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**Is life Easier and More Pleasurable after Total Hip Arthroplasty?**

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**Abstract:**

Background: Evaluation of outcome of surgeries has shifted to self-evaluation. Health outcome should be defined for each case and be measured by valid and standardized tools. The aim of this study is to evaluate the effect of THA on various aspects of patients' life, including their social, familial, and psychological activities, as well as their physical performance.

METHODS: This study evaluated 220 patients who underwent total hip arthroplasty because of hip joint osteoarthritis in Baqhiatallah university hospitals, Tehran and Kashani hospital, Isfahan from 1998 to 2008. Control group included 220 patients of the same age group admitted in hospitals and orthopedic clinics because of hip joint osteoarthritis and have not undergone arthroplasty until now. Patients were evaluated thoroughly by "Short form of general health status" (SF-36), "The Disease Specific Symptom (WOMAC)" Questionnaire, the "Arthritis Patient Preference Disability" Questionnaire.

RESULTS: Mean scores of SF-36 and Womac questionnaires were  $53.07 \pm 18.43$  and  $63.02 \pm 17.42$  respectively for control group, while the determined scores for control group were  $81.3 \pm 16.31$  and  $42.53 \pm 18.73$ , respectively.

The scores obtained from these two questionnaires showed a 23.3% improvement in general health status and an 18.1% improvement in specific symptom of the disease in case group. The two groups had a significant difference considering these two parameters ( $P < 0.001$ ).

CONCLUSIONS: Total hip arthroplasty increased quality of life, improved function and produced great satisfaction in the majority of cases in our society

**Keywords: Arthroplasty, Hip, Health outcome**

**Introduction:**

Evaluation of outcome of surgeries has shifted to self-evaluation. In general outcome is the experience or feeling of a patient about the ultimate result of a specific treatment.

What is finally reached or remains for the patient after a surgical or medical intervention, is the best and most fundamental index to judge the efficacy of the treatment.<sup>(1)</sup>

Health outcome should be defined for each case and be measured by valid and standardized tools. It means that results should be evaluated uniformly and the tools that are used (either questionnaire or any other tools) should be tested repeatedly to prove that each time we use the test, reliable and similar results are obtained. Measurement of patients' quality of life for outcome evaluation has found extensive applications.<sup>(2)</sup>

Although difficult to define precisely, quality of life has an inherent meaning to most people. It is comprised of broad concepts that affect global life satisfaction, including good health, adequate housing, employment, personal and family safety, education, and leisure pursuits. For matters related to health care, quality of life has been applied specifically to those life concerns that are most affected by health or illness, hence the term "health-related quality of life" (HRQL).<sup>(3)</sup> Although length of survival was previously considered the most important among these, the impact of illness on quality of life (HRQL) has received increasing recognition.<sup>(4)</sup>

Katz et al. have used "daily activity" in the elderly and McDowell employed "psychological health index".<sup>(5-6)</sup> Patrick et al.

introduced the first valid index for welfare quality of health status in 1973.<sup>(7)</sup> "Performance outcome" evaluates the individual's performance at the most comprehensive level and not only what a specific joint or status performs. This outcome is determined by questionnaires.<sup>(8-9)</sup> Questionnaires should measure the items that the patient is able to answer on the basis of treatment results. For this purpose, several questionnaires have been designed. Some of these questionnaires are: "short form of general health outcome" (SF-36) to evaluate physical and psychological health of patients, "WOMAC" questionnaire which was designed by Western Ontario and McMaster universities to evaluate osteoarthritis with more details, and also the "preferred disability of arthritis patients" (MACTAR) questionnaire.<sup>(10-13)</sup>

The strengths and difficulties questionnaire (SDQ) is a brief questionnaire used to screen the psychiatric disorders among children and adolescents. It also detects the probable distress or social impairment of the child, which would be caused by the symptoms. This scale prevents from over estimating the detection of childhood psychiatric disorders.<sup>(14)</sup> Patients' satisfaction with the treatment they received, is another method for measurement of treatment outcome.<sup>(15)</sup>

One of the surgical operations that is done extensively is total hip arthroplasty (THA). It is considered as the ultimate treatment for advanced osteoarthritis of hip joint and also as a therapeutic choice for fracture of neck of femur in elder patients who are functionally active and have bone with good quality.<sup>(16)</sup>

Indications for total hip replacement are greatly controversial and are the subject of many papers published each year. Results of various studies indicate that results of hip joint replacement in the young are better than the results of other therapeutic treatments such as fracture fixation or arthrodesis.<sup>(17-23)</sup>

In our country, THA is considered the last choice for advanced osteoarthritis of hip joint. Patients who undergo THA experience different problems such as pain, impairment of function, and limitation of motion.

Ritter et al. reported that general health status of osteoarthritis that underwent hip or knee joint replacement, regardless of the type of surgery, significant improvement was observed.<sup>(24)</sup>

The reported studies have different results about the psychological status and also post-surgical movement ability of patients. Moreover, life style and expectations of our people is different from that of other countries' people. In our country, people more often sit down on the ground and use different types of toilet. The differences in life style and traditions make the results of our study on hip replacement different from results of studies conducted in US and Europe. The aim of this study is to evaluate the effect of THA on various aspects of patients' life, including their social, familial, and psychological activities, as well as their physical performance.

