

## **Developing Guidelines for Older Adults Subscribers at the Orthopedic Out-patient Clinics after Hip Joint Replacement**

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### **Abstract**

**Background:** Most older adults with hip joint replacement surgery experience functional decline, to need knowledge and practice to improve health. **The aim:** This study was to assess older adults knowledge and practices regarding Hip Joint Replacement surgery. **Design:** A descriptive research design will be utilized in this study. **Setting:** The study was conducted at the Orthopedic Out-patient Clinics at Al-Helal Hospital at Cairo, Egypt. **Sample:** A purposive sample consists of fifty male and female older adults who are subscribe in Out-patient Clinics. **Tools:** Two tools were used for data collection, (tools I): older adult Socio demographic data and knowledge regarding Hip Joint Replacement surgery (tools II): older adults practice regarding Hip Joint Replacement surgery. **Results:** Findings of this study showed that there were 90% of them were unsatisfactory level of total knowledge. and 50.3% of older adults' done practice related to exercises after surgery within 0-3 weeks. Also there weren't statistical significance difference between total knowledge and total practice. **Conclusion:** The study concluded that there was older adults were unsatisfactory level of total knowledge and more than half of them done practices regarding all levels of Hip exercises after surgery. **Recommendation:** Developed guidelines must be implemented in all the out-patient clinics of orthopedic care setting and it involve in the care strategies in daily routine care for older adults after surgery.

**Keywords:** Older adults, knowledge and practices, Hip Joint Replacement.

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### **I. Introduction**

Hip Joint Replacement is common in older adults who are over 60 years of age. This surgery performed for several reasons such as poor muscular tone, femoral neck fractures, acetabula dysplasia, cerebral palsy, muscular dystrophy, injury, trauma and falling related to changes in this age group. After surgery, older adults can usually move the joint more easily, have less pain and walk more comfortably for many years. Therefore, Hip Joint Replacements have a high success rate *Lara., (2020)*.

In **2050**, it is expected that nearly 8 in 10 of the world's older adults (OAs) will be living in the developing regions. **In Egypt**, like much another countries worldwide, the OAs are expanding. There were 4,400,000 older adults who aged  $\geq 60$  year; 6.9% of the total population in 2006. The expected percentage of OAs may reach 8.9% in 2016 and 10.9% in 2026. Life expectancy for Egyptian females was 73.6 year in 2006 and increased to 77.2 year in 2016. Meanwhile, life expectancy for males was 69.2 year in 2006 and increased to 72.5 year in 2016 *El-Moselhy, (2020)*.

Hip Joint Replacement is one of the most reliable, reproducible, successful, and cost-effective procedures in all of orthopedics. The procedure requires coordination of care across various healthcare provider groups, including nurses, physical therapists, advanced practitioners and physician extenders, medical physicians, and orthopedic surgeons. In the same line, geriatric nurses need to provide coordination and monitoring of the older adults pre, post, and follow-up after HJR with rapid reporting to the clinicians if there are any changes of OAs *Matthew., (2021)*.

Out-patient clinics have a fundamental function after HJR surgery. Out-patient clinics take place key of the interactions between OAs, nurses, surgeons and the physiotherapy. After HJR, out-patient clinics regularly is considered the main opportunity for OAs to discuss condition with nurses, surgeons and options for treatment available to OAs in all stages The Royal College of Surgeons, (2018). It is important that discharged OAs be able to safety get in their homes and perform ADLs (simple and instrumental activities) such as getting to the bathroom and preparing food. OAs should be instructed on specific complications to report, including infection (e.g., fever, increased pain and drainage) and dislocation of the prosthesis (pain, loss of function and shortening of the extremity *Akram., (2016)*).

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Nursing guidelines benefits for older adults after Hip Joint Replacement through better outcomes, fewer ineffective interventions, greater consistency of care and by creating secondary implementation materials such as: pamphlets, guidelines, adopted, modified guidelines, brochures and videos. Moreover, Geriatric nurses can use guidelines to make better decisions, initiate quality improvement efforts, prioritize new research initiatives and support coverage for appropriate services **Jeremy .,(2020)**.

