

Relation Between Discharge Instructions Compliance and Quality of Life among the Patients Post Hip Arthroplasty Surgery

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Abstract

Background: Hip arthroplasty (HA) is the surgical replacement of all or part of the hip joint with an artificial device. Essentially, the discharge planning nurse plays crucial role to ensure that all instructions are included to enhance patients outcome. **Aim:** Assess the relation between discharge instructions compliance and quality of life for the patients post hip arthroplasty **Design:** A descriptive exploratory research design was utilized for the conduction of this study. **Setting:** The study was conducted in outpatient's orthopedic clinic at El Hadara hospital affiliated to Alexandria University Hospitals. **Study subjects:** A purposive sample of (50) adult patients post hip arthroplasty. **Data Collection Tools:** I - **Patients interviewing questionnaire**, II - **Patients Compliance assessment sheet**. III- **Patient's quality of life short form (SF-36) questionnaire**. **Result:** (48%) of patients were compliant, (52%) of them were non-complaint as well as (36%) of patients had low QoL, (46%) had average QoL; & (18%) had high QoL. **Conclusion:** Less than half of studied patients were compliant while slightly more than half of them were non-complaint. Along with slightly more than one third of the patients had low QoL, less than one quarter of them had high QoL & slightly less than half of them had average QoL; Additionally, there were highly statistically significant positive correlation between total level of compliance among the studied patients post hip arthroplasty surgery according & total quality of life level. **Recommendations:** The necessity of designing, implementing and evaluation of collaborative, informative, attractive discharge plan that address arthroplasty discharge needs, considering the health care providers time constraint and patient's short hospital stay.

Key words: Discharge Instructions, Compliance, Quality of Life, Hip Arthroplasty Surgery.

Introduction

Hip replacement is a surgical procedure in which the hip joint is replaced by a prosthetic implant, that is, a hip prosthesis. Hip replacement surgery can be performed as a total replacement or a hemi (half) replacement. Such joint replacement orthopedic surgery is generally conducted to relieve arthritis pain or in some hip fractures. A total hip replacement (total hip arthroplasty or THA) consists of replacing both the acetabulum and the femoral head while hemiarthroplasty generally only replaces the femoral head. (Evans et al., 2019).

Hip Arthroplasty (HA) is a common surgical procedure performed in patients who do not respond to long-term conservative treatment to reduce high pain sensation and movement limitation in the joint (Li, & Xu, 2018). The number of HA is being increased gradually. Nowadays, 0.83% of the population, equivalent to 2.5 million people (1.4 million women and 1.1 million men) are undergone THA in the United States. It is currently

estimated that 400,000 THA are annually performed worldwide (Moarrefzadeh et al., 2022).

Hip arthroplasty (HA) has been quoted as one of the most successful and cost-effective procedures in orthopedics. The last decade has seen an exponential rise in the number of THAs performed globally and a sharp increase in the percentage of young patients hoping to improve their quality of life and return to physically demanding activities. Hence, it is imperative to review the various applications of technology in total hip arthroplasty for improving outcomes (Fontalis et al., 2021).

Hip arthroplasty (HA) has been described as "the operation of the 20th century" for the high satisfaction of the patients and the improvement of the quality-of-life following surgery. More than 1 million THAs are performed worldwide per year. The clinical outcome and the implant functioning are excellent over time with greater than 95% survivorship at ten years as reported by data from National registries and more than 80%

of the prostheses survive at 25 years follow-up. The number of implants is projected to increase by 174% in the United States by 2030, but the rise is much higher in emerging countries so that the worldwide number is projected to double within the next two decades (Ayers et al., 2022).

In spite of the remarkable improvement in pain, mobility, and physical function following the HA and considering a 10-year implant survival of greater than 95% and a 25-year implant survival exceeding 80%, not all the patients are satisfied with the result of HA. Several post-operative complications have been associated with HA, hereby reducing the QoL of the patients. Wound complications, thromboembolic, neurovascular injuries, prosthetic dislocation/instability, implant loosening, periprosthetic fracture, limb-length discrepancies, abductor muscle disruption, periprosthetic joint infection, heterotopic ossification, osteolysis, cup-liner dissociation, and prosthesis fracture are included in the list of reported complications, leading to reoperation or revision surgery in many cases (Bahardoust et al., 2019).

