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Expert Opinion Article

Health-Related Quality of Life Post Hip & Knee Arthroplasties

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INTRODUCTION:

Total arthroplasties are commonly performed orthopedic procedure with an increasing rate of utilization. Arthroplasties are Hip and knee osteoarthritis (OA) causes pain and the restriction of the movement of the affected joint and the worsening of the quality of life . The effective surgical treatment for OA is an arthroplasty. Primary total hip arthroplasty (THA) and total knee arthroplasty (TKA) have been shown to significantly decrease joint pain and improve joint movement. Furthermore, arthroplasty has shown general positive changes in the quality of life, not only in the improvement of operated hip and knee joints. Although there are number of studies evaluating patient outcomes after THR and TKR with respect to physical functioning and pain relief, relatively few studies have specifically evaluated changes in health-related quality of life (QOL). We reviewed a total of studies that evaluated changes in QOL after THR & TKR. Results of all studies were consistent in showing beneficial and often dramatic improvements in QOL after elective THR & TKR. These improvements were most likely to occur within the first 3 to 6 months of procedure.

Patient-reported outcome measurements (PROMs) and quality-adjusted life years (QALYs) have started to play a more significant role in assessing the effectiveness of healthcare interventions. QALY is a health measure that takes both survival and health-related quality of life (HRQoL) of an individual into account. The SF-36 is a common research method to investigate changes in health-related quality of life (HRQoL). The aim of this study is to investigate the HRQoL of the patients having the THAorTKA. This was done using the SF-36 instrument, is a multi-purpose survey designed to capture adult patients perceptions of their own health and well-being.

MATERIALS & METHODS:

Our's is a prospective observational study which included 150 individuals both male and female in the age group between 18-80 years. patient who underwenttotal hip replacement and total knee replacement; who gave consent for follow-up evaluations preoperatively, at 6 months & 12 monthsand traffic injuries; patients with cognitive impairment; who refused to participate were excluded.

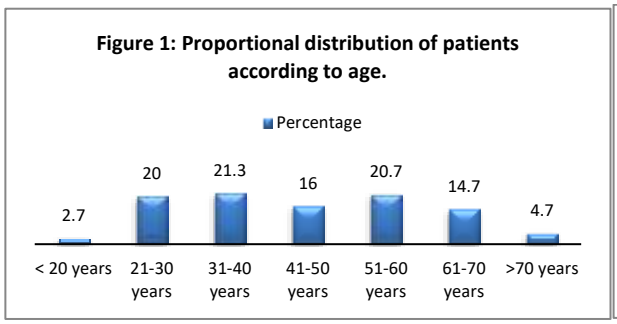
Study Plan:

After meeting the inclusion and exclusion criteria, 150 eligible patients were included in the study 100 for THR and 50 for TKR. The clinical, radiographic data and post-operative complications of patients were extracted from their medical records. PCS is comprised of four subscales including physical function, role limitations caused by physical problems, bodily pain, and general health.

Reliability of the SF-36

To determine whether the SF-36 was equally reliable across different surgical categories, we calculated Cronbach's coefficient α as a measure of internal consistency for each of the multi-item subscales of the SF-36 in each of the groups(2). Significance was defined as a two-tailed *p* value ≤.05 for all statistical tests.

Results



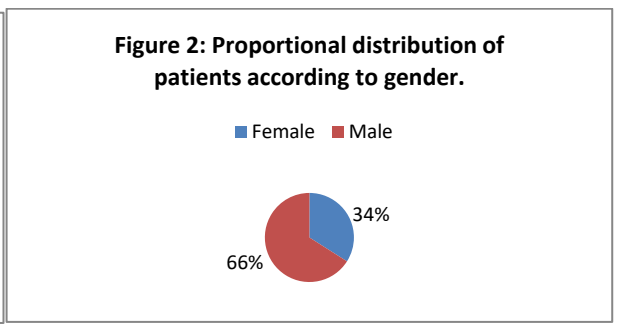


Figure 1 shows proportional distribution of patients according to the age group where highest proportion was 31-40 years i.e. 21.3% and least proportion were amongst the age group of <20 years.

Figure 2 illustrates distribution of study participants according to gender, majority of them where male (66%) and rest were female (34%).

Table 1: Mean and Standard deviation

Varibles:	Mean	Std. Deviation	Minimum	Maximum
Age	37.570	12.8741	18.0	71.0
SF36-Pre op	18.09	2.37	13.89	24.44
SF36-after 6 months of THR	39.86	2.99	34.72	45.61
SF36-after 1 year of THR	59.35	6.4	34.78	67.22

