

The Effect of Self-Care Education on Quality of Life for Patients with Hip Joint Replacement

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Abstract: Hip joint replacement is one of the most useful and most successful orthopedic surgery in patients with dysfunction of the joint. Since improving the quality of life in these patients is the main objective of treatment and care, self-care is required. This study aimed to study the effect of self-care education on quality of life for patients with hip joint replacement. In this clinical trial non-randomized by control group, 60 patients admitted to two selected hospitals of Iran University of Medical Sciences were selected as convenience sampling and were divided into two intervention and control groups (each n = 30). Data collection tools included demographic profile questionnaire and quality of life questionnaire SF-36. At the beginning, demographic profile form was filled out by the participants. Then, the patients in the intervention group were given self-care education using the training manual for 5 sessions of 45-30 min. The quality of life questionnaire SF-36 was completed by the patients at the day of clearance from hospital and 8 weeks after clearance. The data were analyzed by SPSS 20 Software using descriptive and inferential statistics. The mean score of quality of life in both control and intervention groups, 2 months after the intervention was not significantly difference ($p = 0.073$). But, changes in quality of life scores on clearance and 2 months after intervention in intervention group compared with the control group was significantly different and it was higher in the intervention group ($p < 0.001$). Self-care education is effective in improving the quality of life for patients with hip joint replacement.

Key words: Self-care education, quality of life, hip joint replacement, intervention, demographic profile

INTRODUCTION

According to the World Health Organization (WHO), hip joint replacement is known as one of the top ten advances in medicine in the last century. The use of this method has been able to reduce the suffering of hundred thousands of people around the world and restore the hope of returning to a normal life (Donald *et al.*, 2014). Hip joint is of great importance in the process of walking, and its smallest problem can be annoying for the patient. When the joint becomes damaged, it disrupts daily activities and therefore, treatment of hip joint replacement is necessary (Smeltzer *et al.*, 2012). In the United States of America, currently, >2.5 million people live with artificial hip joint (Kremers *et al.*, 2014). In the past 15 years, the rate of this surgery has been increased more than twice; so that it has reached from 138,000 cases in 2000 to >350,000 in 2014 (Dotinga, 2015). Now 300,000 people in the world are annually under this surgery and it is expected that this rate is 1.5 times by 2030 (Kurtz *et al.*, 2015). In our country, the rate of this surgery in the recent

years has been increased significantly and it is also increasing with respect to the transition of the population toward old (Mardani *et al.*, 2011).

The most common reason for having to replace the hip joint is severe osteoarthritis that leads to destruction of the hip joint and also is considered as a major cause of illness and disability in these patients. It is predicted that by 2020, osteoarthritis is the second leading cause of disability (Mancuso *et al.*, 2001). Disability from osteoarthritis imposes high costs to the community and it is said that 70% of hip replacement surgery is performed for the treatment of this condition (Chu *et al.*, 2014). On the other hand, statistics show that over 70% of people who undergo hip replacement surgery are elderly. Aging and disability from osteoarthritis on one hand and lack of proper care system as well as aware and available care givers for many of these patients on the other hand causes a delay in the process of recovery and rehabilitation, a negative impact on quality of life, increased surgical complications and finally increased mortality in these patients (Tsertsvadze *et al.*, 2014).

Studies show that one of the most significant changes followed by hip joint replacement is change in quality of life. Therefore, the aim of the treatment of these patients is to increase their quality of life and returning them to daily activities of life (Sinici *et al.*, 2008). Improving the quality of life of these patients not only reduces the cost of treatment but also reduces their stay in hospital. As well, it encourages the patients to do part of their activities and thus increase their self-care ability (Gordon *et al.*, 2014).

