

Original Article

Does Gender Affect Satisfactions of Patients with Total Hip Arthroplasty?

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Abstract

Purpose: Patient satisfaction in orthopedic surgeries may differ according to age, gender, diagnosis, lifestyle, and cultural habits. The objective of this study was to investigate the satisfactions of patients with total hip arthroplasty (THA) in terms of gender.

Methods: Primary THA patients who had undergone surgery at least 6 months before, aged 18 years or more, were enrolled in the study. All the patients were operated upon by the same surgeon. Patients with THA were evaluated by clinical status and satisfaction questionnaire, and differences were investigated between genders.

Results: In total, 94 patients (35 male, 59 female) were included, with a mean age of 57.1±14.6 years. The ability of the operation to reduce the medical need for pain was the most satisfactory parameter, while activity and work level for the last three months was the least satisfactory parameter for the patients. There was no significant difference between male and female satisfaction level.

Conclusion: We found no significant difference between genders regarding clinical status and satisfaction. Thus, we concluded that gender is not important in determining the treatment goals of patients following THA.

Keywords: Gender, joint arthroplasty, satisfaction, total hip arthroplasty

INTRODUCTION

Pathologies of the hip joint cause the deterioration of hip mechanics and prevent the normal functioning of the hip. These pathologies induce deformations, weakness of hip muscles, and limitation of hip movement. Thus, individuals are precluded from using their hip joints in daily living activities, and their quality of life decreases and social life is restricted (1). Total hip arthroplasty (THA) has revolutionized the care of patients with end-stage joint disease, leading to pain relief, functional recovery, and substantial improvement in the quality of life (2). Hip arthroplasty is the most commonly used arthroplasty procedure for the human locomotor system. This patient group is treated most intensively by physiotherapists after stroke (3). Patients undergo joint arthroplasty because of the reduction of symptoms, improvement of physical functions, and improvement of psychosocial well-being (4-8). Patients' satisfaction after arthroplasty should be evaluated. The assessment of patient satisfaction is considered to be the most important factor affecting the success of the arthroplasty surgeon. The assessment of patient satisfaction is a complex structure that is based on a number of general assumptions. The first assumption is that patient satisfaction is influenced by the health condition. The second assumption is that satisfaction is influenced by patients' expectations, demographic characteristics (such as age, education, and gender) and psychosocial variables (9). Despite extensive literature on the clinical outcomes after joint arthroplasty, very few studies have evaluated patient satisfaction (10). Patients are receiving insufficient rehabilitation due to unknown patient satisfaction. This affects the cost of treatment and the efficient use of rehabilitation resources (11).

Women differ from men in many factors, such as in having high fat mass, low muscle mass, short length, more femoral anteversion angle, in pelvic structure, and in neuromuscular strength. Additionally, hip dislocations are seen four times more commonly in women than men (12). Differences between men and women should be considered in the design and application of hip and knee prostheses (13, 14). Studies on total knee arthroplasty (TKA) report that consideration of lifestyles and cultural and gender differences were important in terms of patient expectations and satisfactions (11, 15). In the literature, gender-based differences were investigated in THA outcomes, including survivorship, revision reasons, quality of life and function scores, and differences in implant size and offset (16). However, there has not been adequate study on the satisfactions of patients following THA. Our aim is to examine the patient's clinical situation and satisfaction, according to the gender, after THA.

METHODS

Patients

One hundred eighty-four patients, who underwent THA at least 6 months before and who were operated upon by the same surgeon, were recruited in our study. The median surgery time for the patients was 4 years (range: 6 months to 10 years). We excluded 38 patients because of missing or wrong contact information, and 52 patients were excluded owing to the exclusion criteria given below. As a result, 94 (59 female and 35 male) patients with THA were included in our study. All patients were operated with the same implants, and all underwent the same rehabilitation program before being discharged from the hospital.

The inclusion criteria were: a) 18 years old or above, with b) unilateral THA due to coxarthrosis, avascular necrosis, or congenital hip dislocation, and c) nationality being a citizen of Turkey. The exclusion criteria were: a) have undergone treatment due to arthritis in other joints, b) THA due to hip fracture, c) neurological or medical conditions causing locomotor disability, and d) revision hip prosthesis.

Informed consent was obtained from all patients in accordance with the Declaration of Helsinki. This study was approved by the local ethics committee (Ethical Committee for Human Research, University Hospital protocol number 2010/04-18). Our study was not blinded; all patients were evaluated by the same physical therapist who had three years of experience in orthopedic physical therapy.