### **Significance of the problem:**

In Egypt, accordance to statistics from *the Information Center at El- Helal hospital* and statistics from *the Information Center at El-Safa Hospital* reported that the number of cases done HJR **530** in **2010** and **180** in **2017**. Statistics from the Information Center for El- Helal and El-Safa hospitals are affiliation to Ministry of health and Population. Furthermore, accordance to statistics from *the Information Center at Al Kasr Al Ain Hospital* which is affiliation to Cairo University reported that the number of cases done HJR **252** in **2017**. While, regarding to *El-Mabra Therapeutic Foundation* which affiliated to Health Insurance reported that the number of cases done Hip Joint Replacement **60** in **2017**. Therefore, pervious statistics cover some hospitals in Helwan, Cairo and Giza **By researcher, (2017)**.

This study will provide basic and specific instructions about OAs' knowledge and practice after HJR regarding developing guidelines. This information will help to develop guidelines for OAs who subscribers at the Orthopedic Out-patient Clinics.

### **Aim of the Study:**

The aim of this study to assess Older Adult knowledge and practices regarding Hip Joint Replacement Surgery. This aim be achieved through:

- 1) Assessing older adult knowledge regarding Hip Joint Replacement Surgery?
- 2) Assessing older adult practices regarding Hip Joint Replacement Surgery?

### **Research Questions:-**

- 1) What is the older adult knowledge regarding Hip Joint Replacement Surgery?
- 2) What is the older adult practice regarding Hip Joint Replacement Surgery?

## **II. Subjects and Methods**

### **Research Design:**

A descriptive research design will be utilized in this study.

### **Research Setting:**

This study was conducted at Orthopedic Out-patient Clinics in Al-Helal Hospital which affiliated to Ministry of Health and Population. The hospital was selected because it is specialized in the orthopedic and joint surgeries and aim to be the first in the orthopedic joint surgeries valuable Middle East. In addition to the hospital was selected because it allows the research work, training and the cases are mostly referred to it for treatment.

### **Sample:**

A purposive sample of OAs after HJR which be subscribed at the Orthopedic Out-patient Clinics in Al-Helal Hospital in Cairo were interviewed for were the study sample for three months .The total number of older adults aged  $\geq 60$  years (50) OA. All available number of the specific age group who were subscribing at out-patient clinics after HJR within 2 weeks.

**Tools of the Study:** To achieve the purpose of the study, data will be collected using two tools developed by researcher.

### **Part I: Socio-demographic datasheet:**

It consists of two main sections:

#### **a) Socio-demographic Characteristics Assessment Sheet:**

It includes different items such as: Gender, level of education, occupation, income, caregiver at home, residence, crowding index.

#### **b) Assessment of the Knowledge of the older adult after Hip Joint Replacement:**

It is adopted from *Adams (2013) and Abd-Elatty (2015)* and modified by researcher. It consist of causes of fractures, reasons and benefits from surgery, medication compliance, proper nutrition to avoid wait gain, precautions after HJR such as: proper positioning, importance of mobility and walking, as well as importance of practicing related exercises needed after HJR, in addition to rest and sleeping time.

#### **The scoring system classified as following:**

- Score (135-201) is for Good level of Knowledge.
- Score (90-134) is for Satisfactory level of Knowledge.
- Score (0-89) is for Unsatisfactory level of Knowledge.

### **Part II: Assessment of the older adult practice related to:**

#### **a) Observational checklist for older adults' Practices of related exercises after Hip Joint Replacement:**

It is adopted from *Provincial Rehab Advisory Group (PRAG), (2013)* and modified by researcher. it was used to evaluate the functional impairment of OAs with Hip exercises of one or both

lower extremities. It used to monitor the OAs over time and to assess their practices. It is consisted of 41 items to observe OAs practices of exercises after surgery, items such as: After Surgery weeks 0 – 3 Hip stretches, Arm chair push-ups, Thigh stretch on belly and Thigh lift. After Surgery weeks 6 – 9 Heel rises and Sit to stand. After Surgery weeks 9 – 12 Step up/down forward, Step up/down sideways and

**The scoring system classified as following:**

- Score (87-123) is for the Independent, who is performing exercises by himself.
- Score (36-86) is for the partially dependent, who is depending partially on family or professional caregiver in performing some exercises. And
- Score (0-35) is for the completely dependent, who is depending completely on family or professional caregiver in performing all exercises.