Today, one of the most common methods to improve the quality of life, especially in chronic disorders, is self-care education to patients. This is one of the most effective interventions to improve physical function and general health as well as psychological and social situation of patients which led to better patient prognosis and reduced rate of hospital readmission (Donald *et al.*, 2014). The most important aim of self-care education to the patients with hip joint replacement is to reduce surgical complications and subsequently fatality as well as managing this illness with self-care education approach. When the self-care ability of these patients is maximized their ability to make decisions and actions increases and their adjustment mechanisms raise. Hence, the aim of education for these patients is helping them to gain greater responsibility for self-care and cope with changes in their physical and practical conditions (Moulton *et al.*, 2015). Studies show that >90% of patients who undergo hip joint replacement surgery are satisfied with the outcome of their surgery but it may be surprising if we know only 25% of people who can benefit from the advantages of this surgery are willing to do this surgery. The main reason of that is the fear of possible problems caused by lack of proper self-care and long recovery periods (Cary *et al.*, 2016). A set of factors mentioned above, in addition to the lack of proper research in this field, made the researcher to conduct a research with the aim of determining the effect of self-care education on quality of life for patients with hip joint replacement.

MATERIALS AND METHODS

This study is a clinical trial non-randomized by a control group in which the effect of self-care education on quality of life for patients with hip joint replacement was measured. To do this research, the author after getting the permission from ethics committee and permission of research from Department of Nursing and Iran University of Medical Sciences referred to the selected medical centers. Then, he invited the research units with inclusion criteria (the ability to understand and speak Persian, having at least the knowledge to read and write, younger than 75 years, lack of sensory disorders especially visual and auditory, lack of cancer or other organic disorders

(dementia, stroke) or severe mental disorders, patients who are undergoing surgery for the first time, lack of restrictions on the movements in upper limbs, the accompaniment of the primary caregiver in the educational process) to cooperate after asking for permission from hospital managers and the authorities of orthopedic units and also introducing himself and explaining the objectives and methodology. After getting written consent, the patients were enrolled and randomly, the patients hospitalized in Rasoul Akram were placed in the interventional group (n = 30) and the patients hospitalized in Shafa Yahyaian hospital placed in the control group (30 cases). The data collection tool included 2 demographic profile questionnaire and standard measure of quality of life SF-36. The questionnaire was designed in 1992 by Ware and lacking any cultural times and has been also extensively tested for reliability and validity (Caqueo *et al.*, 2009).

The validity and reliability of the questionnaire SF-36 is approved in national and international studies. Persian Version of the questionnaire SF-36 for measuring quality of life has 36 items that is divided into 3 levels: questions; 8 measures that each is made of a combination of 2-10 questions including physical performance, physical restriction, physical pain, general health, jollity, social functioning, emotional problems and mental health; two summary measurements composed of the scales of physical health (physical functioning, physical limitations, bodily pain, general health) and mental health (social performance, emotional problems, mental health and jollity). Each dimension of the above questionnaire, proportional to the questions, measures different options in which the question consisted of the two options (yes, no) and six options (at all times, very often, often, sometimes, sometime, never). Each subscale score ranges from 0-100 where 0 is the worst and 100 the best position on the given subscale (Montazeri *et al.*, 2005).

At the beginning, demographic profile form was filled out by the participants. Then, for the patients in test group, face to face personal training was designed and carried out in three shifts: morning, afternoon and evening for 5 sessions of 30-45 min in the form of lecture, role playing and question and answer using pre-prepared manual. Training manual was developed based on principles of training the patient using library study and enjoyment of the comments of nursing teachers, one of the orthopedic surgeons, physiotherapists, nutritionist and ulcer expert and finally given to the patient at the first session of the training program. It was emphasized to study the topics of each session before starting the training session. The researcher encouraged the patient to discuss about the questions during each session. At the end of each session, the patient was asked to repeat the exercises and train the subjects as role playing in the