Outcome Measures

The age, gender, height, weight, body mass index, and affected side of the patients were recorded in the evaluation form by mutual interview and registration method. A total of 15 items of the modified THA clinical assessment and satisfaction questionnaire, consisting of 10 questions on clinical parameters and 5 questions on patient satisfaction parameters, were administered (17). Survey results with scores of 1 (bad), 2 (weak), and 3 (middle) were classified as not satisfied; scores of 4 (strong) and 5 (excellent) were classified as satisfied.

Statistical Analysis

All statistical tests were performed using the Statistical Package for Social Sciences version 20 (IBM Corp.; Armonk, NY, USA) software, and mean values were shown with \pm SD and frequencies were also shown in percentage. Paired-samples t test was used for the calculation of the difference between male and female. The level of significance was determined as $p < 0.05$.

RESULTS

The gender-specific demographic characteristics of the patients are given in Table 1. The ability of the operation to reduce the medical need for pain, pain relief, and the ability to get up from the sitting position were the most satisfactory parameters for the patients (Table 2). The activity and work levels, ability to climb stairs, and the activity and work levels for the last three months were the least satisfactory parameters for the patients (Table 2). There was no significant difference between the clinical status and satisfaction level for male and female (Table 3) ($p > 0.05$).

Table 1. Patient and clinical characteristics

Demographic Characteristics	Female SD, n (%)	Male SD, n (%)	p
Age (years)	57.10 \pm 13.12	57.09 \pm 17.21	0.99
Height (m)	1.56 \pm 0.06	1.69 \pm 0.06	0.00
Weight (kg)	73.14 \pm 11.23	81.78 \pm 13.71	0.00
BMI (kg/m ²)	29.93 \pm 4.72	28.47 \pm 4.11	0.13
Unilateral THA	38 (64.4)	20 (57.1)	
Bilateral THA	21 (35.6)	15 (42.9)	0.48

BMI: body mass index; THA: total hip arthroplasty

Table 2. Clinical status and satisfactions postoperatively

Clinical status and satisfaction parameters	Satisfied n (%)	Dissatisfied n (%)
1. Activity and work levels	69 (73.4)	25 (26.6)
2. Activity and work levels for the last three months	68 (72.3)	26 (27.7)
3. Low level of hip pain	80 (85.1)	14 (14.9)
4. Ability to wear socks and shoes	70 (74.5)	24 (25.5)
5. Ability to climb stairs	69 (73.4)	25 (26.6)
6. Ability to lift from sitting position to standing position	87 (92.6)	7 (7.4)
7. Less frequent need for support during walking	76 (80.9)	18 (19.1)
8. Excess of time/length when walking without support	72 (76.6)	22 (23.4)
9. Excess of time/length when walking with support	83 (88.3)	11 (11.7)
10. The degree of limping while walking	77 (81.9)	17 (18.1)
11. Operation-increased functions	82 (87.2)	12 (12.8)
12. Operation-reduced pain	92 (97.9)	2 (2.1)
13. Operation-reduced medication requirement for pain	93 (98.9)	1 (1.1)
14. Patient is satisfied with the results	87 (92.6)	7 (7.4)
15. The state of the hip when compared to the last visit	92 (97.9)	2 (2.1)

DISCUSSION

Total hip arthroplasty has been repeatedly documented to be one of the most satisfactory surgical procedures for pain relief and functional restoration in patients with advanced osteoarthritis (4, 17, 18). Assessing and investigating patients' satisfactions with THA are important for many reasons (6, 19, 20). For example, satisfaction has been related to increased patient adaptation, which is important in obtaining maximum prosthesis longevity. Patients who are satisfied are also inclined to return for follow-up care (6, 8).

In our study, we investigated the satisfactions of patients with elective THA. The results revealed that the highest satisfactions following THA were as follows: reduction in the medical needs to relieve pain (98.9%), reduction in pain (97.9%), and an increase in the ability to rise from the sitting position to the standing position (92.6%), while the lowest satisfactions were as follows: the levels of activity and work during the last three months (72.3%), the levels of activity and work (73.4%), and the ability to walk up and down the

