Editors Committee

Effect of Rehabilitation Program on Quality of Life & Coping Strategies Among Patients With Knee Osteoarthritis at Assiut University Hospital.

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Abstract
Objective: The aim of this study is to evaluate the effect of rehabilitation program on quality of life& coping Strategies among patients with knee osteoarthritis at Assiut University Hospital. **Method:** A quasi- experimental design study was used. Aconvenient sample included 50 patients with knee osteoarthritis 30 of them study group and were control group, who presented to the orthopedics outpatient clinic during 6 months. This study was performed at Assiut University Hospital. Tools of data collection included sociodemographic characteristics questionnaire, Coping strategies scale, quality of life scale for chronic disease . **Result**: The majority of studied and control groups were females with age group 45-65 years old. 62% of the studied group were illiterate , 70% of studied group and 60% of control group were complaining of this disease for more than 5 years. 22% of studied group had hypertension. More than half of the studied and control group were obese. There was statistically significant correlation between quality of life and affective orientation coping strategies among studied and control group before program. After program, there was statistically significant correlation between quality of life and affective orientation coping strategies. **Conclusion**: There was no statistically significant difference between studied and control group before program in relation to quality of life. However, there was statistically significant correlation between quality of life and affective orientation coping strategies among studied and control group. **Recommendations**: Nurses and other healthcare professionals can provide the treatment and prevention and make major contributions to the quality of life of people with knee osteoarthritis

Keywords; Knee Osteoarthritis, Quality Of Life & Coping Strategies.

Introduction
Osteoarthritis (OA) known as degenerative arthritis or degenerative joint disease or osteoarthritis, is a group of mechanical abnormalities involving degradation of joints including articular cartilage and subchondral bone. Symptoms may include joint pain, tenderness, stiffness, locking, and sometimes an effusion. A variety of causes—hereditary, developmental, metabolic, and mechanical—may initiate processes leading to loss of cartilage. When bone surfaces become less well protected by cartilage, bone may be exposed and damaged. As a result of decreased movement secondary to pain, regional muscles may atrophy, and ligaments may become more lax (**Roland, Moskewitz, 2009**).

OA is the most common form of arthritis, affecting 27 million adults in the United States (**Bedson, et al., 2005)** OA is the most common joint disorder. It is estimated that, by 2030, close to 70 million persons aged 65 and older will be at risk for OA (**Regier & Parmelee, 2015).**

OA typically occurs in the hands, knees, spine, and hips, although it may be seen in any of a variety of joints. Clinical diagnosis is based on observed symptoms, radiographic changes, or both, whereas differential diagnosis is normally supported through the use of laboratory studies. **(Woolf & Pfleger 2003)**

Osteoarthritis is one of the most prevalent chronic diseases worldwide and is associated with substantial impact on patients' individual quality of life as well as on healthcare costs. **(Lawrence, Felson & Helmick 2008)** OA, is often associated with pain, functional impairment, activity limitations and decreased independence in activities of daily living, depressed mood, and a reduction in quality of life. Pain is frequently identified as the most distressing symptom of OA (**Tanimura et al., 2011, Regier & Parmelee, 2015).**

Ultimately, it is the burden of suffering experienced by people with OA that is of primary concern, and that burden can be significant. Pain and functional impairment are the key domains of that burden, and taken together they often exert a significant reduction in quality of life (QOL**).(Van Dijk, Veenhof & Schellevis 2008)** QoL is generally considered to comprise five main dimensions including physical functioning, psychological functioning, social functioning, cognitive functioning, and general well-being. Explicit in the framework of HRQoL is the evaluation of functional status as well as patient perceptions of emotional and social functioning and

role activities**. (Farry et al., 2013 & K.A. et al., 2007**) reproted that Active coping was predictive of less depressed affective status, whereas passive coping was predictive of subsequent worsening of negative mood**.**

Medical approaches to managing arthritis can reduce many pain-related and arthritic symptoms, yet many arthritis patients still experience pain and disability despite optimal medical management. Cognitive-behavioral pain coping strategies may provide patients with new coping skills that can augment medical management of arthritis pain and disability. **(Sharpe, Sensky, Allard 2001)**

Need for the study

"Osteoarthritis" is the disease of the 21st Century, and the most common joint disorder, affecting over 25 million . As well as one of the leading causes of disability among older people. The knee and hip are the most disabling sites; over 250,000 total joint replacements each year takes place. Musculo-skeletal disorders are a major cause of morbidity throughout the world. Early diagnosis and treatment are vital for a person with arthritis symptoms. For those with arthritis, quality of life can be improved and pain and disability decreased, Life style changes can reduce stress on affected joints**.** The investigator is thus interested to conduct a study on/ about the Effect of rehabilitation program on Quality of life& Coping Strategies among Knee OA patients

Aim of the study

To investigate the effect of rehabilitation program on quality of life& coping strategies among patients with knee osteoarthritis at Assiut University Hospital.