**Pilot Study:** A pilot study was conducted on (5) OAs, which represented 10% of the total sample in order to ensure the clarity of the questions, feasibility and applicability of the study tools and the time needed to complete them. After pilot study, the researcher didn't modifications or addition and rewarding of statement in the tools. Also, pilot study sample was included in the total sample size.

**Tool Content validity:** Content validity is tested by five experts in community health nursing and medicine specialties from Al- Helal Hospital. They were from different Academic categories, i.e.: Professor and surgeon. To ascertain relevance, clarity and completeness of the tools, experts elicited responses, which were either agree or disagree for the face validity and content reliability. The items on which 97% or more of the experts have agreed were included in the tool. The necessary corrections made are performed before the administration of the tools.

**Reliability:** Reliability was applied by researcher for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions two times 15 days apart. Answers from the repeated testing were compared (Test- re- test reliability was 0.82) and Cronbach's Alpha reliability was 0.890.

**Ethical considerations:** Prior to the pilot study, ethical approval was obtained before starting the study from *The Scientific Research Ethical Committee* in Faculty of Nursing, Helwan University. Individual written consent was obtained from each participating OAs after explaining the nature and benefits of the study. Selected OAs were informed that they are allowed to choose to participate or not in the study and they have the right to withdraw at any time. The researcher was clarified the aim of the study to OAs included in the study and the researcher assured the anonymity and confidentiality of the subjects' data.

**Field work:**

- Data was collected at the out-patient clinics in Al-Helal hospital, after explaining the aim of the study to the participants and reassuring them about the confidentiality of the data collected.
- A written approval letters was obtained from the Dean of Faculty of Nursing, Helwan University for conducting the study in Al-Helal Hospital in Cairo. Written letter was delivered to the directors of hospitals including the aim of the study.
- Data was collected within (6) months started October in the year 2017-2018, the researcher meet older adults two days per week at the out-patient clinics till the needed sample is obtained.
- A written consent was obtained from OAs after the researcher introduced herself for them and explaining the purpose of this study.
- The study was conducted by the researcher for OAs using the structured interview questionnaire sheet. Then, the researcher assessed OAs' knowledge and practices regarding HJR surgery.

**Statistical design:**

The collected data was organized, tabulated, analyzed using appropriate statistical significant tests. Additionally, the statistical analysis was performed using the statistical package for social signs program (SPSS) version (20) for Windows Data Edition. The statistical significance and association using the standard deviation (SD), Qui-square and p-value ( $P = 0.05$ ).

**Degrees of significance of results were considered as follow:**

P-value  $> 0.05$  Not significant (NS)

P-value  $\leq 0.05$  Significant (S)

P-value  $\leq 0.01$  Highly Significant (HS)

### III. Results

**Table (1):** socio-demographic characteristics of OAs in the study sample are presented in table (1): Majority of OAs' age (66.5%) were in age group less than (65) years, as well as (76%) were males. Married OAs' were more than three quarter of sample and the residence of about near three quarter were urban areas (80%), (72%) respectively. As regarding, The highest percentage for caring OAs' (42%) were husband or wife. Then, one third for caring of them (30%) was son. More than two third of older adults' were working with (64%) had less than (800L.E) that not enough for them. More than two third of OAs' (70%) were working with (64%) had less than (800L.E) that not enough for them. As, OAs weren't crowding in the flat.

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**Table (2):** Indicates that, 47.6% of OAs' were unsatisfactory level of knowledge after HJR about meaning of HJR surgery. 50.3% about causes for HJR surgery. 80.0% about reasons of HJR surgery. 89.0% about benefits of HJR surgery. According to, knowledge related to post-operative medication 91.7% of them were unsatisfactory level of knowledge after surgery. 80.0% about benefits of medication. In addition to, 93.8% about proper nutrition. 92.4% about adequacy of vitamins and minerals. And, 95.9% about weight management.

**Figure (1):** Represents that, 90% of OAs were unsatisfactory level of total knowledge after surgery. While, only 10% of them were good level of total knowledge after surgery.

**Table (3):** shows that, 50.3% of OAs' practice related to exercises after surgery within 0-3 weeks were partially dependent. 31.7% of them practices related to exercises after surgery within 3-6 weeks. 30.3% of them practices related to exercises after surgery within 6-9 weeks. Also, 38.6% of them practices related to exercises after surgery within 9-12 weeks.

