

KNOWLEDGE AND CONCERNS OF ELDERLY PATIENTS REGARDING THE TOTAL JOINT REPLACEMENT SURGERY.

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Abstract

Background: Total joint replacement is the most effective and a successful treatment for the elderly patients suffering from end stages of osteoarthritis. **The aim** of this study was to assess knowledge and concerns of elderly patients regarding the total joint replacement surgery. **Methodology:** A descriptive design was utilized to conduct this study which was conducted in the orthopedic outpatient clinics at the Zagazig University Hospitals. The sample included 103 elderly patients. Tool used for data collection was a structured interview questionnaire which composed of five parts; Demographic characteristics of the elderly patients, general medical history, history of osteoarthritic elderly patients, concerns about total joint replacement surgery and elderly patients' Knowledge regarding total Joint replacement. **Results:** the present study revealed that, there was 86% of the studied elderly patients had high concerns of TJR surgery and 98.1% had unsatisfactory knowledge about total joint replacement, while only 1.9% had satisfactory knowledge about it. A statistically significant relation between educational levels (illiteracy), concerns of elderly patients and total joint replacement knowledge. **Conclusion:** The majority of elderly patients was illiterate, had unsatisfactory knowledge and had high concerns of TJR surgery. **Recommendations:** Developing educational programs to improve elderly patients' knowledge of the importance and effectiveness of surgery and alleviate their concerns.

Keywords: Total joint replacement, Elderly patients, Concerns, Knowledge

Introduction

Ageing is a natural process; this process is a biological reality which has its own dynamic, largely beyond human control [1]. Among the most important statistical indicators related to the elderly people in Egypt (60 years and over) according to population estimates in 2019. The number of elderly people reached 6.5 million of them (3.5 million for males, 3.0 million for females), representing 6.7% of the total population (6.9% for males, 6.4% for females). [2]

Total joint replacement (TJR) or Arthroplasty is a successful treatment for the rapidly increasing population of elderly patients suffering from end stage of osteoarthritis [3]. Osteoarthritis (OA) is one of the most common joint disorders with pain, function loss, and disability among the older population [4]. It is a major cause of enormous disability in both the developed and developing countries. The worldwide prevalence estimate for symptomatic OA is 9.6% among elderly men and 18% among

elderly women [5]. Demand for joint arthroplasty has risen dramatically in the last decade, which may be due to increasing obesity and an aging population [6]. Hip and knee replacements are the most commonly performed joint replacements, but replacement surgery can be performed on other joints, as well, including the ankle, wrist, shoulder, and elbow [7]

The goals of surgeons who perform total joint arthroplasty (TJA) are to improve patient quality of life, relieve pain, restore joint function, and ensure the ability to perform knee flexion activities that improve mobility and independence in patients who suffer from osteoarthritis [8].

The knowledge and understanding of the causes and biological aspects concerning the joint replacement therapy are important factors for improving the pain and physical activity [9]

In Egypt, most patients believe that osteoarthritis is a disease without treatment, while abroad, especially the developed countries, the patient seeks to perform the artificial joint surgery, which heals the patient completely, which is a successful and influential process where the patient was able to walk and move directly after surgery a few days, and it is worth noting that the percentage of its success up to 95% and the prosthesis has been operating very efficiently for 15 years [10]

Patients' knowledge of TJR have demonstrated that they are often willing to delay surgery for several months or are unwilling to undergo TKR at all, despite persistent pain and functional limitations. This may be due to fear of elderly patients, a lack of information or the poor quality of clinical advice [11] Patients have many concerns about hip

replacement surgery, besides its success. And patients worry that if they perform a total joint replacement a surgery, it can prevent them from carrying out daily activities and enjoying life as usual. The longer patients delay having surgery, in the old days; they may have more problems while recovering from surgery [12]

Gerontological nurse has an important role assessment the level of knowledge regarding total joint replacement include pain assessment, physical activity and expected outcome to identify the needs of patients and improve their expectations regarding surgery's outcome [13]. Nurses identify patient's knowledge before surgery to promote patients' recovery, reduce patients' length of stay, and eased their financial burden. And due to most patients were elderly people, they were lack of knowledge about disease, and worried about the postoperative recovery, as well as engender to anxiety, fear. Nurses should explain about postoperative recovery, and give patient social and family support [14].

Significance of the study:

Insufficient knowledge and concerns in elderly patients about TJR surgery lead to delaying or canceling the surgery decision. Therefore, there is an urgent need to educate the elderly patients about the benefits and importance of TJR surgery to improve their knowledge and provide them with reassurance to relieve their concerns.

Aim of the study

This study aimed to assess knowledge and concerns of elderly patients regarding the total joint replacement surgery.