Subjects & Method

Research Design: A quasi- experimental design study was used in carrying out this study.

Research question:-

Does the rehabilitation program affect the quality of life& coping strategies among patients with knee osteoarthritis?

Research setting

The study was conducted in orthopedic out patients, clinic of Assiut University Hospital.

Sample

The sample of this study divided into two group 50 patients with knee osteoarthritis who were a study group and 30 patients as a control group who suffer OA but did not receive the program , those who agreed to participate in the study. The study group received the rehabilitation program while control group did not receive the program.

Tools of data collection

1. **Sociodemographic Characteristics questionnaire** Which include patient's name, age, sex, and marital status, level of education, occupation, and residence, duration of illness.
2. **Coping strategies scale by (Jalowiec and vpowers ,1981):-**

This scale was used to measure coping strategies, this scale was composes of:

1. problem orientation coping strategies; this primarily aimed at solving problems or handling stressful situations.

These are classified into two factors:

Factor 1: Active role coping strategies consists of ten items. Factor 2: Passive role coping strategies, consists of six items

2. Affective orientation coping strategies: which is used to measure strategies to manage emotions accompanying stressful situations and they are **classified into five factors:** Factor1: Coping strategies related to withdrawal consists of seven items. Factor 2: Coping strategies related to projection & displacement consists of five items. Factor 3: Coping strategies related to neurotic reaction consists of four items. Factor 4: Coping strategies related to day dream and fantasy consists of three items. Factor 5**:** coping strategies related to resign the self to the fate consists of five items. This scale is rated on a five point likert scale with response options of always (5), often (4), about half the time (3) ,occasionally (2), never (1). A high score indicates greater use of that particular coping strategy.

3. Quality of life scale for chronic disease (1986) Quality of life assessment Scale (QOL) its original scale was constructed by **Lehman (1986)** to assess quality of life. This scale is used to measure the current concept of quality of life). This scale was valid and reliable for total subscale (0.70) (Alfa Coeffient) it consists of 49 items divided into six domains or subscales:-

First subscale is composed of 10 items covering the physical health functions.

The second subscale consists of 12 items reflecting psychological status of Patients. The third subscales include 11 items related to personal and social relationship with others. The forth subscale include 7 items representing the level of dependency as regard personal hygiene, clothes, grooming, drinking and eating food. The fifth subscale includes 4 items related to atmosphere at home feeling of rest security and privacy in home. The six subscale consists of 5 items used to collect data about spiritual concern& personal belief, values and habits of religion, **Zaki, (2009).**

Methodology

1) An official permission was granted from responsible (High dam faculty of nursing, Head of the out- patient clinic) to carry out the study after explaining the purpose of study.
2) Socio demographic data sheet was developed by the researcher.
3) The pilot study was carried out on 8 subjects to ensure that the questions are clear and simple.
4) The researcher assured voluntary participation and confidentiality to each patient who agreed to participate.
5) The aim and strategy of the study were explained to the studied groups before data collection.
6) The studied groups were assessed using the study tools. The interview was carried out in a special patient room.

Pilot study

A pilot study was carried out in October 2016; on 8 patients with knee osteoarthriti they were chosen randomly from orthopedic outpatients' clinics in Assiut University Hospital. The purpose of the pilot study was to detect any particular problem in the statements clarity, feasibility, and applicability of the tools and to estimate the time required for interview.. No change was done in the assessment sheet, so the sample selected for the pilot study were included in the main study.

Field work

The collection of data and application of the rehabilitation program lasted over a period of six months, starting from October 2016 and ending in May 2017. Data were collected two days for week at orthopedic outpatients' clinics in Assiut University Hospital from 8 a.m. to 2 p.m.

Rehabilitation program

Program was aided by using posters, and handout about the care of males and female with knee osteoarthritis. Each session lasted about 30 minutes of each patient based on the need with knee osteoarthritis according to gather elements.

and was accompanied by feedbacks. Four sessions for the program were planned. These were followed up after 3 weeks of the program to test retained information and to evaluate the effect of program by using quality of life scale.

This table explores the number of sessions, content, objectives, and time as well as education methods of the program.

