-morbidities	
Yes	143 (60.3)
No	94 (39.7)
Total	**237 (100)**
Physical activities	
Yes	56 (23.6)
No	181 (76.4)
Total	**237 (100)**

Table 2 showed: Assessment of pain severity and interference by pain using Brief Pain Inventory (BPI) scale, average pain severity and pain interference score were 15 ± 9 (median ± IQR) and 22 ± 15 (median ± IQR). Also observed that approximately two-third [167 (70.5%)] of the participants had mild pain severity scores, and 84% (199) had low pain interference scores.

Table 2: Assessment of pain severity and pain interference with daily function among study participants

Brief Pain Inventory (n=237)	
Variables	Frequency (%)
Pain severity	
Mild	167 (70.5)
Moderate	35 (14.8)
Severe	35 (14.8)
Total	**237 (100)**
Pain interference	
Low	199 (84)
High	38 (16)
Total	**237 (100)**
Pain relief by medications	
30% or less	36 (15.2)
40 to 60%	106 (44.7)
70 to 100%	95 (40.1)
Total	**237 (100)**

Table 3 summarized: Assessment of Health-related Quality of Life (HRQoL) using the European Quality of Life Scale 5 Dimension 5 level (EQ-5D-5L) with Visual Analog Scale (EQVAS) [Indian version]: it was observed that 66.7% (158) of the participants had good quality of life and 17.3% (41) had average quality of life. Visual Analog Scale (EQVAS) showed that 50.2% (119) were in best health and 43.9% were in poor health. Log transformation was done for EQ-5D-5L total score data (outcome variable) in-order to convert the originally positively skewed data into normally distributed log transformed data.

Log transformed EQ-5D-5L data and original EQVAS data were used for inferential statistics. Mean log-EQ-5D-5L and EQVAS score were 1.08 ± 0.13 and 63.97 ± 17.79 respectively.

Table 3: Assessment of Health-related Quality of Life (HRQoL) using the European Quality of Life Scale 5 Dimension 5 level (EQ-5D-5L) with Visual Analog Scale (EQVAS) [Indian version] among study participants

Variables	**Frequency (%)**
EQ 5D5L	
Poor	38 (16)
Average	41 (17.3)
Good	158 (66.7)
Total	**237 (100)**
EQVAS	
Worst health	14 (5.9)
Poor health	104 (43.9)
Best health	119 (50.2)
Total	**237 (100)**

Table 4: Distribution of various domains of European Quality of Life Scale 5 Dimension 5 level (EQ-5D-5L)

EQ-5D-5L	Mobility N (%)	Self-care N (%)	Usual activities n (%)	Pain/Discomfort N (%)	Anxiety/ Depression n (%)
No problems	10 (4.2)	66 (27.8)	17 (7.2)	1 (4)	79 (33.3)
Slight problems	103 (43.5)	88 (37.1)	96 (40.5)	76 (32.1)	107 (45.1)
Moderate problems	73 (30.8)	52 (21.9)	85 (35.9)	89 (37.6)	37 (15.6)
Severe problems	42 (17.7)	23 (9.7)	27 (11.4)	56 (23.6)	12 (5.1)
Extreme problems	9 (3.8)	8 (3.4)	12 (5.1)	15 (6.3)	2 (8)

Table 5 revealed: Association between participants characteristics and quality of life (EQ-5D-5L). Log EQ-5D-5L score was significantly associated with sex, age, education, occupation, level of occupation, socio-economic status, marital status, smoking, alcohol consumption, disease duration, number of painful joints, treatment, presence of co-morbidities, physical activities, pain relief by medications, pain severity and pain interference. Correlation analysis revealed that age (r = 0.554), disease duration (r = 0.572), pain severity (r = 0.759) & pain interference (r = 0.802) were significantly positively correlated with log-EQ-5D-5L score. Employment status (r = -0.370) and treatment status (r = -0.350) were significantly negatively correlated with log-EQ-5D-5L score.