Research question:

- What is the knowledge level of elderly patients regarding the total joint replacement surgery?
- What are the concerns of elderly patients regarding the total joint replacement surgery?

Method

Study Design

A descriptive design was utilized to conduct this study which was conducted in the orthopedic outpatient clinics at the Zagazig University Hospitals.

Sample

A purposive sample of (103) elderly patients who aged 60 years or above, diagnosed with osteoarthritis of the hip or knee undergoing primary total joint replacement, able to communicate and agree to participate in the study. Presence any indications other than osteoarthritis such as (cancer, rheumatoid arthritis, gout.....) are excluded.

Sample size calculation

The sample size was calculated using EPI- Info software program version 6.04 at confidence limit 95% and assuming the prevalence of the surgery is 50.3% [15] among 200 elderly patients who were diagnosed with osteoarthritis and undergoing total joint replacement surgery at Zagazig university hospitals. It was found to be 93. Also 10% was added to the sample size for missed cases. Thus the total sample should include 103 elderly.

Tool of data collection

A structured interview questionnaire composed of five parts;

Part I: Demographic characteristics of the elderly patients.

This part used to assess the age, gender, and educational level.

Part II: General medical history.

It included questions about history of chronic diseases other than osteoarthritis. As: heart disease, hypertension, diabetes, liver, kidney and GIT disease.

Part III: Medical history of osteoarthritic elderly patients

It included symptoms of the disease and when do you suffer from symptoms.

Part IV: Concerns about total joint replacement surgery

It included the most common concerns which the elderly patients feel as, inability to move or paralysis after surgery.

Part V: Elderly patient s' knowledge regarding total Joint replacement prior to Surgery.

Knowledge about total joint replacement surgery was developed by the researcher based on literature review to assess the knowledge of the elderly patient regarding total joint replacement. It included eighteen questions about the surgery (causes, benefits, precautions.

The total number of questions is 18, for each question several correct answers were allotted, the number of correct answer ranged from one to seven, each correct answer was allotted one grade with total grade for all questions ranged from one to seven and zero for wrong answer or don't know. The knowledge score depending on the numbers of grades the participants obtained regarding all questions. The total grade was completed out of (51) grades and knowledge was considered satisfactory if the percent score was 60% or more (≥ 30.6 grade) and unsatisfactory if less than 60% (<30.6).

Concerns about total joint replacement surgery were also

developed by the researcher based on literature review. Items were scored zero, 1, for the responses no and yes respectively. The scores of the items were summed-up. The total score was 7, and the participants were considered to have a high concerns if the percent score 60 % (≥ 4.2) or more, and low concerns if less than 60 % (< 4.2).

Statistical analysis

Data entry and statistical analysis were done using SPSS 16.0 statistical soft were a package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. The Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency. Qualitative categorical variables were compared using a Chi-square test (X^2). Whenever the expected values in one or more of the cells in a 2x2 tables were less than 5. The spearman rank correlation was used for assessment of the interrelationships among quantitative variables and ranked ones. In order to identify the independent predictors of the knowledge and expectations scores multiple linear regression analysis was used after testing for normality, and homoscedasticity, and analysis of variance for the full regression models

were done. Statistical significance was considered at p-value < 0.05 .

Results

The demographic characteristics of the elderly patients in the study sample (**Table 1**) revealed that the elderly patient's age ranged between 60 and 82 years, with mean 69.25 ± 7.53 , with more men (54.4%) and 41.7% of them illiterate.

Table 2 explains the concerns of surgery as reported by the elderly patients. Regarding to the table, the most concerns were aging and intolerance of surgery (67.0%), followed by inability to move or paralysis after surgery (39.8%) then persistent pain after surgery (29.1%).

Figure 1 portrays that 86% of the elderly patients had high concerns of TJR surgery, while 14% of them had low concerns of surgery.

Figure 2 illustrates 98.1% of the elderly patients were having unsatisfactory knowledge about total joint replacement, while only 1.9% were having satisfactory knowledge about it.

Table 3 indicates a statistically significant relations between the elderly patients' knowledge and their total concerns ($p=0.04$),

Table 4 shows that the educational level was the only statistically significant independent predictor of knowledge score.