#### **Materials and Methods:**

This study evaluated 220 patients in the age range of 50-70 ( $63 \pm 0.4$ ) who underwent total hip arthroplasty because of hip joint osteoarthritis in Baqhiatallah

university hospitals, Tehran and Kashani hospital, Isfahan from 1998 to 2008. The patients did not have any known psychological or physical disease which affects their physical or emotional activities. Other joints of lower extremities were normal in these patients. Patients who had any other disorders or complication after surgery were excluded from the study. Control group included 220 patients of the same age group admitted in hospitals and orthopedic clinics because of hip joint osteoarthritis and have not undergone arthroplasty until now. The inclusion criteria of this patients were like to the case group. Written consent was obtained from all patients before inclusion.

Patients were evaluated thoroughly by pain, physical activity, psychological health, and self satisfaction questionnaires. Measurement tools were: "Short form of general health status" (SF-36) questionnaire with the scoring scale of 0 to 121, with 121 showing the best status of the patient. The questionnaire measures life quality in eight aspects of physical performance, physical limitation, physical pain, general health, liveliness, social performance, psychological problems, and psychological health. This questionnaire is validated in our country. The disease specific symptom (WOMAC) questionnaire on the scale of 0 to 113 with 113 denoting the worst status of the patient, the "Arthritis patient preference disability" questionnaire with the scoring scale of 0 to 50, with 50 shows the worst status.

The scores obtained from the questionnaires were compared. Descriptive data were collected. The data were analyzed

by SPSS software V. 11.5 by nonparametric Fisher, chi square, Kruskal-Wallis, and Mann-Whitney tests. The level of significance was considered less than 0.05.

**Findings:**

220 patients who underwent hip joint replacement surgery were compared with 220 patients of the same age group. The average age of case and control groups was  $63 \pm 0.4$  and  $61 \pm 0.1$ , re-

spectively ( $P$ -value $>0.05$ ). Out of case and control groups, 151 and 173 were female, respectively. In case group 215 patients and in control group 209 patients had secondary osteoarthritis and others had primary osteoarthritis. Mean scores of SF-36 and WOMAC questionnaires were  $53.07 \pm 18.43$  and  $63.02 \pm 17.42$  respectively for control group, while the determined scores for case group were  $81.3 \pm 16.31$  and  $42.53 \pm 18.73$ , respectively (table-1).

**Table1-** The classification of the studied patients based on sex, age, type of osteoarthritis and the mean scores of SF-36 and WOMAC questionnaires.

Case	Control	Variable
$63 \pm 0.4$	$61 \pm 0.1$	Mean of age
69	47	Male
151	173	Female
5	11	Primary Osteoarthritis
215	209	Secondary Osteoarthritis
$81/3 \pm 16/31$	$53/07 \pm 18/43$	SF-36
$42/53 \pm 18/73$	$63/02 \pm 17/42$	WOMAC

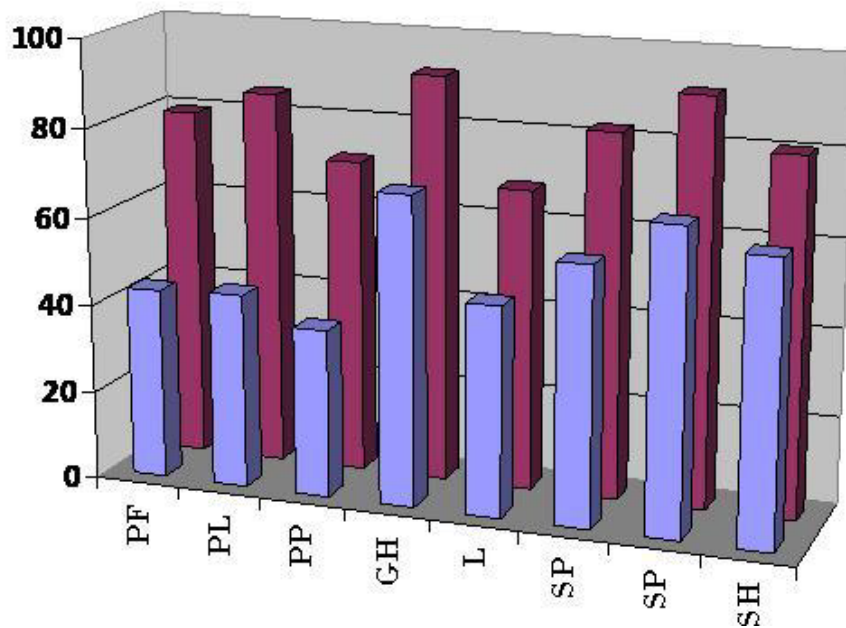
The SF-36 questionnaire showed improvement in life quality in eight aspects of physical performance, physical limitation, physical pain, general health, liveli-

ness, social performance, psychological problems, and psychological health (Table2\_Figure2).