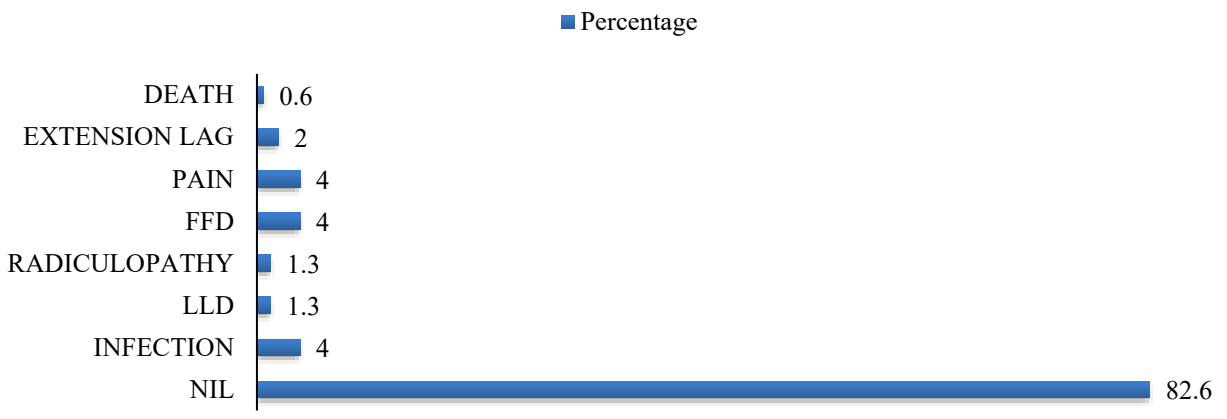
The above table demonstrates mean age ± SD = 37.5 ± 12.8; mean SF-36 (pre-op) ± SD = 18.1± 2.37; mean SF36 (after 6 months) ± SD = 39.86 ± 2.9 and mean SF36 (after 1 year) ± SD = 59.3 ± 6.4.

Table 2: Statistical analysis using paired z test (in THR patients)

In THR patients									
Paired Samples Test		**Mean (Paired Difference)**	**Std. Deviation**	**Std. Error Mean**	**Lower (95% Confidence Interval of the Difference)**	**Upper**	**z**	**df**	**Sig. (2-tailed)**
Pair 1	SF36-1* - SF36-2**	-21.77	2.61	0.26	-22.29	-21.25	-83.437	99	.000
Pair 2	SF36-2** - SF36-3***	-19.50	6.57	0.66	-20.80	-18.19	-29.659	99	.000
Pair 3	SF36-1* - SF36-3***	-41.27	6.54	0.65	-42.57	-39.97	-63.078	99	.000
In TKR patients									
Pair 1	SF36-1* - SF36-2**	-21.70	2.68	0.38	-22.46	-20.94	-57.224	49	.000
Pair 2	SF36-2** - SF36-3***	-19.69	6.55	0.93	-21.55	-17.83	-21.248	49	.000
Pair 3	SF36-1* - SF36-3***	-41.39	6.53	0.92	-43.25	-39.54	-44.829	49	.000

*SF36-1=Pre-op SF36 score**SF36-2=Post op SF36 score at 6 months ***SF36-3=Post-op SF36 score at 1 year

Figure 3: Proportional distribution according to post-op complications



A total of 150 patients were registered for study out of which, 50 (33.3%) patients underwent TKR and 100 (66.7%) had THR.

Highest proportion of patients belonged to 31-40 years of age group, whereas mean age ± SD was 49.13 ± 15.53(Figure1). Majority proportion of patients i.e. 66% comprised of male population and female comprised of 34% of the patients (Figure 2). Mean value ± SD of SF36 score at pre-op, on six months of follow-up and 1 year after follow-up is 18.09± 2.37, 39.86 ± 2.99 and 59.35 ±6.4 respectively (Table 1).

Paired z test was applied to compare the mean SF 36 score pre-op and post op after surgical intervention. Three pairs were indentified SF36 mean score at pre-op, SF-36 mean score at 6 months of follow-up and SF-36 mean score at 1 year follow-up. Patientswho underwent TKR and THR, showed statistically significant differences in SF-36 score with p-value <0.001.

82.6% patients did not had any post-op complications, 4% had Infection, chronic pain and FFD; 2% had extension lag; 1.3% had radiculopathy and LLD (Figure3). One mortality was reported during post-op observation period which was natural death.

DISCUSSION

In this report, we demonstrate that the SF-36 was responsive in the expected direction over time, as judged by what is known clinically about recovery after the two surgeries studied:

In our study mean age ± SD was 49.13 ± 15.53, 66% were male which is comparable to following studies:

S.No	Study	Sample	Mean Age	Female
1	Shields et.al	43	58±2.3	30
2	Hamel MB et.al	174	75	132
3	Santic et.al	74	70.8±2.5	53
4	Our study	150	49.13 ± 15.53	51

In our study the mean SF-36 score improved from 18.1± 2.37 pre operatively to 59.3 ± 6.4 at one year follow up which is comparable to study by Shields et.al which shows similar results where mean SF- 36 score pre operatively was 10.53 pre operatively and 53.95 at one year follow up.

In our study patients who underwent TKR and THR, showed statistically significant differences in SF-36 score with p-value <0.001 at level of both physical and mental health ,which is comparable to study by **Santic et.al** which shows statistically significant improvement ($p<0.001$) at the level of physical function, role limitations due to physical problems, social function, energy or vitality, pain but at the level of mental health assessment there were recorded no statistically significant differences.

CONCLUSION

We consider the structure of the SF-36 questionnaire to be appropriate for assessment of outcomes following these surgical procedures which are basically aimed at reducing pain and enabling better mobility of patients and significantly enhances their health related quality of life.

Biblography

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