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Table (1): demographic characteristics, medical history and osteoarthritic history of the elderly patients in the study sample (n=103)

Demographic characteristics	Frequency	Percent
Age:		
60-69	74	71.8
70-79	19	18.5
80+	10	9.7
Mean±SD	69.25 ± 7.53	
Rang	(60 – 82)	
Gender:		
Male	56	54.4
Female	47	45.6
Education:		
Illiterate	43	41.7
Read/write	18	17.5
Basic	13	12.6
Intermediate	21	20.4
University / Postgraduate	8	7.8
Have chronic diseases	66	64.1
Diseases		
Diabetes	27	26.2
Hypertension	48	46.6
Heart	10	9.7
Liver	2	1.9
Chest	5	4.9
Renal	3	2.9
Suffering from Osteoarthritis		
5-9 years	37	70.9
10 14 years	20	19.4
15+	10	9.7

Table (2):Concerns of surgery as reported by the elderly patients in the study sample (n=103)

Concerns of surgery(@)	Frequency	Percent
Inability to move or paralysis after surgery	41	39.8
Need care more than 3 months	10	9.7
Bed ridden longtime	29	28.2
Persistent pain after surgery	30	29.1
Failure of surgery	27	26.2
Refuse of joint	7	6.8
Aging and intolerance of surgery	69	67.0
Mean±SD	1.7±0.2	

@ Responses are not mutually exclusive

Figure (1):Total Concerns of surgery as reported by the elderly patients in the study sample (n=103).

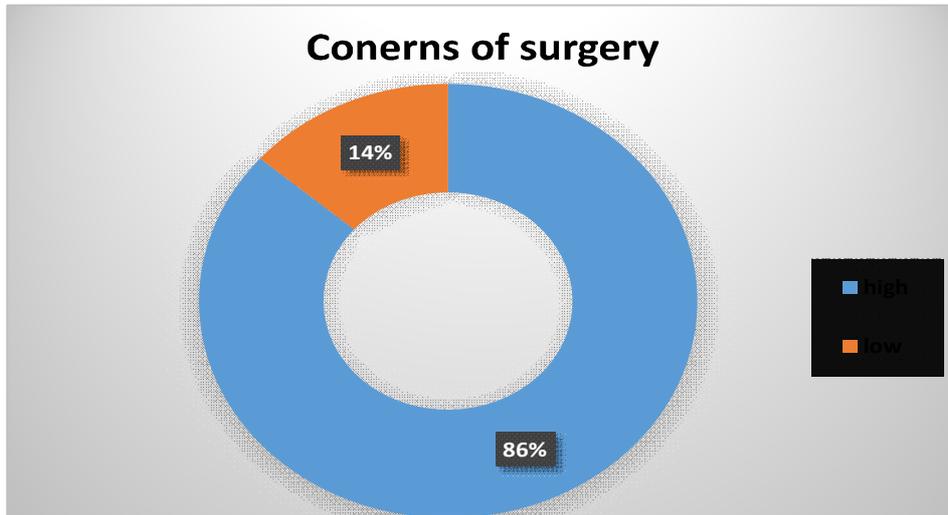
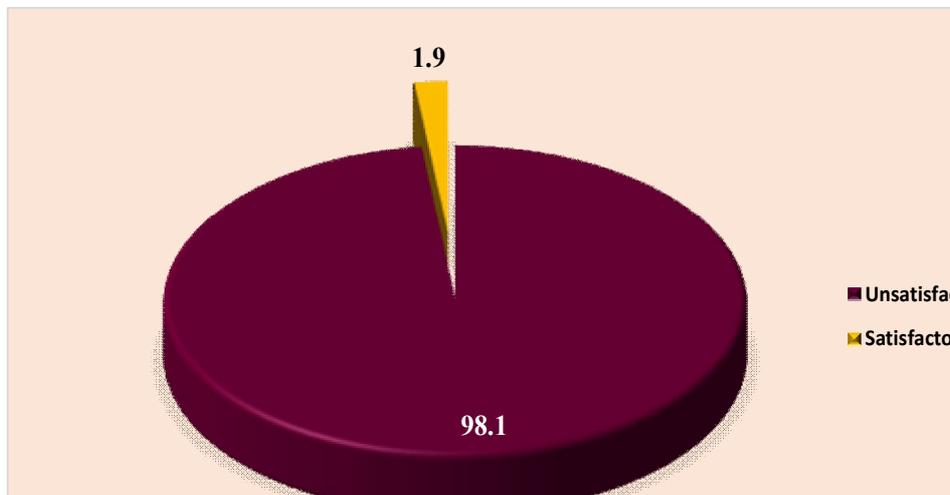


Figure (2):Total Knowledge score of total joint replacement among the elderly patients in the study sample (n=103)



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Table (3): Relation between the elderly patients' knowledge and their concern