Table 5: Quality of life of osteoarthritis patients by Log-EQ5D5L – European Quality of Life Scale with 5 Dimensions at 5 levels

Variables	Mean (SD)	p value
Sex		
Male	1.13 (0.15)	**0.007**[1]
Female	1.07 (0.12)	
Age		
30 to 45 years	1 (0.08)	**<0.001**[2]
46 to 60 years	1.02 (0.10)	
60 to 75 years	1.13 (0.12)	
76 to 90 years	1.26 (0.10)	
Education		
Illiterate	1.12 (0.14)	**<0.001**[1]
Literate	1.05 (0.12)	
Employment status		
Unemployed	1.14 (0.13)	**<0.001**[1]
Employed	1.04 (0.11)	
Level of occupation		
Unemployed	1.14 (0.13)	**<0.001**[2]
Semi-skilled	1.04 (0.11)	
Skilled	1 (0.12)	
Clerical	1.05 (0.12)	
Semi professional	0.99 (0.04)	
Socio-economic status (Modified Kuppusamy 2022)		
Upper middle	1 (0.07)	**<0.001**[2]
Lower middle	1.06 (0.14)	
Upper lower	1.11 (0.12)	
Marital status		
Widow	1.12 (0.14)	**0.001**[2]
Married	1.05 (0.12)	
Unmarried	1.09 (0.22)	
Smoking		
Yes	1.13 (0.14)	**0.039**[1]
No	1.07 (0.13)	
Alcohol		
Yes	1.13 (0.15)	**0.019**[1]
No	1.07 (0.12)	
Disease duration		

Less than 5 years	1.03 (0.10)	**<0.001**[2]
6 to 10 years	1.15 (0.11)	
11 to 15 years	1.25 (0.09)	
16 to 20 years	1.23 (0.13)	
Number of painful joints		
One joint	1.06 (0.12)	**<0.001**[2]
2 joints	1.14 (0.11)	
≥ 3 joints	1.12 (0.17)	
Previous trauma		
Yes	1.03 (0.10)	0.368[1]
No	1.08 (0.13)	

Variables	**Mean (SD)**	**p value**
Treatment		
Yes	1.09 (0.12)	**<0.001**[1]
No	0.95 (0.08)	
Co-morbidities		
Yes	1.10 (0.13)	**<0.001**[1]
No	1.04 (0.12)	
Physical activities		
Yes	1.03 (0.10)	**0.002**[1]
No	1.09 (0.13)	
Pain relief by medications		
30% or less	1.1 (0.14)	**0.001**[2]
40 to 60%	1.1 (0.13)	
70 to 100%	1.04 (0.11)	
Pain severity		
Mild	1.02 (0.10)	**<0.001**[2]
Moderate	1.15 (0.09)	
Severe	1.27 (0.07)	
Pain interference		
Low	1.04 (0.10)	**<0.001**[1]
High	1.26 (0.07)	

Bold values denote statistical significance at the level of $p < 0.05$, [1]Independent sample t test, [2]One way ANOVA test. Table 6 revealed: Multiple linear regression analysis of association between participants characteristics and quality of life (log EQ-5D-5L). To note: Higher the Log EQ-5D-5L score, worser the quality of life. The results showed that age of the participant, duration of the disease, treatment status, pain severity and pain interference significantly predicted the quality of life.

Table 6: Multiple linear regression analysis between patient characteristics and quality of life (Log EQ-5D-5L)

Variables	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**		**Collinearity Statistics**	
	B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**	**Tolerance**	**VIF**
(Constant)	0.756	0.048		15.788	0.000	0.662	0.851		
Age	0.002	0.001	0.163	3.603	**0.000**	0.001	0.003	0.527	1.898
Employment status	0.015	0.011	0.054	1.368	0.173	-0.007	0.036	0.689	1.451
Disease duration	0.003	0.001	0.103	2.355	**0.019**	0.001	0.006	0.560	1.786
Treatment	-0.032	0.014	-0.078	-2.207	**0.028**	-0.060	-0.003	0.872	1.147
Pain severity	0.005	0.001	0.291	4.736	**0.000**	0.003	0.007	0.285	3.507
Pain interference	0.004	0.001	0.452	7.602	**0.000**	0.003	0.006	0.305	3.280

R square (coefficient of determination) - 0.713. ANOVA table in output - p value <0.001. Multicollinearity (Tolerance value <0.10 or VIF >10) and singularity - absent.
Bold values denote statistical significance at the level of p <0.05
B- Regression Coefficient

Linear regression equation: Log EQ-5D-5L score = 0.756 + [0.002 x Age in years] + [0.003 x duration of the disease in years] + [0.005 x pain severity score] + [0.004 x pain interference score].

Table 7 revealed: Association between participants characteristics and quality of life (EQVAS). EQVAS score was significantly associated with sex, age, education, occupation, level of occupation, socio-economic status, marital status, disease duration, number of painful joints, treatment, presence of co-morbidities, physical activities, and pain relief by medications, pain severity and pain interference.