**Figure (2):** Shows that, 60% of OAs' after surgery were a highly proportion in their practice regarding exercises within 9-12 weeks in the pre-guidelines phases. While, only 20% of them after surgery were the lowest proportion in their practice regarding exercises within 0-3 weeks.

**Table (4):** reflect correlation between OAs of total score knowledge and total score practice regarding their HJR surgery. There was no statistically significant positive correlation between total score knowledge and practice among HJR surgery ( $r=0.22, P= >0.790$ ) and ( $r=0.037, P=>0.658$ ) respectively.

**Table (1):** Distribution of older Adults' regarding Socio-demographic characteristics (n=50).

Socio-demographic characteristics	No.	%
<b>Age(inyears):</b>		
60 - < 65.	33	66.5
65- < 70.	7	14.5
70 - < 75.	6	12.5
≥ 75.	4	8.0
<b>Gender:</b>		
Male.	38	76.0
Female.	12	24.0
<b>Residence</b>		
Rural	14	28.0
Urban	36	72.0
<b>Marital status:</b>		
Single.	1	2.0
Married.	40	80.0
Divorced.	6	12.0
Widowed.	3	6.0
<b>Educational level:</b>		
Illiterate.	5	10.0
Read and write.	10	20.0
Primary.	5	10.0
Preparatory.	6	12.0
Secondary.	18	36.0
University or more.	6	12.0
<b>Family Caregiver:</b>		
Son.	15	30.0
Daughter.	7	14.0
Husband / Wife.	21	42.0
Relatives.	7	14.0
<b>Occupation:</b>		
not working.	12	24.0
Working.	38	76.0
<b>Income /Month (average in L.E.):</b>		
200 - <400 L.E.	3	6.0
400 - < 600 L.E.	4	8.0
600 - <800 L.E.	32	64.0
≥ 800 L.E.	11	12.0
<b>Number of family members:</b>		
1-2	6	12.0
3-5	35	70.0
≥ 5	9	18.0
<b>Monthly income:</b>		
Enough	14	28.0
Not enough	36	72.0

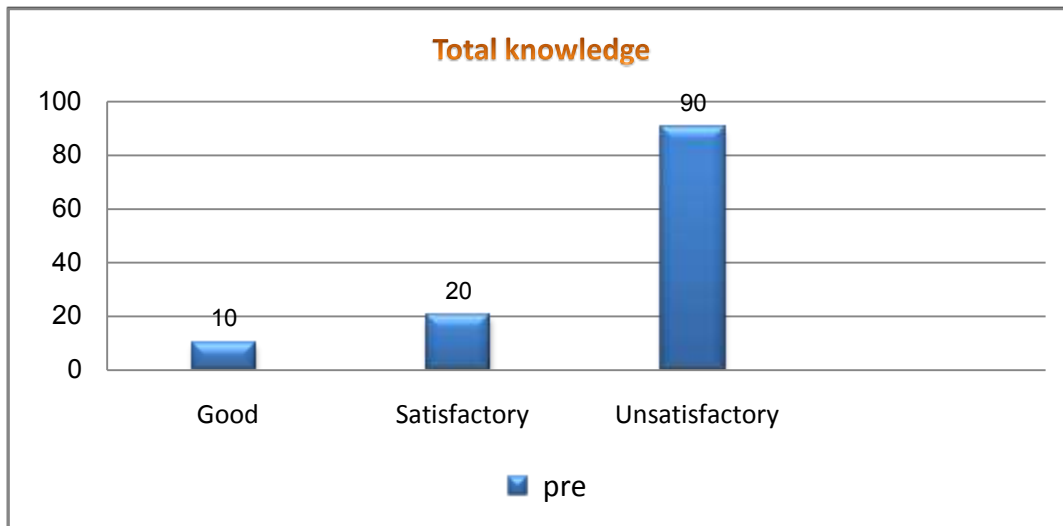
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**Table (2):**Frequency distribution of the older adults' knowledge regarding with Hip Joint Replacement in the pre-guideline (N=50)