It was determined that patients have expectations for education on recognition of the surgical team, general knowledge about the disease and prosthesis, rehabilitation, pain management, home care activities, complications, medications, and ADL after HA surgery. Kennedy, (2018). Nurse has an important role in assessment of patients post total hip arthroplasty concerning pain assessment, physical activity care management and expected outcome to identify the needs of patients and improve their expectations regarding surgery's outcome. (Mohammed et al., 2022).

Planning for hospital discharge is a core nursing task, health care providers especially nurses have a significant role to play in assessment and identification of patients' needs in general and patients' discharge needs in particular to help in coping with the current condition, as well as to prepare for discharge so that the patients can manage their care at home and safely resume activities. Ensuring that patients 'discharge needs have been met prior to hospital discharge sets the stage for successful self-management of recovery at home. In fact, unmet discharge needs may contribute to poor patient outcomes and

readmission. Yet assessment of patients' discharge needs is highly important for early identification of patients' unmet needs and intervention to enhance discharge readiness (Bassamat and Hosny, 2018).

Significance of the study:

Effective patient education at discharge represents a great challenge for patients & their families, & leads to success of surgery which will increase patients level of functioning & their QoL Longley however it depends on their compliance of the discharge instructions provided. Jorge, L. L., (2011)

From the investigator clinical experience patients post hip arthroplasty are likely to have range of physical, emotional, cognitive, behavioral & social problems, which may results in difficulties for both patients & their family care givers & consequently such group of patients requires special care not only in hospital but also after discharge their hospital. Comprehension & compliance to the instructions given by the doctor / nurse at the time of discharge is important to manage their care at home & safely resume activities.

The aim of this study is to assess relation between discharge instructions compliance & QoL, hopefully this study results could be beneficial in providing health care providers specially nurses with data base regarding this area to enhance QoL as well as decrease of morbidity & mortality rate among such group of patients. Also, generate attention & motivation for further researches in this area.

Aim of the study

The present study was conducted to fulfill the following aim:

Assess the relation between discharge instructions compliance and quality of life for the patients post hip arthroplasty which achieved through the following:

1. Assessing the discharge instructions compliance level among the patients post hip arthroplasty.
2. Assessing the quality of life among the patients post hip arthroplasty.
3. Assess the relation between discharge instructions compliance level & quality of life among the patients post hip arthroplasty.

Subject And Methodology**Research Questions:**

The study was conducted for answering the following questions:

1. What is the discharge instructions compliance level among the patients post hip arthroplasty?
2. What is the quality of life among the patients post hip arthroplasty?
3. What is the relation between discharge instructions compliance level and quality of life among the patients post hip arthroplasty?

I. Technical Design:**Research design:**

A descriptive correlational research design was utilized for the conduction of this study. it was adopted to fulfill the aim of the study and answer the research questions. It describes the variables & the relationship that occurs naturally between& among them. (Grove & Gray, 2018).

B-Setting:

The study was conducted in orthopedic outpatient clinic at el Hadara orthopedic & traumatology University Hospitals hospital affiliated to Alexandria University Hospitals. This setting selected because it considered the only university hospital specialized in the field of in trauma, orthopedic surgery & subsequently increase the patients flow rate. The hospital is consisting of three main buildings; 1st one for orthopedic outpatient clinic contained of 20th rooms, 2nd building for psychiatry & 3rd building for orthopedic inpatients consisting of three floors: The 1st floor is composed of three operation rooms & 2 wards each one consisted of 3 rooms, each room had 15 beds. The 2nd floor composed of 2 wards, each one consisted of 3 rooms, each room had 15 beds & 1 ICU, and the 3rd floor assigned for administrative work.