Correlation analysis revealed that age (r = -0.354), disease duration (r = -0.387), pain severity (r = -0.566) & pain interference (r = -0.565) were significantly negatively correlated with log-EQ-5D-5L score. Employment status (r = 0.304) was significantly positively correlated with log-EQ-5D-5L score.

Table 7: Quality of life of osteoarthritis patients by EQVAS – European Quality of Life Scale with Visual Analog Scale

Variables	Mean (SD)	p value
Sex		
Male	57 (18.5)	**0.008**[1]
Female	65.31 (17.38)	
Age		
30 to 45 years	70.29 (13.04)	**<0.001**[2]
46 to 60 years	69.58 (15.37)	
60 to 75 years	59.01 (17.33)	
76 to 90 years	43.66 (19.95)	
Education		
Illiterate	57.57 (18.49)	**<0.001**[1]
Literate	67.36 (16.48)	
Employment status		
Unemployed	56.32 (19.52)	**<0.001**[1]
Employed	68.42 (15.07)	
Level of occupation		
Unemployed	56.32 (19.52)	**<0.001**[2]
Semi-skilled	65.96 (15.44)	
Skilled	76.56 (11.22)	
Clerical	69.80 (14.34)	
Semi professional	55 (18.02)	
Socio-economic status (Modified Kuppusamy 2022)		
Upper middle	71.57 (12.91)	**0.005**[2]
Lower middle	66.48 (17.72)	
Upper lower	60.32 (17.86)	
Marital status		
Widow	57.40 (19.03)	**<0.001**[2]
Married	67.25 (16.13)	
Unmarried	55 (27.83)	
Smoking		
Yes	62.31 (17.13)	0.647[1]
No	64.14 (17.88)	
Alcohol		
Yes	59.61 (15.74)	0.186[1]
No	64.51 (17.98)	
Disease duration		
Less than 5 years	68.25 (15.22)	**<0.001**[2]
6 to 10 years	57.56 (18.76)	
11 to 15 years	45.66 (16.67)	
16 to 20 years	52.85 (26.27)	

Number of painful joints		
One joint	65.76 (16.80)	**0.015[2]**
2 joints	57.14 (18.87)	
≥ 3 joints	61.42 (22.56)	
Previous trauma		
Yes	62.14 (16.54)	0.782[1]
No	64.03 (17.85)	

Variables	**Mean (SD)**	**p value**
Treatment		
Yes	62.75 (17.47)	**0.004[1]**
No	73.10 (17.78)	
Co-morbidities		
Yes	61.12 (18.33)	**0.002[1]**
No	68.31 (16.07)	
Physical activities		
Yes	71.39 (16.07)	**<0.001[1]**
No	61.68 (17.71)	
Pain relief by medications		
30% or less	58.88 (19.6)	**0.021[2]**
40 to 60%	62.45 (17.04)	
70 to 100%	67.61 (17.35)	
Pain severity		
Mild	69.80 (14.13)	**<0.001[2]**
Moderate	58.14 (13.67)	
Severe	42 (18.31)	
Pain interference		
Low	67.98 (14.46)	**<0.001[1]**
High	43.02 (19.04)	

Bold values denote statistical significance at the level of p <0.05, [1]Independent sample t test, [2]One way ANOVA test. Table 8 revealed: Multiple linear regression analysis of association between participants characteristics and quality of life (EQVAS). To note: Higher the EQVAS score, better the quality of life. The results showed that pain severity and pain interference significantly predicted the quality of life.

Table 8: Multiple linear regression analysis between patient characteristics and quality of life (EQVAS)

Variables	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**		**Collinearity Statistics**	
	B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**	**Tolerance**	**VIF**
(Constant)	85.840	9.674		8.873	0.000	66.779	104.901		
Age	0.007	0.117	0.004	0.061	0.951	-0.223	0.237	0.527	1.898
Employment status	1.614	2.186	0.044	0.738	0.461	-2.694	5.922	0.689	1.451
Disease duration	-0.356	0.278	-0.084	-1.281	0.201	-0.903	0.191	0.560	1.786
Treatment	-0.237	2.902	-0.004	-0.082	0.935	-5.956	5.482	0.872	1.147
Pain severity	-0.831	0.221	-0.347	-3.764	**0.000**	-1.266	-0.396	0.285	3.507
Pain interference	-0.372	0.119	-0.278	-3.119	**0.002**	-0.607	-0.137	0.305	3.280

R square (coefficient of determination) - 0.442. ANOVA table in output - p value <0.001. Multicollinearity (Tolerance value <0.10 or VIF >10) and singularity - absent.
Bold values denote statistical significance at the level of p <0.05
B- Regression Coefficient

Linear regression equation: EQVAS score = 85.840 + [- 0.831 x pain severity score] + [- 0.372 x pain interference score].