Knowledge regarding with Hip Joint Replacement	Unsatisfactory	Satisfactory	Good
	%	%	%
	Meaning	47.6	48.3
Causes	50.3	46.9	2.8
Reasons for Hip Joint Replacement	80.0	17.2	2.8
Benefits of Hip Joint Replacement	89.0	6.2	4.8
<b>Knowledge related to post-operative medication</b>			
Medication taken	91.7	6.2	2.1
Benefits of medication	80.0	12.4	7.6
<b>Knowledge related to proper nutrition after Hip Joint Replacement</b>			
Proper nutrition	93.8	3.4	2.8
Adequacy of vitamins and minerals	92.4	5.5	2.1
Weight management	95.9	3.4	0.7

\* Paired t test (1) \*\* Paired t test (2)

**Figure (1):** Percentage distribution of the older adults' total knowledge regarding pre-guideline (N=50)

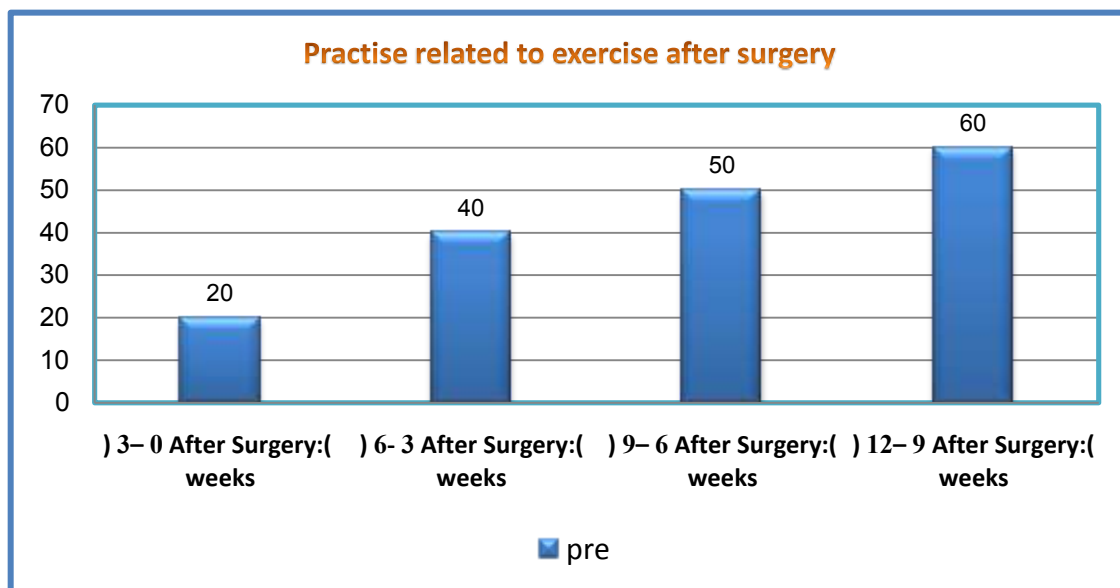


**Table (3):**Older Adults Practices related to Exercises after Hip Joint Replacement pre-guidelines (N=50)

Levels of HipExercise after surgery.	Completely Dependent	Partially Dependent	Independent
	%	%	%
	AfterSurgery:( 0 –3) weeks	10.3	50.3
After Surgery:(3 - 6) weeks	11.7	31.7	56.6
AfterSurgery:(6 –9) weeks	11.0	30.3	58.7
AfterSurgery:(9 –12) weeks	9.0	38.6	52.4

(\*) statistically significant & (\*\*) high statistically significant

**Figure (2):** Distribution of the older adults practice related to exercises after Hip Joint Replacementpre-guidelines (N=50)



**Table (4):** Correlation between total knowledge score and total practice score related to ADLs (N=50).

Items	Total Practice	
	r	P value
Total Knowledge	0.22	0.790

#### IV. Discussion

Hip Joint Replacement became one of the most popular procedure in orthopedic surgery and the number of OAs requiring HJR continuously increase due to demographic changes and life style trends. Due to arthritis, part or all of this cartilage may wear away exposing the underlying bone, thus causing roughening of the joint surfaces, stiffness and painful movement. During HJR surgery, the surgeon removes damaged cartilage and bone from your hip joint and replaces them with new, man-made parts. The most common problem for OAs after surgery is hip dislocation, Deep Vein Thrombosis, and wound infection. Because a man-made hip is smaller than the original joint, the ball can come out of its socket. HJR, might need to avoid certain activities, such as jogging and high-impact sports *Hadorn, &Brook. (2019).*