No of session	Content	Objectives	Time & education method
Initial session	Interview the patient with knee osteoarthritis to assess their learning needs and their condition.	help patients recognize and express their needs	30 minutes **(lecture)**
First session	definition, signs and symptoms, causes, risk factors, complications, methods of diagnosis, treatment and its precautions,	Identify the way used to meet the patients with knee osteoarthritis needs. Counter the rumors and misunderstand of patients with knee osteoarthritis and give them accurate information.	30 minutes **(lecture posters& Pictures**)
Second session	family history And factors related to knee osteoarthritis Characteristics of knee osteoarthritis	help knee osteoarthritis patients to cope with his condition	30 minutes **lecture posters& Pictures**
Lasted session	Evaluate the effect of rehabilitation program on quality of life & coping strategies rehabilitation program.	help knee osteoarthritis patients to cope with his condition	30 minutes **lecture**

Ethical consideration

1. Risk-benefit assessment, there was no risk during application of the research.
2. Confidentiality was maintained during the research.
3. Informed oral consent was taken from patients for their approval to participate in this study.

Results

Table (1): Comparison between studied and control groups as regard demographic & clinical data.

Demographic & clinical data	Study (n=50)		Control (n=30)		P. value
	No.	%	No.	%	
Mean age groups	53.2±7.2		53.7±8.3		0.877
Age group					
25-45 years	7	14.0	4	13.3	0.933
>45-65 years	43	86.0	26	86.7	
Gender					
Male	12	24.0	6	20.0	0.678
Female	38	76.0	24	80.0	
Occupation					
House wife	37	74.0	23	76.7	
Farmer	11	22.0	5	16.7	0.908
Employee	2	4.0	2	6.6	
Education					
Illiterate	31	62.0	14	46.7	
Primary/prep	2	4.0	1	3.3	0.567
Secondary	15	30.0	13	43.3	
University	2	4.0	2	6.7	
House					
Ground floor	35	70.0	23	76.7	
First floor	4	8.0	4	13.3	
Second floor	3	6.0	1	3.3	0.682
Third floor	5	10.0	1	3.3	
Fourth floor	3	6.0	1	3.3	
Disease duration					
1-5 years	15	30.0	12	40.0	0.360
>5 years	35	70.0	18	60.0	
Types of diseases					
-Rheumatism	2	4.0	-	-	
-Diabetes	5	10.0	-	-	-
-Hypertension	11	22.0	-	-	
-Diabetes & Hypertension	2	4.0	-	-	
BMI					
Normal	2	4.0	1	3.3	
Overweight	21	42.0	11	36.7	0.871
Obese	27	54.0	18	60.0	

Table (2): Comparison between studied and control group as regard Quality of life & coping strategies before and after program.

Quality of life scale	Pre- program			Post program		
	Study	Control	P. value	Study	Control	P. value
Total quality of life scale	**137.3±7.5**	**138.2±4.4**	**0.586**	**166.1±4.4**	**138.2±5.3**	**<0.001****
Physical health	21.5±2.1	21.6±1.9	0.843	31±2.2	21.4±2.1	<0.001**
Psychological state	8.1±1.6	7.9±1.5	0.650	11.8±1.4	8±1.6	<0.001**
Self-reliance	50.9±3	51.4±2.4	0.473	56.3±2.8	51.2±2.7	<0.001**
Social and personal relations	12.1±1.1	12.2±1.1	0.589	14.3±0.9	12.3±1.1	<0.001**
The surrounding environment	17±2.1	16.9±1.8	0.762	20.1±2.1	16.9±1.9	<0.001**
Religious customs and personal beliefs	16.6±1.4	16.6±1.2	0.912	19.3±0.8	16.6±1.4	<0.001**
Physical activities	11.1±2.1	11.5±1.5	0.373	13.1±1	11.7±1.6	0.004**
Coping strategies scale:-	**Pre- program**			**Post program**		
	Study	**control**	**P-value**	**Study**	**control**	**P-value**
I-Affective orientation coping strategies Total	**75.7±4.8**	**75.5±4.5**	**0.838**	**91.1±4.7**	**75.5±4.7**	**<0.001****
Withdrawal	21.9±2.3	22±2.1	0.959	26.6±2.1	21.6±2.3	<0.001**
Projection & displacement	16.4±2.6	16.4±2.4	0.982	19.1±1.2	16.6±2.6	<0.001**
Neurotic reaction	12.1±2.2	11.6±2.1	0.360	16.8±1.9	12.2±1.8	0.003**
Day dreams & fantasy	8.7±0.9	8.5±0.9	0.221	10.9±0.9	8.6±0.9	0.007**
Resign the self to the fate	16.5±1.8	17±1.8	0.268	17.8±1.1	16.7±1.9	0.009**
II- Problem orientation coping strategies Total	**52±5**	**53.5±4.7**	**0.187**	**60.9±3.1**	**51.5±5.4**	**<0.001****
Active role	29.1±5	30.3±5	0.295	33.4±2.8	28.6±5.7	<0.001**
Passive role	23±2.2	23.2±1.7	0.558	27.5±0.9	22.9±2.5	<0.001**