Table 3. Clinical status and satisfactions in females and males postoperatively

Clinical status and satisfaction parameters		Female n (%)	Male n (%)	p
1. Activity and work levels	Satisfied	43 (72.9)	26 (74.3)	0.88
	Dissatisfied	16 (27.1)	9 (25.7)	
2. Activity and work levels for the last three months	Satisfied	43 (72.9)	25 (71.4)	0.88
	Dissatisfied	16 (27.1)	10 (28.6)	
3. Low level of hip pain	Satisfied	47 (79.7)	33 (94.3)	0.06
	Dissatisfied	12 (20.3)	2 (5.7)	
4. Ability to wear socks and shoes	Satisfied	43 (72.9)	27 (77.1)	0.65
	Dissatisfied	16 (27.1)	8 (22.9)	
5. Ability to climb stairs	Satisfied	40 (67.8)	29 (82.9)	0.11
	Dissatisfied	19 (32.2)	6 (17.1)	
6. Ability to lift from sitting position to standing position	Satisfied	54 (91.5)	33 (94.3)	0.62
	Dissatisfied	5 (8.5)	2 (5.7)	
7. Less frequent need for support during walking	Satisfied	47 (79.7)	29 (82.9)	0.70
	Dissatisfied	12 (20.3)	6 (17.1)	
8. Excess of time/length when walking without support	Satisfied	43 (72.9)	29 (82.9)	0.27
	Dissatisfied	16 (27.1)	6 (17.1)	
9. Excess of time/length when walking with support	Satisfied	52 (88.1)	31 (88.6)	0.95
	Dissatisfied	7 (11.9)	4 (11.4)	
10. The degree of limping while walking	Satisfied	48 (81.4)	29 (82.9)	0.63
	Dissatisfied	11 (18.6)	6 (17.1)	
11. Operation-increased functions	Satisfied	51 (86.4)	31 (88.6)	0.76
	Dissatisfied	8 (13.6)	4 (11.4)	
12. Operation-reduced pain	Satisfied	58 (98.3)	34 (97.1)	0.70
	Dissatisfied	1 (1.7)	1 (2.9)	
13. Operation-reduced medication requirement for pain	Satisfied	58 (98.3)	35 (100.0)	0.44
	Dissatisfied	1 (1.7)	0 (0.0)	
14. Patient is satisfied with the results	Satisfied	56 (94.9)	31 (88.6)	0.26
	Dissatisfied	3 (5.1)	4 (11.4)	
15. The state of the hip when compared to the last visit	Satisfied	58 (98.3)	34 (97.1)	0.70
	Dissatisfied	1 (1.7)	1 (2.9)	

stairs (73.4%). It was observed that patients improved their health status in the first three months after joint replacement surgery. Many health status scores continue to increase up to the sixth month, and some parameters increase up to one post-operative year, but this increase is not as high as the first three months (21). Generally, patients return to their former activities of daily living (ADL) within 3-6 months (9). Functional gains are typically seen after the pain has disappeared. The key factor in postoperative healing is the ability to rapidly gain a sufficient level of functional independence in ADL. For all these reasons, we included THA patients who had completed at least the 6th month and satisfaction levels. Additionally, owing to the afore-mentioned information, we thought that the patients' highest satisfactions were related to the reduction in pain and the lowest satisfactions were related to the functional ability in our study. Understanding satisfaction also enables a better future selection of patients and an additional dimension of outcome, both of which are important to patients and payers (6). Therefore, it is important to evaluate patients' satisfactions and views in detail. Furthermore, satisfaction with THA is a complex phenomenon affected by many factors, such as outcome score, age, gender, diagnosis, and lifestyle (6, 9).

Most of the THA satisfaction studies to date have queried patients in the context of larger studies or have addressed satisfaction with surgical care and preoperative information

(6). Few studies have focused specifically on satisfaction with the results of THA (6, 7, 10, 15). In these studies, satisfaction was 86.0% or greater; however, among the satisfied patients, there were complaints of residual pain and limitations. In general, dissatisfaction was linked to demographic factors, technical complications, and unrelieved symptoms. These studies, however, were conducted prior to many of the current advances in hip arthroplasty (6, 7, 10, 15). In our study, satisfaction was 98.9% and patients were satisfied in terms of pain relief as opposed to literature. We thought that this was because of the excess of young people in the patient population, and the average duration of the patients' surgery was 4 years in our study. In the literature, it is observed that most of the studies evaluating THA results and patient satisfaction are done by surgeons or by patients (17, 22, 23). In our study, patients were assessed by a physiotherapist who was not involved at any stage of the treatment procedure. Thus, the results of the arthroplasty surgeon were provided in an impartial manner. In this respect, the results of our study are important as the study was prevented from taking sides with the patient or the surgeon. Previous studies have reported that satisfaction with THA was associated with limp absence, pain relief, and function improvement (8, 17, 23). Several preoperative risk factors for dissatisfaction have been identified: higher age, female gender, co-morbidities, associated conditions affecting walking capacity, mental distress, higher pain, and lower socioeconomic status (23, 24). There is, however, no evidence for

a strong influence of any of these factors (23). Clearly, gender differences do exist in terms of the timing of patients' access to surgical treatment, use of arthroplasty, and the level of disability before treatment. Variations in proximal femoral bone density and morphology do exist; multiple factors, including race, individual size and weight, presence or absence of osteoporosis, and gender, all play a role (16). For that reason, we investigated whether there were differences between male and female satisfactions following THA.