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According to the demographic characteristics of older adults, the present study findings indicated that the mean age of older adults was  $62.54 \pm 6.32$  years. This result is similar to a study conducted by *Schoenbaum. (2018)* a study conducted in Jordanian about: "Toward fewer procedures and better outcomes of total hip replacement:" found that, age of older adult was mean  $62.18 \pm 4.95$  for the study sample. As well it is nearly consistent with *Keller et al. (2018)*: a study conducted in Milano about "Dealing with older adult with total hip replacement geographic variations in the use of hospitals. The experience of the Maine Medical Assessment Foundation Orthopedics:, represented that mean age of older adult was  $62.17 \pm 10.8$  years.

Regarding the older adults gender, the study finding revealed that all of them were male. This study finding is in agreement by *Charnley. (2018)*: a study conducted in France about "Anchorage of the femoral head prosthesis to the shaft of the femur". "found that, the 77% of study sample were male.

Regarding the older adult place of residence, the majority of them residence in urban area. This result agree by *Peterson et al (2018)*: a study conducted in United States about :Geographic variations in the rates of elective total hip and knee arthroplasties among Medicare beneficiaries in the United States found that, the 76 % of older adult the residence in urban area.

Regarding to older adult marital status, the majority of them were marriage, This result agree by *Keller et al (2018)* found that. the 80% of older adult in the study sample wear marriage.

Concerning the level of education of older adult, the current study result revealed that about two fifth of the older adults had secondary diploma education., and the minority of them had university education and more. In the same line with *Imamura et al. (2017)*: a study conducted in United Kingdom about "Appropriateness of total hip joint replacement in the United Kingdom. World Hospitals Health Survey .found that 40.0% of older adult had secondary or diploma level and 15.0% of older adult had university education or more.

Regarding older adult family caregivers, the current study result revealed that less than half of them the family caregivers were husband or wife. In the same line with *Laupacis et al. (2018)*. a study conducted in Emirate about .The effect of elective total hip replacement on health- related quality of life, found that, 45% of older adult in the study sample the family care giver were husband or wife.

Regarding the older adult occupation, the current study revealed that the majority of older adult not working. This finding was in accordance with *Barrack (2017)*: a study conducted in Iran about "Hip arthroplasty: problems and decisions. Assessment of the symptomatic total hip. Orthopedic . found that, 80% of older adult in the study sample not working. From the investigator point of view, the older adult in the sample with their hip joint replacement, would be an obstacle to practicing any work.

Regarding the older adult family income, the current study revealed that more than two thirds of older adult the family income not enough. This finding was in accordance with *Sathiyakumar et al., (2015)*, a study conducted in Jordanian about ("Hip fractures are risky business: an analysis of the NSQIP data" found that, the majority of older adult the family income not enough.

Regarding the older adult number of rooms, the current study revealed that about more than two thirds of older adult tow room in the house. This result disagree with *Brand et al., (2019)*. a study conducted in Pakistan who studied about " Hip fractures in adults. Found that, the number of room in the house 4 rooms or more.

Regarding OAs' knowledge regarding HJR, The findings of the current study showed that Indicates that, OAs' had poor and unsatisfactory knowledge regarding meaning, causes, Reasons for HJR and benefits of HJR. In the same line with *Lequesne (2019)*. a study conducted in Pakistan who studied about "Indices of severity and disease activity for osteoarthritis. the study reveals that, OAs' had poor and unsatisfactory knowledge regarding meaning, causes, reasons for HJR and benefits of HJR throughout pre-guidelines phase. From the researcher point of view, the majority of OAs' need participate the educational program will improve knowledge

Regarding OAs' knowledge regarding related to post-operative medication, The findings of the current study showed that Indicates that, the majority OAs' had poor and unsatisfactory knowledge regarding medication taken and benefits of medication HJR. In the same line with *Hochberg et al. (2017)* who studied about The American College of Rheumatology revised" criteria for the classification of global functional status in rheumatoid arthritis. the study reveals that, the majority OAs' had poor and unsatisfactory knowledge regarding medication taken and benefits of medication HJR throughout pre-guidelines phase. From the researcher point of view, the policy of conducting the surgery, the nurse advises the OAs about the steps guidelines involved in the operation and the importance and benefit of not having treatment.