**Table 2:** SF-36 Results

Scale	Surgery Group Mean(SD)	Case Group Mean(SD)	P-Value
Physical Performance	79.57(18.43)	48.35(18.61)	0.000
Physical Limitation	85.13(23.76)	49.13(27.63)	0.000
Physical Pain	71.34(14.91)	42.06(13.36)	0.000
General Health	91.88(25.04)	69.99(17.83)	0.011
Liveliness	68.10(9.89)	47.54(23.85)	0.000
Social Performance	82.33(18.23)	58.35(23.45)	0.000
Psychological Problems	91.55(24.16)	68.43(28.01)	0.011
Psychological Health	80.35(15.69)	53.55(11.06)	0.000

Figure 2: SF\_36 results in surgery and control group



The WOMAC questionnaire showed improvement in pain, stiffness, physical performance and general health.

The scores obtained from these two questionnaires showed a 23.3% improvement in general health status and an 18.1% improvement in specific symptom of the disease in case group. The two groups had a significant difference considering these two parameters ( $P < 0.001$ ).

Concerning the individual's satisfaction with health status, 38% of control group and 5% of case group reported it to be "poor". 13% of case group and none of control group evaluated this index to be excellent. Out of control group, 73% noted worsening of general health during the year prior to study, while in spite of getting older, only 17% of case group reported this. 69% of the control group mentioned severe pain as the main com-

plaint, but only 19% of the case group reported transient pain.

Friendly relationship decreased in 38% of the control group and 8% of the case group. Compatibility of outdoor and indoor activities impaired in 63% and 31% of case and control groups, respectively.

The physical activities which were improved significantly after surgery included sitting on a chair and standing up ( $P = 0.006$ ), climbing up and down the stairs ( $P = 0.034$ ), walking on a flat surface ( $P = 0.001$ ), and getting in and out of a car ( $P = 0.023$ ).

Heavy outdoor activities and standing up from the ground did not improve significantly ( $P \geq 0.05$ ).

Items of MACTAR included the problem patients experienced before surgery which are in the following descending importance order: reduction of pain severity, sitting down and standing up from the ground, problems in using Iranian

toilet, and climbing up and down the stairs.

#### **Discussion:**

Health information are obtained from specific academic tests or valid questionnaires filled by the patients. The reported studies about quality of life after total hip arthroplasty have different results. Considering this and also the differences in life styles and peoples' expectations of our country with other countries' people, it was necessary to carry out this study to determine the effect of THA on patients' general health as well as knee joint function and reaching the patients' expectation of this surgery.

Similar to most other studies, our patients were most female and most of patients had secondary osteoarthritis. The ratio of female to male osteoarthritis prevalence was 3.7 in our study, which was higher than that reported in many other studies.<sup>(25)</sup>

Significant increase in SF-36 score to 81.3 and decrease in WOMAC score to 42.3 demonstrate that THA has positive effect on patients' quality of life.

A study conducted in Sweden demonstrated that THA improves the quality of life in patients, especially relieves pain and improves sleep, energy, and social activities of patients.<sup>(26)</sup> Mancuso et al. carried out a similar study and reported that social activities of patients improve after THA.<sup>(27)</sup> These studies did not evaluate the psychological status and also post-surgical movement ability of patients.

Despite some other study, we find improvement in life quality in eight aspects of physical performance, physical limita-

tion, physical pain, general health, liveliness, social performance, psychological problems, and psychological health in patients after total hip arthroplasty other than control group.

In one study, Jandori et al reported that total hip arthroplasty improve quality of life in men than women.<sup>(28)</sup> In other studies reported that total hip arthroplasty improve quality of life other than total knee arthroplasty and quality of life in patients with femoral neck fracture that have been treated with arthroplasty are better than patients that have been treated with ORIF.<sup>(29-30)</sup>

In two studies reported that total hip arthroplasty improve quality of life in aspects of social performance, psychological health and physical performance but has not effect on general health.<sup>(31-32)</sup>

In other study, Lapaj et al reported improvement in pain severity and physical performance without improvement in aspects of social performance and psychological health.<sup>(33)</sup>

In one study reported that all aspects of quality of life improve after total hip arthroplasty, that is similar to our results.<sup>(34)</sup>

In our study, we observed significant improvement in pain relief, emotional and friendly relation of patients, indoor and outdoor activities, doing specific activities such as sitting on a chair and standing up, climbing up and down the stairs, walking on a flat surface, getting in and out of a car, compared with the control group. The least improvement was observed in heavy outdoor activities and standing up from the ground which can be due to old ages of patients.

It seems that employing the three methods of "performance outcome" can an-

swer most questions about hip joint replacement" in our society.

Concerning the significant effect of THA on quality of life improvement in patients with hip joint osteoarthritis, this treatment can be suggested to all patients suffering this disease.

We think that this controversies about result of total hip arthroplasty on quality of life are due to different life styles and expectations of patients in defferent countries and we advise to do more study with cross-cultural adaptation.

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