Tools for data collection:

Three tools were used in the current study as the following:

I-Patients interviewing questionnaire:

It developed by the investigator after reviewing the related literature (Ahmed& Abd-El Mohsen, 2018). It divided into two parts:

C- Subjects:

A purposive sample of adult patients post hip arthroplasty at the previously mentioned setting, who meeting the following criteria were included in this study.

- **Inclusion criteria**

- 1) Adult patients from both gender.
- 2) With partial or total hip arthroplasty.
- 3) 3-month post hip arthroplasty.
- 4) Accepted to participate in this study.

- **Exclusion criteria**

- 1) Mentally ill patients.
- 2) Patients unable to read, comprehend or understand the instructions, had hearing or visual difficulties.
- 3) Compound fractures or concomitant surgeries (e.g., back or knee surgery).

Sample size:

By using power analysis equation, the study subject size was 50 patients, A representative sample of total patients with hip arthroplasty admitted in the selected study setting (71 patients) during 2019-2020. The sample size was calculated by adjusting the power of the test to 80% and the confidence interval to 80% with margin of error accepted adjusted to 5% using the following equation:

Type I error (α) = 0.05; Type II error (B) = 0.2; with power of test 0.80

$$n = \frac{N \times p(1-p)}{\left[\frac{N-1}{d^2} + \frac{1}{z^2} \right] + p(1-p)}$$

$$50 = \frac{71 \times 0.5(1-0.5)}{\left[\frac{71-1}{(0.05)^2} + \frac{1}{1.28^2} \right] + 0.5(1-0.5)}$$

- N= Community size
- z= Class standard corresponding to the level of significance equal to 0.80 and 1.28
- d= The error rate is equal to 0.05
- p= Ratio provides a neutral property = 0.50

Part 1: This part used to assess demographic characteristics of the study subjects such as (name, age, sex, address, marital status, occupation, income, housing and level of education.... etc).

Part 2: Patients' medical data used to obtain the past and present medical history, including type of hip

arthroplasty, onset, complains & family history ...etc).

II-Patients Compliance assessment sheet:

- It developed by investigator based on recent relevant literature review. (Ahmed& Abd-El Mohsen 2018 & Willim 2020). It used to assess patients' compliance level toward discharge instructions included 13 main activities. Each activity had items, each item measured by using 5-point Likert scale rated as: Always = 5, often = 4, sometimes =3, rarely =2 & never =1. The positive items ranged from 5-1, while the negative items reversed. The patients' responses to each activity as always or often were considered compliance, while their responses as sometimes, rarely or never were considered non-compliance.

Scoring system:

Accordingly, total items for 13 activities included in compliance assessment sheet were 88 ranged from 1-5, so total score was (88-440) which classified into:

- $\geq 80\% = (352-440)$ points considered compliant.
- $< 80\% = (83- 351)$ point considered non-compliant.

III- Patients quality of life short form (SF-36) questionnaire:

It used to assess QoL for the studied patients post HA It developed by (fouad 1998&Apolone et al., 1997) modified by the investigator. It covered eight domains, each domain had questions, each question measured by using 5-point Likert scale ranged from (1-5) except physical function domain rated by using 3-point Likert scale (limited a lot, limited a little & not limited at all) representing the worst to best response.

Scoring system:

Accordingly, total questions for 8 domains included in QoL (SF-36) questionnaire, were 36 questions ranged from 1-5, so total score was (36-160) which classified into:

- $< 50\% = (36 - <80)$ point considered Low QoL.
- $50 - < 75\% = (80 - <120)$ point considered average QoL.

- $75-100\% = (120 - 160)$ point considered high QoL.

II) Operational design:

It included the preparatory phase, content validity of the developed tool, pilot study, field work and limitation.

Operational design:

Preparatory phase:

A review of the current and past available literature and theoretical knowledge covering the various aspects of the study using books, articles, periodicals, internet and magazines to develop tools for data collection.

Tools Validity and reliability:

- **Content Validity:**

Testing validity of the proposed tools by using face and content validity. Face validity aimed at inspecting the items to determine whether the tools measured what supposed to measure. Content validity was conducted to determine whether the content of the tools covered the aim of the study. It measured by a jury of seven experts, four of them were professors and two were assistant professors of Faculty of Nursing at Ain Shams University. The experts reviewed the tools for clarity of sentences, relevance, accuracy, comprehensiveness, simplicity and applicability. Minor modifications were done and consequently the final forms were developed.