*** Statistically significant difference (p<0.01)*

Table (3) : Correlation between Quality of life & coping strategies before program and after program among studied &control group:-

Studied & control group	Pre program				Post program			
	Quality of life		Affective orientation coping strategies		Quality of life		Affective orientation coping strategies	
	r	P	r	P	R	p	r	P
Studied group								
Affective orientation coping strategies	-0.336	0.017*			0.506	0.001**		
Problem orientation coping strategies	.205	0.153	-0.362	0.010*	-0.031	0.832	0.064	0.658
Control group								
Affective orientation coping strategies	-0.481	0.007**			-0.412	0.024*		
Problem orientation coping strategies	.250	0.182	-0.388	0.034*	.244	0.193	-0.486	0.007**

** Statistically significant correlation (p<0.05)* *** Statistically significant correlation (p<0.01)*

Table (1): Comparison between studied and control groups as regard demographic & clinical data show that , the mean age of study group was (53.2 ± 7.2)(25-65 years) While control group was (53.2 ± 8.3)(25-65 years) . It was found that the majority of study and control groups (76%, 80%) respectively

were females' .Regarding occupation nearly ¾ of studied group (74%) and more than ¾ of control group (76.7%) were a house wives. According to level of education, 62% of the studied group were illiterate followed by 30 % of them were have secondary level of education. As regards house, 70 % of the studied group and 76.7% of control group were living in ground floor. While a few numbers of study and control groups (6%, 3.3%) respectively were living in 4th floor housing. According to duration of disease, 70% of study group and 60% of control group were complaining of this disease more than 5 years. As regards to types of diseases among study group, it was found that 22% of study group had hypertension followed by 10% of them were diabetic While 4% had hypertension and diabetes at the same time. Regarding control group there were not any people suffering from any disease. Regarding body mass index, it was clear that more than half of the studied and control group (54%, 60% respectively) were obese.

Table (2): Comparison between studied and control group as regard quality of life & coping strategies before& after program This table showed that there was no statistically significant differences between study and control group before program (P= 0.586) as well as affective orientation coping strategies and problem coping strategies (p= 0.838 , P= 0.187) respectively While there were highly statistically significant differences between studied and control group after program regarding quality of life (P<0.001) as well as coping strategies ((P<0.001). Notes that there were highly statistically significant differences between pre and post program among study group in relation to quality of life and coping strategies ((P<0.001, P<0.001) respectively While there were no statistically significant differences between pre and post program among control group in relation to quality of life (P= 0.998) as well as affective orientation and problem orientation coping strategies ((P= 0.978, P= 0.124) respectively .

Table (3): Correlation between quality of life & coping strategies before program and after program among studied &control group. This table showed that before program there were statistically significant negative correlation between quality of life and affective orientation coping strategies (P= 0.017, P= 0.007) respectively among studied and control group. As well as affective orientation coping strategies and problem orientation coping strategies (P= 0.010, P= 0.034) respectively among studied and control group. After program, there were statistically significant correlation between quality of life and affective orientation coping strategies (P= 0.001, P= 0.024) respectively among studied and control group. While there was highly significant correlation (P = 0.007) between affective orientation coping strategies and problem coping strategies among control group.

Discussion

This work was aiming to study the effect of rehabilitation program on quality of life& coping strategies among patients with knee osteoarthritis at Assiut University Hospital.

Knee osteoarthritis (OA) as a significant negative impact on health-related quality of life . OA are prevalent worldwide and their impact on the individual is significant. Knee osteoarthritis is leading cause of disability in adults characterized by progressive articular cartilage loss resulting in joint pain and disability .By 2025, the prevalence of knee OA is expected to increase by 40%, largely due to an aging population and the obesity epidemic (**Jack ;et al., 2013 Murphy, Helmick 2012 Martel et al., 2008)**

More than three quarters of the study and control group were ranged from 45-65 years old(mean and SD was53.2 ±7.2) because OA have a relation with age **This result disagreement with Alrushud et al .,(2013)** who stated that the age of knee OA ranged from 60 to 70 years (mean and SD is 64 ± 3.03 years). While **(Mahmoud 2010) -** found that more than one third of the study sample ranged from 36-45 years old and more than two thirds in control group ranged from 46- 60 years old

The majority of studied and control group (76%, 80%) respectively were female This may be revealed to house burdens , caring of babies and unhealthy life style decrease using of technology, decrease physical activity, incorrect body mechanism in house activity, increase body weight ,).. This result is in agreement with **(Mahmoud 2010)** who found that the majority of the subjects were females in study and control group. **Dieppe et al., (2008**) reported that Knee OA is mostly a feminine disease that has effect on the women after age 45 year may be revealed to wrong life style and excessive regime (diet) as well as estrogen hormonal deregulation .