In our study 62.8% of the patients were females, 37.2% of the patients were males. The number of female patients in the literature is greater than the number of male patients, and the value of gender in our study was consistent with the literature (3, 7, 12). One of the main reasons for the more frequent application of THA in females may be that they have different forms of pain perception and their inability to cope with pain (25). Females described negative experiences with THA, and they certainly showed a reason for THA not being applied to them. However, THA patient groups are often composed of women in clinical and research studies (26-28). As a result of these studies, it was found that females had similar or better outcomes than males, and the two genders are affected at different levels by THA (26-29). This difference may be due to the morphological structures of men and women or the emotional differences between genders (27, 29). The results of the study by Walsh et al. (30) showed that men and women are affected differently by TKA. Women with TKA have shown increased pain, longer duration, and more effort and more functional limitations in the stair climbing test. Male patients with TKA showed less functional loss in the stair climbing test, but were found to have more loss in muscle strength and local muscle endurance. Similar to this study, both male and female patients with THA were not adequately satisfied with stair climbing, and male patients were more satisfied than female patients, but there were no significant differences between the two genders in terms of stair climbing in our study.

There is no evidence to support the hypothesis that women have worse outcomes than men, without the literature review and analysis showing that the criteria for success or failure are not defined. On the contrary, women have similar or better outcomes (29). Aktug et al. (31) found no significant differences between males and females in terms of satisfactions and functional gains following TKA. Similar to the study of Aktug et al. (31) there were no significant differences between the two genders in terms of satisfactions in our study. We determined that gender was not effective in the results of THA, and that it need not be considered for the treatment program after THA surgery. Males and females had similar gains in terms of function and pain following THA. However, the numbers of male and female patients in our study are not equal. In order to determine whether prosthetic design, surgical technique, and rehabilitation outcomes are influenced by gender, research should be conducted on more patients and in groups of patients with similar male and female distributions.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Dokuz Eylül University.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

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REFERENCES

1. Ünver B, Karatosun V, Gunal I, Angin S. Comparison of two different rehabilitation programmes for thrust plate prosthesis: a randomized controlled study. *Clin Rehabil* 2004; 18:84-91. [CrossRef]
2. Ünver B, Kahraman T, Kalkan S, Yuksel E, Karatosun V. Reliability of the six-minute walk test after total hip arthroplasty. *Hip Int* 2013; 23:541-545. [CrossRef]
3. Nguyen-Oghalai TU, Ottenbacher KJ, Granger CV, Goodwin JS. Impact of osteoarthritis on the rehabilitation of patients following a stroke. *Arthritis Rheum* 2005; 53:383-387. [CrossRef]
4. Mahomed NN, Liang MH, Cook EF, et al. The importance of patient expectations in predicting functional outcomes after total joint arthroplasty. *J Rheumatol* 2002; 29:1273-1279.
5. Mancuso CA, Graziano S, Briskie LM, et al. Randomized trials to modify patients' preoperative expectations of hip and knee arthroplasties. *Clin Orthop Relat Res* 2008; 466:424-431. [CrossRef]
6. Mancuso CA, Salvati EA, Johanson NA, Peterson MG, Charlson ME. Patients' expectations and satisfaction with total hip arthroplasty. *J Arthroplasty* 1997; 12:387-396. [CrossRef]
7. Eisler T, Svensson O, Tengström A, Elmstedt E. Patient expectation of satisfaction in revision total hip arthroplasty. *J Arthroplasty* 2002; 17:457-462. [CrossRef]
8. Noble PC, Condit MA, Cook KF, Mathis KB. Patient expectations affect satisfaction with total knee arthroplasty. *Clin Orthop Relat Res* 2006; 452:35-43. [CrossRef]
9. Jones CA, Beaupre LA, Johnston DW, Suarez-Almazor ME. Total joint arthroplasties: current concepts of patient outcomes after surgery. *Clin Geriatr Med* 2005; 21:527-541. [CrossRef]
10. Hamilton DF, Lane JV, Gaston P, et al. What determines patient satisfaction with surgery? A prospective cohort study of 4709 patients following total joint replacement. *BMJ Open* 2013; 3:p11: e002525.
11. Elibol N, Ünver B, Karatosun V. Investigation of expectations of patients having undergone total hip arthroplasty in our society. *J Orthopaedics* 2012; 9:e7.
12. Taper with Kinectiv Technology; Hip designed to fit the unique anatomies of women and men. Available at: URL: www.zimmer.com/ZimmerM/L
13. Atilla B, Oznur A, Çağlar O, Tokgözoğlu M, Alpaslan M. Osteometry of the femora in Turkish individuals: a morphometric study in 114 cadaveric femora as an anatomic basis of femoral component design. *Acta Orthop Traumatol Turc* 2007; 41:64-68.
14. İyem C, Güvençer M, Karatosun V, Ünver B. Morphometric evaluation of proximal femur in patients with unilateral total hip prosthesis. *Clin Anat* 2014; 27:478-488. [CrossRef]
15. Baumann C, Rat A, Osnowycz G, et al. Do clinical presentation and pre-operative quality of life predict satisfaction with care after total hip or knee replacement. *J Bone Joint Surg Br* 2006; 88:366-373. [CrossRef]