- **Reliability:**

The reliability of the tools was assessed through measuring their internal consistency by Cronbach Alpha Coefficient test. The reliability test scores for patients interviewing questionnaire, compliance assessment sheet and QoL short form (SF-36) questionnaire were (0.830, 0.819 and 0.834 respectively) which showed high reliability of the used study tools. Statistical equation of Cronbach's alpha reliability coefficient normally ranged between 0 and 1, higher values (more than 0.7) which denoted acceptable reliability.

- **Pilot study:**

A pilot study was carried out on 10% of the studied subjects (5 patients) to test feasibility, clarity & applicability of the study tools. Also, estimation of the time needed to collect the data detection of the difficulties that might arise and how to deal with them. A necessary modification was done for the used

tools so that the patients included in the pilot study were excluded from the main study group.

- **Field Work:**

Investigator visited the orthopedic outpatient clinics at the selected setting 2 days/week. The purpose of this study was simply explained to the patients who agreed to participate prior to any data collection. The study tools were fulfilled by the investigator from every patient included in this study in orthopedic outpatient clinic when the patient waited his turn with the doctor (around 3 patients/day). The time took to fulfill the study tools from each patient was 40-50 min and the data collection tools was completed within six months.

Ethical considerations:

Approval of protocol was obtained from Scientific Research Ethical Committee in Faculty of Nursing at Ain Shams University before starting the study. The investigator clarified the objective and aim of the study to the patients included in the study and obtained informed consent from each participant, prior to any data collection. they assured that maintaining anonymity and confidentiality of the subject's data would be guaranteed. Also, the included patients informed that they were allowed to participate or not in the study and they had the right to withdraw from the study

Results

Table (1) represents demographic characteristics of the studied patients post HA. It reveals that, 40% of the studied patients were in the age group 40 - <50 years and the same percentage were 50 – 65 % years with mean age 48.41 ± 6.23 and around three quarter 74% were males. Also, the table clarifies that majority of them 94% were married, 78% of them had university education, 88% of them were working, and 74% of them lived in rural. Additionally, 74% of studied patients had income 3000-<4000 LE; 94% of them had spouses as a primary care givers at home and 70% received the information about management of HA.

Table (2): represents medical data of the patients post HA. It reveals that the current diagnosis for 88% of them was osteoarthritis; while 40% of them had co-morbidities, 50% had

at any time without giving any reasons. Ethics, values, culture, and beliefs were respected.

III. Administrative Design:

An official letter was issued from Faculty of Nursing, Ain Shams University to get permission from the medical and nursing directors of El Hadara hospital affiliated to Alexandria University Hospitals explaining the purpose of the study to obtain the permission for conducting this study.

IV. Statistical Design:

Analysis of data was done using Statistical Program for Social Science version 20 (SPSS Inc., Chicago, IL, USA). Quantitative variables were described in the form of mean and standard deviation. Qualitative variables were described as number and percent. In order to compare parametric quantitative variables between two groups, Student t test was performed. Qualitative variables were compared using chi-square (χ^2) test or Fisher's exact test when frequencies were below five. Pearson correlation coefficients were used to assess the association between two normally distributed variables. When a variable was not normally distributed, A P value < 0.05 is considered significant.

Degrees of significance of results were considered as follow:

P value > 0.05 insignificant (NS)

P value \leq 0.05 significant (S)

P Value \leq 0.001 highly significant (HS)

diabetes and 80% hypertension. Also, 100% of the studied patients had no previous surgical history, while 18% of them had partial HA and 82% of them had THA respectively. Furthermore, 26% of them had family history of osteoarthritis while all of them 100% did not undergo HA.

Fig. (2): Represents total compliance level of them post HA. It reveals that 48% of them were compliant and 52% of patients were non-complaint.