Discussion

This study was taken up as an initiative to find out the quality of life, among 237 osteoarthritis patients at a tertiary care centre. We quantified HRQoL using the EQ-5D-5L scale and its VAS component & also used Brief Pain Inventory (BPI) scale to assess the severity of pain and its interference with daily function. Socio-demographic characteristics, personal habits and clinical characteristics were analysed with HRQoL. We found that the age of the participant, disease duration, treatment, pain severity and pain interference significantly predicted the quality of life of osteoarthritis patients.

Mean log-EQ-5D-5L and EQVAS score were 1.08 ± 0.13 and 63.97 ± 17.79, however Shalhoub M et al [22], study showed that the mean log-EQ-5D-5L score of 0.65 ± 0.19 and EQVAS score of 70.43 ± 19.94, this could be due to differences in socio-demographic and clinical characteristics such as age, employment, treatment and duration of disease. In our study, mean age of the study participants was 59.53±10.34. This is comparable to study in the USA [8] and mean age: 61.2 ±11, Brazil [18] and mean age: 59.17±10. [22], China [19]. Nearly half of our study participants belonged to 46 to 60 years age group, which was supported by Pereira D et al that the disease prevalence increases between 40 and 60 years of age, and due to age related morphologic changes in articular cartilages [3]. This clearly shows that the older age group are commonly affected with OA. Age of the participant had negative impact on quality of life, which was supported by Shalhoub M et al [22]. Majority were females in this study, which was similar to the study conducted in Mumbai [20] and Cuba [21]. From this, it was evident that osteoarthritis had more female preponderance which could be due to lower muscle tone, hormonal factors etc.,

Majority of the participants belonged to upper lower and lower middle socio-economic class, were literate. A study conducted by Shalhoub M et al showed that socioeconomic status was linked with various health outcome which could be due to awareness due to education and income which influences the health seeking and treatment [22], which contradicted our study results where both literacy and socio-economic class failed to predict the quality of life.

In our study, four-fifth of the participants was non-smokers and non-alcoholic, which reflected the fact that more than 80% of our study population were female. Smoking and alcohol consumption was not significantly associated with HRQoL in our study; this was supported by Dubé CE et al [23], Hui M et al [24] and Kendrick To et al [25].

More than 50% of the participants were diagnosed with some form of comorbidities like Diabetes mellitus and hypertension, which could be due to increase participation of middle and older age groups, which was supported by Pereira D et al [3], Solis-Cartas U et al [21] & Shalhoub M et al [22], that the majority of the people with osteoarthritis have at least one co-morbid condition. History of treatment for osteoarthritis predicted the quality of life and had positive impact; Zhou G et al [19] concluded that treated patients had a better physical health than untreated patients.

In our study, we found that majority had OA for short duration, of which majority had a good quality of life. Both chi-square and regression analysis showed significant association with HRQoL. Duration of disease negatively impacted the quality of life. This is comparable to a study done by Harsha Kumar HN et al [26]. This indicates that as duration of OA progresses, quality of life decreases. Pain severity and pain interference was significantly associated with HRQoL which was similar to the study done by Shalhoub M et al [22], Schepman P et al [30]. There was no significant association between number of joints affected, previous trauma and HRQoL, which contradicted the findings of Shalhoub M et al [22]. This difference might be due to difference in sampling and participant's characteristics.

Conclusion

Our study concluded that age of the participant, duration of the disease, treatment status, severity of the pain and interference in daily function due to pain predicted the quality of life of osteoarthritis patients. This study serves as an insight into patient's life who are suffering from chronic morbidity due to OA.

Recommendations

All individuals with established co-morbid conditions, age more than 40 years of age and those with predisposing factors for osteoarthritis should be screened. Treatment goal should be framed, enforced and followed strictly immediately after diagnosis on pain control and management with minimum side effects, regular physiotherapy and muscle strengthening exercises to improve the joint movements and health related quality of life, thereby increasing their productivity.

Limitations

This study was done in tertiary care, Government Institution. Therefore, finding may not be generalizable in other settings. It was a cross-sectional study we could not derive any

conclusions on the causality of the associations observed.

Various other factors which might influence were not analysed due to time and resource constrains.

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