16. Kostamo T, Bourne RB, Whittaker JP, McCalden RW, MacDonald SJ. No difference in gender-specific hip replacement outcomes. *Clin Orthop Relat Res* 2009; 467:135-140. [\[CrossRef\]](#)
17. Mancuso CA, Jout J, Salvati EA, Sculco TP. Fullfillment of patients' expectations for total hip arthroplasty. *J Bone Joint Surg Am* 2009; 91:2073-2078. [\[CrossRef\]](#)
18. Barrack RL, McClure JT, Burak CF, Clohisy JC, Parvizi J, Hozack W. Revision total hip arthroplasty: the patient's perspective. *Clin Orthop Relat Res* 2006; 453: 173-177. [\[CrossRef\]](#)
19. Haddad FS, Garbuz DS, Chambers GK, Jagpal TJ, Masri BA, Duncan CP. The expectations of patients undergoing revision hip arthroplasty. *J Arthroplasty* 2001; 16:87-91. [\[CrossRef\]](#)
20. Amadio PC, editorial. Outcomes measurement: more questions; some answers. *J Bone Joint Surg Am* 1993; 75:1583-1584.
21. Kennedy DM, Stratford PW, Riddle DL, Hanna SE, Gollish JD. Assessing recovery and establishing prognosis following total knee arthroplasty. *Phys Ther* 2008; 88:22-32. [\[CrossRef\]](#)
22. Bullens PH, Van Loon CJ, De Waal Malefijt MC, Laan RF, Veth RP. Patient satisfaction after total knee arthroplasty: a comparison between subjective and objective outcomes assessment. *J Arthroplasty* 2001; 16:740-747. [\[CrossRef\]](#)
23. Palazzo C, Jourdan C, Descamps S, et al. Determinants of satisfaction 1 year after total hip arthroplasty: the role of expectations fulfillment. *BMC Musculoskelet Disord* 2014; 15:53. [\[CrossRef\]](#)
24. Hossain M, Parfitt DJ, Beard DJ, et al. Does pre-operative psychological distress affect patient satisfaction after primary total hip arthroplasty? *BMC Musculoskelet Disord* 2011; 12:122.
25. Altındağ Ö, Sirmatel Ö. Diz osteoartriti olan hastalarda demografik özellikler ve klinik parametrelerle ilişkisi. *Harran Üniversitesi Tıp Fak Dergisi* 2006; 3:62-66.
26. Tøye FM, Barlow J, Wright C, Lamb SE. Personal meanings in the construction of need for total knee replacement surgery. *Soc Sci Med* 2006; 63:43-53. [\[CrossRef\]](#)
27. Hawker GA, Wright JG, Coyte PC, et al. Differences between men and women in the rate of use of hip and knee arthroplasty. *N Engl J Med* 2000; 342:1016-1022. [\[CrossRef\]](#)
28. Kennedy LG, Newman JH, Ackroyd CE, Dieppe PA. When should we do knee replacement. *Knee* 2003; 10:161-166. [\[CrossRef\]](#)
29. Merchant AC, Arendt EA, Dye SF, et al. The female knee: anatomic variations and the female-specific total knee design. *Clin Orthop Relat Res* 2008; 466:3059-3065. [\[CrossRef\]](#)
30. Walsh M, Woodhouse LJ, Thomas SG, Finch E. Physical impairments and functional limitations: A comparison of individuals 1 year after total knee arthroplasty with control subjects. *Phys Ther* 1998; 78:248-258. [\[CrossRef\]](#)
31. Aktug BB. Total diz protezli hastaların fonksiyonel düzeyleri ile memnuniyet düzeyleri arasındaki ilişkinin incelenmesi. Yüksek Lisans Tezi. İzmir Dokuz Eylül Univ. 2009