Fig. (3): Represents quality of life total level of the patients post HA. It reveals 36% of them had low QoL, 46% them had average QoL and 18% them had high QoL.

Table (30) presents that, there was highly statistically significant positive correlation between total scores of compliance & quality of life of the studied patients post HA surgery at (p-value<0.001).

Table (1): Number and percentage distribution of the studied patients post hip arthroplasty according to their demographic data (N=50).

demographic data	No.	%
Age (years)		
30 - < 40 years	10	20.0
40 - < 50 years	20	40.0
50 - 65 years	20	40.0
$\bar{x} \pm SD$	48.41±6.23	
Gender		
Female	13	26.0
Male	37	74.0
Marital status		
Married	47	94.0
Unmarried	3	6.0
Education		
Illiterate	0	0.0
Primary	0	0.0
Secondary	11	22.0
University	39	78.0
Occupation		
Not working	6	12.0
Working	44	88.0
Place of residency		
Rural	37	74.0
Urban	13	26.0
Income		
1000-<2000 LE	0	0.0
2000-<3000 LE	0	0.0
3000-<4000 LE	37	74.0
>4000 LE	13	26.0
$\bar{x} \pm SD$	3872.80±658.38	
The primary caregiver at home		
Spouse	47	94.0
Daughter	3	6.0
Did you receive information about management of the care post hip arthroplasty		
No	15	30.0
Yes	35	70.0

Table (2): Number and percentage distribution of the studied patients according to their medical data (N=50).

Medical Date	No.	%
Current diagnosis		
Osteoarthritis	44	88.0
Rheumatoid arthritis	6	12.0
Co-morbidities		
No	30	60.0
Yes	20	40.0
If yes, (n=20)*		
Diabetes	10	50.0
Hypertension	16	80.0
Surgical history		
No	50	100.0
Yes	0	0.0
Type of hip arthroplasty		
Partial	9	18.0
Total	41	82.0
Family history of Osteoarthritis		
No	37	74.0
Yes	13	26.0
Family history of total hip arthroplasty		
No	50	100.0
Yes	0	0.0

*Number is not mutually exclusive

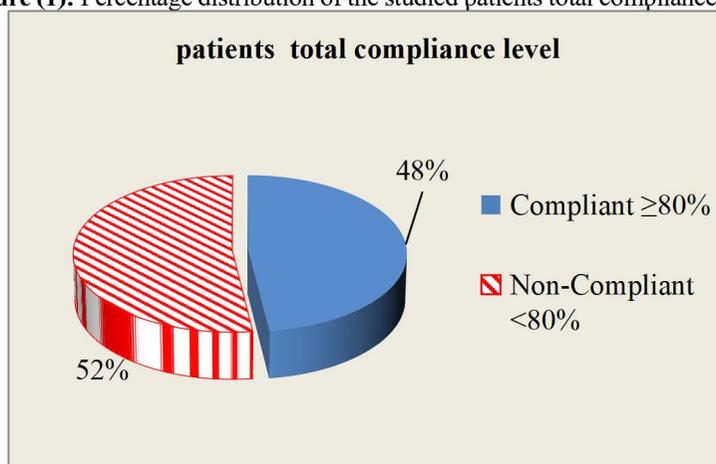
Figure (1): Percentage distribution of the studied patients total compliance level.

Figure (2): Percentage distribution of the studied patients quality of life total level (N=50).