The elderly patient's concerns	Knowledge				X ² test	p-value
	Unsatisfactory (n=101)		Satisfactory (n=2)			
	No.	%	No.	%		
Inability to move or paralysis after surgery						
Low	41	40.6	0	0.0	1.349	0.245
High	60	59.4	2	100.0		
Need care more than 3 months						
Low	9	8.9	1	50.0	3.777	0.052
High	92	91.1	1	50.0		
Bed ridden longtime						
Low	28	27.7	1	50.0	0.481	0.486
High	73	72.3	1	50.0		
Persistent pain after surgery						
Low	31	30.7	0	0.0	0.878	0.349
High	70	69.3	2	100.0		
Failure of surgery						
Low	26	25.7	0	0.0	0.689	0.407
High	75	74.3	2	100.0		
Refuse of joint						
Low	6	5.9	1	50.0	6.010	0.01*
High	95	94.1	1	50.0		
Aging and tolerance of surgery						
Low	32	31.7	2	100.0	4.14	0.04*
High	69	68.3	0	0.0		
Total concerns :						
High	88	87.1	1	50.0	9.302	0.04*
Low	13	12.9	1	50.0		

(*) Statistically significant at $p < 0.05$

Table (4): Best fitting multiple linear regression model for the elderly patients' knowledge score

Items	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	47.80	2.87		16.65	<0.001	42.15	53.45
Educational level	7.32	1.58	0.27	4.65	<0.001	4.22	10.42

R-square=0.10

Model ANOVA: $F=21.60$, $p < 0.001$

Variables entered and excluded: age, gender, residence, marital status, income, chronic diseases and osteoarthritis

Discussion

The current study findings revealed that the mean age of osteoarthritis elderly patients undergoing total joint replacement is 69.25 ± 7.53 and their age ranged between 60-82 yrs. As in this age, the most common cause of TJR is osteoarthritis which indicates the relation between the advanced age and the incidence of TJR surgery, and the elderly is related to cumulative exposure to various risk factors and biological changes that occur with aging, such as thinning of the cartilage, decreased muscle strength and oxidative stress [16]. Similarly, a study in Einstein (São Paulo) reported that the majority of patients were aged over 65 years [17].

More than half of the patients undergoing TJR were male, this may reflect the delayed access of women to surgical management because of greater fear or avoid burden on family after surgery. And the majority of studied elderly patients were illiterate. Also study in India found that the majority of the elderly patients undergoing TJR were male [18]. Additionally the study in Iran indicated that most of the subjects were illiterate [19].

Regarding the concerns of surgery, the current study findings revealed that the majority of elderly patients had high concerns about ageing and intolerance of surgery, inability to move or paralysis, persistent pain after surgery, bedridden longtime and failure of surgery that could effect on outcome of surgery or refuse the joint. In congruence with this, a study in Chinese who found that patients realized that total joint replacement surgery could relieve their symptoms, but had much concern about outcomes. The majority of them worried about being crippled after total joint replacement surgery, prolonged

bed rest (>3 months), experience pain, and could be too old to withstand the operation months [20].

According the current findings, the elderly patients had unsatisfactory knowledge about total joint replacement. These findings are in agreement with a study in Jeddah who found that an inadequate knowledge among most of Saudi participants about the causes and effects of the joint replacement surgery and the effect of osteoarthritis [21].

From the current findings that there was a relation between knowledge and concerns of the elderly patients toward surgery where the patients who had high concerns, especially concerns about joint refusing, aging and tolerance of surgery had unsatisfactory knowledge. This is confirmed with the present study that indicated that there was a relation between the elderly patient's concern and their educational level, where most of the elderly patients who being illiterate had high concerns of surgery as in the present study, furthermore; Similar findings were reported in Saudi Arabia demonstrated the misconceptions people had about the effect of TJR on daily physical activities and the severity of pain that concern them from the utilization of the surgery. This knowledge deficiency might be one of the reasons patients refuse to undergo this surgery [22].

Considering multivariate analysis, the recent study indicated that the educational level was the only statistically significant independent predictor of knowledge score. This is in agreement with a study in Korea [23] found that patients with low educational level had decreased medical knowledge, poorer health-related outcomes. Also similarly with a study in Iran reported that an inadequate level of knowledge

about TJR was common among the patients who being illiterate [24].

Limitations of the Study

Despite the progress achieved by total joint replacement surgery worldwide, one of the obstacles that the researcher faced during the study was that it was a small percentage of local studies that dealt with patients' knowledge and concerns about surgery, which prompted the researcher to resort to international studies to cite statistics and the prevalence of this Surgery.

Conclusion

The study results lead to the conclusion that the majority of elderly patients were illiterate and had high concerns about total joint replacement, and approximately all of them had unsatisfactory knowledge about surgery. Additionally the educational level was the only statistically significant independent predictor of knowledge score.

Recommendations

The elderly patients should be provided with effective and satisfactory knowledge through regular educational programs about total joint replacement surgery. Preoperative education may also prepare patients psychologically by reassuring them and relieving their concerns. Future studies are needed to measure the effect of educational program in improving the knowledge of elderly patients regarding the surgery, and further research is suggested to understand how the knowledge of elderly patients towards total joint replacement effects on the successful rate.

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