training class. In the first session, the research after introduction described the training program and the purpose of the intervention and the importance of patient cooperation and then explained the hip joint anatomy, the need for joint replacement, joint replacement benefits and limitations and types of joint replacement and self-care necessity. In the second session, the possible complications of hip joint replacement surgery were discussed. Each of the possible complications of surgery, including infection, implant dislocation, deep venous thrombosis and embolism, neural damage and limb inequalities is explained and the ways to prevent and minimize them were fully described. The third session was dedicated to mobility and activity after surgery. Proper situation after surgery, necessity of activity and mobility after surgery, the time of restarting activity, the use of walker to walk and some other limitations that should be complied after surgery were discussed by lecture, play and role playing. In the fourth session, wound care was discussed. Time of the wound dressing change, sterile wound dressing change, signs of possible infection, drugs, time of taking drugs and possible side effects were fully explained. Finally, the fifth session was about diet, prevent from constipation, prevention from bedsores and admission to the clinic as well as warning signs for an immediate visit of the doctor were discussed. It should be noted that all training sessions were planned and carried out after the surgery.

All sessions were held at the presence of the researcher, patients and their primary caregiver in the training class of orthopedic section of Rasool-e-Akram Hospital. This class is also equipped with a variety of teaching aids and equipment necessary to move the patient, such as stretchers, crutches and walkers. Patients in the control group were not given any training by the researcher and they receive routine training of hospital that includes educational pamphlets. Then, both groups filled out quality of life questionnaire at the time of clearance, 8 weeks after clearance and when referred to the clinic. It should be noted that training manuals and educational materials were given to patients in the control group when referring to the clinic in order to comply with ethical issues. After data collection and entry into SPSS Version 20, the data were analyzed using descriptive statistics and inferential statistics methods.

RESULTS

Among 60 patients in interventional and control groups, 68.3% were male ($n = 42$) with an average age of 45.86 years. No significant difference was found between the two groups in terms of education. Most of the participants in the study were able to perform personal tasks to a large degree and have a caregiver at home (Table 1).

Table 1: Comparison between intervention and control groups in terms of demographic variables

Variable	Control		Test	
	Number	Percent	Number	Percent
Age (years)				
Under 30	-	-	-	-
30-40	4	13.3	8	26.7
40-50	8	26.7	9	30.0
50-60	5	16.7	1	3.3
Above 60	4	13.3	5	16.7
Sex				
Female	9	30.0	7	23.3
Male	11	36.6	8	26.7
Education				
Reading and writing	19	63.3	23	73.3
High school diploma	10			
Diploma		33.3	10	33.3
Academic	9	30.0	6	20.0
The ability to perform personal tasks				
Very low	4	13.3	10	33.3
Low	7	23.3	4	13.3
High	1	3.6	2	6.7
Very high	10	35.7	10	33.3
Having care giver				
Yes	16	57.1	15	50.0
No	1	3.6	3	10.0

Table 2: Indices of quality of life and its areas for patients under study in the control group during clearance and 2 months later

Quality of life and its areas	On clearance		2 months after clearance		Paired t test result
	Mean	SD	Mean	SD	
Physical performance	87/27	64/19	00/33	49/19	$t = 274/2$ $p = 031/0$
Limitations to play role due to physical problems	66/21	04/26	61/22	00/24	$t = 504/0$ $p = 618/0$
Physical pain	33/42	03/20	72/54	02/19	$t = 490/4$ $p < 001/0$
Public health	21/25	04/20	88/35	82/19	$t = 190/4$ $p < 001/0$
Limitations to play role due to emotional problems	33/23	99/24	94/41	86/29	$t = 601/3$ $p = 001/0$
Mental health	00/26	39/23	72/43	96/21	$t = 815/4$ $p < 001/0$
Jollity	46/39	42/18	44/52	38/17	$t = 989/4$ $p < 001/0$
Social performance	50/37	56/18	16/46	11/16	$t = 138/3$ $p = 004/0$
Physical health	27/29	77/18	56/35	22/17	$t = 221/4$ $p < 001/0$
Mental health	57/31	75/17	09/46	05/17	$t = 393/5$ $p < 001/0$
Quality of life	42/30	69/17	31/41	08/16	$t = 469/5$ $p < 001/0$