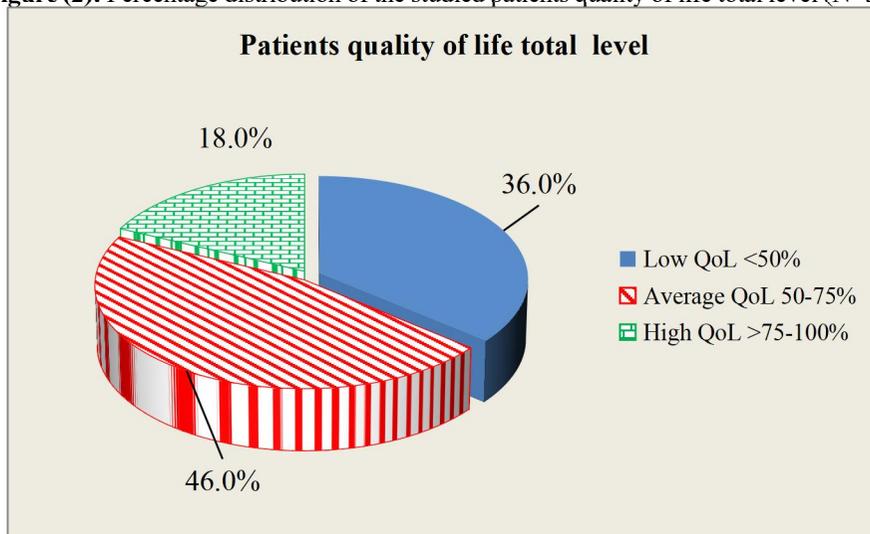


Table (3): Correlation between total scores of compliance and quality of Life among the studied patients post hip arthroplasty (N=50).

		Total Score of Compliance	Total score of Quality of Life
Total Score of Compliance	R-value		0.519
	p-value		<0.001**
	N		50
Total score of Quality of Life	R-value	0.519	
	p-value	<0.001**	
	N	50	

r-Pearson Correlation Coefficient;

**p*-value <0.001 significant correlation

Discussion

As regard to age the result of present study revealed that, slightly less than half of the studied patients post HA surgery in the age group between 40 - <50 years and the same percentage of them had their 50 -56 years with mean age 48.41 ± 6.23 . This could be attributed to osteoarthritis that is considered the common reasons for joint replacement which tend to get worse with age. This finding disagrees with **Luo et al., (2019)** who applied study about Effect of nursing intervention via a chatting tool on the rehabilitation of patients after THA and found that, highly percentage of the studied patients with a mean age of 73.9 years.

As regard to gender, the finding of this study revealed that, slightly less than three quarter were males, this may be due to female are less likely to go by their doctors for surgical referral because the fear of post operative outcome. Which, affect on their

responsibilities & rules as housewives or employees. This current study finding disagrees with **Bahardoust et al., (2019)** who applied study about evaluation of health-related QoL after THA: a case-control study in the Iranian population and mentioned that more than two thirds of them were females.

As regard to marital status, the finding of this study revealed that, majority of the studied patients were married such finding coincides with the age of the studied patients. This finding is in accordance with **Bahardoust et al., (2019)** who mentioned that, highly percentage of the studied patients were married.

As regard educational level, the finding of this study showed that, more than three quarter of the studied patients were having university education. This finding is in the same line with **Bahardoust et al., (2019)** who mentioned that, highly percentage of them had college education. this could be attributed to their

beliefs that the selected setting is the best university for orthopedic surgeons & the services provided in this area.

As regard to source of information, the finding of this study showed that, more than one third of patients had knowledge from physician. While, more than one fifth of them had knowledge from nurses. Moreover, more than one tenth of them had knowledge from media. On the other hand, less than one third of them had got any information. This reflects a lot of different information sources, but the accurate information must be obtained from health care team.

This finding is contrasted with **Giardina et al., (2020)** who conducted study about the impact of preoperative education on patients undergoing elective total hip and knee arthroplasty: the relationship between patient education and psychosocial factors and found that less than one quarter of the studied patients had no information, more than one tenth of them had knowledge from Friends and family, minority of them had knowledge from internet search.

As regard to medical data, the finding of this study showed that, majority of the studied patients had osteoarthritis; two fifths of them had co-morbidities, whereas half of them had diabetic while most of them had hypertension; and more than one quarter of them had family history of osteoarthritis. In addition that most of them had total HA; while surgical history and family history of total HA were zero percentage. This finding could be interpreted in the light of the fact that, the included patients are old age and it was recognized from the literature that the aging process is considered the main contributed risk factor for hip osteoarthritis rather than the genetic or familial factors