Nearly three quarters of studied group (74%) and more than three quarter of control group were a house wives. Nearly two third of the studied &control group were illiterate,). This may be related to the majority of the sample is female. The present study agreement with **Mahmoud (2010)** mentioned that more than two third of the sample and control group were illiterate, as well as a housewives. **Aciksoz et al**., **(2016)** revealed that the study sample of 145 patients with knee OA, most of them were females with, primary school graduate (47.6%) and a housewife (62.8%).

Nearly three quarters of studied group and more than half of control group were complaining of this

disease more than 5 years **(Keith & Loretta 2011**) found that nearly half (46%) reported having OA of the knee for more than 10 years.

The current study was found that more than one quarter of studied group had hypertension followed by few of them were diabetic While small number of them had hypertension and diabetes at the same time. Because some literature of OA, report that OA is often associated with pain, physical disease functional impairment, activity limitations,. **Ouedraogo (2014)** reported that 23.6% patients had a history of knee trauma, 36.8% arterial hypertension and 9.4% diabetes mellitus. **Mahmoud (2010)** stated that 13.3% of the study sample & control group had diabetes mellitus. Regarding control group there was not any person suffering from any disease. It was clear that more than half of the studied and control group were obese regarding BMI, this may be revealed to obesity is a significant risk factor for the development of knee OA and is associated with faster disease progression. Biomechanical inflammation and cognitive behavioral changes related to obesity. This result agrees with **Mahmoud (2010)** who found that obesity has been strongly linked to knee OA. **Ouedraogo (2014)** reported that the mean BMI of thier patients was 30.9 ± 6.5 kg/m2 with a daily range of 15.8 to 45.4 kg/m².

There were highly statistically significant difference between pre and post program among studied & control group in relation to quality of life and coping strategies ((P<0.001, P<0.001) respectively . As well as there were highly statistically significant differences between pre and post program among studied group in relation to quality of life and coping strategies ((P<0.001, P<0.001) respectively . OA associated with a reduction in quality of life. There have not been available studies on OA patients use to effective cope strategies

Alrushud et al., (2013) stated that the better QOL score without knee OA than patients with knee OA higher scores were significant for the two components of the scale including physical and mental components (*P* = 0.0001). Another study was done by **Muaraki et al., (2010)** in Japan, found that knee OA was significantly associated with lower QOL scores among the elder women. **Perrot et al., (2008**) found that patients with OA demonstrated lower active and higher passive coping strategies than patients with other chronic painful conditions.

The present study reported that before program there were negative correlations between quality of life and affective orientation coping strategies (P= 0.017, P= 0.007) respectively among studied and control group. As well as affective orientation coping strategies and problem orientation coping strategies (P= 0.010, P= 0.034) respectively among studied and control group. After program there were negative correlations between quality of life and affective orientation coping strategies (P= 0.001, P= 0.024) respectively among studied and control group. While there was highly significant correlation (P = 0.007) between affective orientation coping strategies and problem coping strategies among control group. This may be explained by the quality of life is influenced , influenced by coping strategies and vs. versa.as well as the effect of the program according to studied group **(Dioso & Tanggaya 2016)** found that rehabilitation treatment and different coping strategies helped OA patients achieve a different domain of QOL. **Aciksoz et al., (2016)** reported that alternative coping strategies that have favorable effects on quality of life areas should be set and applied with an organized education and counseling. **Perrot etal 2008** found that coping strategy scores were significantly higher in patients with knee OA.

Conclusion

Present study concluded that

There negative statistically correlations between quality of life, affective orientation coping strategies and problem coping strategies among studied and control group.

Recommendations

Based on the present study it can be recommended that:

1-Quality of life of adult patients with knee osteoarthritis should be assessed through the program intervention

2-Reapplication of the current study on large probability sample

3-Nurses and other healthcare professionals can provide the treatment and prevention and make major contributions to the quality of life of people with knee osteoarthritis and should be encouraged to do so.

4-Setup a project that aims to improve patient coping strategies by implementing evidence based practice

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