In the control group, the average score for quality of life was 30.42 on clearance and 41.31, 2 months after clearance that was significantly increased (Table 2). In the interventional group, the average score for quality of life

Table 3: Indices of quality of life and its areas for patients under study in the intervention group during clearance and 2 months later

Quality of life and its areas	On clearance		2 months after clearance		Paired t test result
	Mean	SD	Mean	SD	
Physical performance	14/27	89/16	22/42	33/16	t = 216/6 p<001/0
Limitations to play role due to physical problems	00/15	21/24	95/30	52/34	t = 867/2 p = 008/0
Physical pain	83/33	29/17	54/54	93/12	t = 216/7 p<001/0
Public health	33/18	28/10	69/35	02/12	t = 307/9 p<001/0
Limitations to play role due to emotional problems	66/16	61/31	82/49	54/38	t = 917/4 p<001/0
Mental health	83/28	86/11	61/59	59/13	t = 074/10 p<001/0
Jollity	55/37	73/10	91/59	31/12	t = 237/9 p<001/0
Social performance	66/26	75/10	16/51	87/12	t = 424/9 p<001/0
Physical health	57/23	53/11	91/40	25/12	t = 706/9 p<001/0
Mental health	43/27	94/8	12/55	11/15	t = 159/12 p<001/0
Quality of life	50/25	51/9	03/48	15/12	t = 763/13 p<001/0

was 25.50 on clearance and 48.03, 2 months after clearance; paired t-test showed the significant difference ($p<0.001$) (Table 3). Also, total score quality of life after the intervention was 48.03 in the control group and 41.31 in the interventional group that the difference was not significant according to t-test. However, changes in quality of life score on clearance and 2 months after the intervention in the interventional group (8.96 ± 22.56) was statistically significant compared with the control group (10.90 ± 10.89) and it was greater in the interventional group ($p<0.001$) (Table 4).

In the control group, the difference in scores 2 months after clearance, except in the dimension of playing physical role ($p = 0.618$) was significant in other aspects of quality of life. In the interventional group, all aspects of quality of life score two months after clearance have significantly increased. In the control group, the maximum mean score on clearance and two months after clearance was related to the physical pain (42.33 and 54.72) and the lowest average score on clearance and two months after clearance was related to the physical role paying (21.66 and 22.61) (Table 2). In the interventional group, the maximum score before and after the intervention was related to the jollity (37.55 and 59.91) and the minimum score before and after the intervention was related to the physical role paying (15 and 30.95) (Table 3). In the control and intervention groups, on clearance and 2 months after the intervention, except in the area of playing

Table 4: Indices of quality of life and its areas for patients under study in both groups

Quality of life and its areas	On clearance		2 months after clearance		Paired t test result
	Mean	SD	Mean	SD	
Physical performance	13/5	37/12	07/15	28/13	t = 999/2 p = 004/0
Limitations to play role due to physical problems	95/0	34/10	95/15	47/30	t = 553/2 p = 015/0
Physical pain	39/12	11/15	71/20	72/15	t = 090/2 p = 041/0
Public health	67/10	95/13	35/17	21/10	t = 118/2 p = 038/0
Limitations to play role due to emotional problems	61/18	31/28	15/33	93/36	t = 712/1 p = 092/0
Mental health	72/17	15/20	77/30	73/16	t = 729/2 p = 008/0
Jollity	97/12	24/14	35/22	25/13	t = 639/2 p = 011/0
Social performance	66/8	11/15	49/24	23/14	t = 176/4 p<001/0
Physical health	29/7	45/9	33/17	78/9	t = 043/4 p<001/0
Mental health	49/14	72/14	69/27	47/12	t = 747/3 p<001/0
Quality of life	89/10	90/10	52/22	96/8	t = 513/4 p<001/0

emotional role, changes in quality of life score had statistically significant difference which was higher in the intervention group. The greatest change was in the area of social performance (8.66 and 24.49) and the lowest change in the public health area was (10.67 and 17.35) (Table 4).