This study result is in the same line with **Leiss et al., (2021)** who conducted study about "Excellent functional outcome and quality of life after primary cementless total hip arthroplasty using an enhanced recovery setup" and found that, highly percentage of the studied patients had hypertension, while more than one tenth of them had coronary heart disease, minority of them had diabetes mellitus. The factor that might contributed to this finding is the age of the studied subjects, lending support to this explanation what was

reviewed in the literature that the prevalence of co morbidities increases with advancing age

Compliance total level among the studied patients post hip arthroplasty surgery

As regard to compliance, the result of the current study revealed that slightly less than half were compliant and slightly more than half were non-complaint. from the researcher point of view, this result may be due to patients post-surgery are bored of following instructions, or not being encouraged and helped by health care providers, Or misunderstanding of complexity of discharge instructions toward therapeutics regimens and this study finding emphasizes the importance of studying potential barriers affecting patients compliance. This result is in the same line with **Ahmed & Abd-El Mohsen (2018)** who conducted study about "Effect of compliance to the discharge instructions among patients with internal fixation for hip fracture" and mentioned that, highly percentage of the studied patients were non-compliance before intervention. Also, **McNaught et al., (2021)** who mentioned that the majority of patients do not adhere to hip precautions advice. While, disagrees with **Wiznia et al., (2019)** who mentioned that highly percentage of the studied patients had adherent.

Quality of Life short form (SF-36) questionnaire of the studied patients among the patients post hip arthroplasty surgery

As regard to QoL, the result of the present study revealed that, slightly more than one third of patients had low QoL, while, slightly less than half of patients had average QoL, and less than one quarter of patients had high QoL. Fortunately, this study finding may be due to HA considers a major surgery which required multidisciplinary clinical pathway indicated for such group of patients to improve outcomes surgery. This is supported by **fouad et al., (2006)** who conducted study entitled Effect of clinical pathway on outcomes of patients with acute femoral neck fractures undergoing hemiarthroplasty. As well as, the study finding could be attributed to the included patients post HA followed nursing care standards for preventing complication this is in line with **Ead et al., (2016)** who conducted study entitled Effect of nursing care standards for preventing deep venous thrombosis among patients undergoing hip surgery on nurses' performance and patients outcomes. Meanwhile, **Mariconda**

et al., (2011) who applied study about "Quality of life and functionality after total hip arthroplasty: a long-term follow-up study" and found that, the studied patients who had undergone total HA have impaired long-term self-reported physical QoL. This necessitates the importance of patients education about discharge instructions to be followed to enhance compliance & QoL for patients post HA.

As regard to correlation between compliance and Quality of Life total scores among the studied patients post HA, the result of the present study presented that, there were highly statistically significant positive correlation whereas more compliant patients with discharge instruction had high QoL level.

This result agrees with **Bakr, (2018)** who reported that, there were highly statically significant relation between study and control group regarding satisfactory level of total knowledge and practice with quality-of-life post and follow up education program implementation.

Conclusion

In the light of the current study findings, it can be concluded that:

Less than half of studied patients were compliant. While, slightly more than half of them were non-complaint. As well as slightly more than one third of them had low QoL, less than one quarter of patients had high QoL & slightly less than half of patients had average QoL; Additionally, there were highly statistically significant positive correlation between total level of compliance among the studied patients post hip arthroplasty surgery & their total quality of life level.

Recommendations

Based on the current study's findings the following recommendations were proposed:

1. The necessity of designing, implementing and evaluation of collaborative, informative, attractive discharge plan that address arthroplasty discharge needs, considering the health care providers time constraint and patient's short hospital stay
2. The necessity of developing & implementing patients educational program about discharge instructions for patients post HA & evaluate its effect on patients compliance & QoL.

3. Availability of Arabic discharge instruction booklet to be followed by the patients post HA is recommended.
4. Multidisciplinary rehabilitation program is needed for patients post HA to enhance their QoL.
5. Replication of the study using larger sample in different correlational settings to generalized the results.
6. Longitudinal study should be designed to determine long term needs for patients post HA & tailer educational program accordingly.
7. Further researches should be conducted to study factors affecting compliance & QoL for patients post HA & the interventional strategies needed in this area.

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