Regarding OAs' knowledge regarding proper nutrition after HJR. The findings of the current study showed that, almost of OAs' had poor and unsatisfactory knowledge regarding proper nutrition, adequacy of vitamins and minerals and weight management. In the same line with *Singh et al. (2018)* who studied about Berlin about "Changes in trabecular pattern of the upper end of the femur as an index of osteoporosis "revealed that, the majority OAs' had poor and unsatisfactory knowledge regarding proper nutrition, adequacy of vitamins and minerals and weight management throughout pre-guidelines phase.

Regarding to OAs' total knowledge regarding HJR, the current study revealed that, the majority of them were unsatisfactory level of total knowledge. In the same line with *Chassin et al. (2018)*. the study conducted in Iran about "Variation in the use of medical and surgical services by the Medicare population" the study show that, the majority of them were unsatisfactory level of total knowledge regarding pre-guidelines phase. from the

researcher point of view, the majority of OAs will improve knowledge after participate of guideline.

Regarding OAs' Practices related to Exercises after HJR, the current study revealed that, more than half of OAs' practice related to exercises after HJR within 0-3 weeks were partially dependent. While, more than one third of their practice related to exercises after HJR within 6-9 weeks were partially dependent. In the same line with *Schoenbaum (2019)*. A study conducted Iran. About "Toward fewer procedures and better outcomes. Found that, 60 % of OAs' practice related to exercises after HJR within 0-3 weeks were partially dependent in the pre-guidelines phase. 75.7% of OAs' practice related to exercises after HJR within 6-9 weeks partially dependent in the pre-guidelines phase. the researcher point of view, more than half of OAs' will gradual improve in practices related to exercises after participation of the guideline.

Regarding to OAs' total practices related to exercises regarding HJR in the pre-guideline phase, the current study revealed that, less than one third of OAs' weren't improved of total practices related to exercises regarding pre-guidelines phase. In the same line with *Schoenbaum (2019)*. A study conducted Iran. About "Toward fewer procedures and better outcomes. Found that, 30% of them weren't improved total practices regarding pre-guidelines phase. from the researcher point of view, the majority of OAs' will improve practices related to exercises after participate of guideline.

Illustrates that, a highly statistically significance positive correlation between total knowledge and total practice  $P < 0.05$ . the same line with *McGlynn et al. (2019)* Comparison of the appropriateness of coronary angiography and coronary artery bypass graft surgery between Canada and New York State. Found that , highly statistically significance positive correlation between total knowledge and total practice  $P < 0.05$

## V. Conclusion

The current study concluded that older adults were unsatisfactory level of total knowledge not improvements in their practices regarding all levels of Hip exercises after surgery. Hence, older adults' poor knowledge about precaution after HJR surgery. Notably, needs and problems for OAs identified by instructions precaution after surgery.

## VI. Recommendation

**From the previous findings, the following recommendations are suggested:**

In the light of the results, the study recommends the following.

- Health education programs should be provided to all older adult attending the orthopedic and rheumatology clinics. Such programs should include:
- Simple basic knowledge about the disease etiology and its risk factors, symptoms, and aggravating conditions.
- The importance of body weight reduction, regular body weighing, and the appropriate actions to be taken in case of increased weight.
- The practice of regular physical exercises suitable for the condition of the knees, with proper modification of the type and level of activities.
- The value of keeping independence in the practice of ADLs in improving their physical and psychological wellbeing.
- The importance of compliance to various types of treatments, not only medications, as well as regular follow-up.
- Booklets, posters, and illustrated handouts in Arabic language containing simple information about OA of the knee should be available in each healthcare setting.
- Further research is needed to examine the value of multifactorial interventions in improving elderly women's knowledge and practices related to knee OA.

## VII. Acknowledgement

I would like to acknowledge all the community nurses who accepted voluntarily to take part in this study. Because of their participation in this study, we had a successful research. Finally, I would like to thank hospital administration who allowed us to conduct this study.



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