DISCUSSION

This study aimed to investigate the effect of self-care education on quality of life for patients with hip joint replacement were performed. The results showed that most of patients were in the age group of 30-40 years old. Gordon *et al.* (2014) in their study reported that most of hip replacement age at 25-50 years of age and Rahman *et al.* (2013) reported in the age group of 30-50 years. In some studies, the average age of participants was higher than the present study (Moulton *et al.*, 2015; Cary *et al.*, 2016; Liebs *et al.*, 2016; Mariconda *et al.*, 2011), it can be said to justify this fact that in most of the above-mentioned studies, the inclusion criterion was only hip joint osteoarthritis and those patients who were candidate of hip joint replacement due to other causes such as osteoid trauma or tumors have not been considered among the study subjects. 68.3% of participants in the study were men. In a study by Mariconda *et al.* (2011), 70% and in a research by Cary *et al.* (2016), 65% of participants were men. Also,

81.3% of participants had high school diploma and lower that was consistent with Moulton *et al.* (2015). The results showed that 88.1% of patients had a caregiver at home and 53.55% of them had a great ability to perform personal activities. In the research by Palazzo *et al.* (2014) also, most participants in the study had a caregiver at home. In the research by Liebs *et al.* (2016), the ability of patients to perform personal activities was low. To justify this, we can say that as the average age of the participants in the mentioned study was over 60 years and many of the participants had other problems such as heart disorders or cognitive problems in addition to hip joint disorders, so their ability to do personal activities was lower.

The results of the present study showed that the average score and aspects of quality of life in the control and intervention groups on clearance was not significantly difference indicating the homogeneity of both groups in terms of quality of life. Also, the average score of quality of life in the two groups after 2 months was not significantly different but the groups had significant difference in terms of numerical indices of changes in quality of life. in the other words, despite the increased quality of life in different dimensions of the intervention group on clearance, this increase was occurred in the control group; however the comparison of changes in the two groups showed that this increase was higher in the intervention group that was the impact of education. The results of the study was consistent with Koroush (2008). His research showed that the quality of life in hemodialysis patients after self-care education in the intervention group has higher numerical index than the control group (20). Donald *et al.* (2014) in a review study stated that 6 weeks after hip or knee joint replacement surgery, the index of quality of life in patients in both groups was improved, but the increase in patients who receive training was more concrete. Davodi *et al.* (2007) in a research showed that the difference in the average score of quality of life between two groups was not significant after performing self-care program but there was significant difference in mental and psychological dimensions in favor of the intervention group. This study was consistent with the results of the present study (Davodi *et al.*, 2007). In a research by Aghajani *et al.* (2013) also, patients of the intervention and control groups before and after the self-care education program had no significant difference in terms of overall quality of life but there was a significant difference between the two groups in terms of the numerical index of quality of life ($p < 0.001$). This study indicates improved quality of life index changes in the intervention group compared with the control group that was consistent with the results of the current study.

Arefeh *et al.* (2012) showed that the total score of quality of life, after the intervention in both groups and there were no significant differences. But paired t-test showed that the total score quality of life in both intervention and control groups before and after the intervention was significantly different and quality of life in both groups is enhanced after the intervention that is consistent with the results of the present study.

CONCLUSION

To answer the study hypothesis that "self-care education affects quality of life for patients with hip joint replacement". Comparison of changes in quality of life scores between the two groups revealed that changes in quality of life score on clearance and 2 months after self-care education in the interventional group was significantly difference. According to the results, it can be found that the implementation of self-care education plan self-care education in the intervention group compared with the control group and the interventional group was more significant. Thus, according to these results, it is found that self-care education improves the quality of life for patients with hip joint replacement.

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