ABSTRACT

Background: Osteoarthritis is a major public health problem throughout the world associated with varying degrees of functional restriction and affected quality of life. Aim of the Study: This study was conducted to evaluate the effect of interventional program for improving quality of life of patients with osteoarthritis.

Design: A quasi-experimental design was used in this study. Setting: The current study was conducted at orthopedic outpatients' clinics at El Nil hospital for health insurance in Shubra elkheima city. Study Subjects: A purposive sample of 77 patients with osteoarthritis disease were chosen according to inclusion criteria.

Data Collection Tools: Three tools were used, First tool: Interviewing questionnaire for patients was used which included two parts: Part (I) Socio-demographic characteristics about patients. Part (II) present history about patients,

Second tool: practices assessment for patients related to osteoarthritis disease as reported by patients.

Third tool: WHOQOL-Brief. Results: There was a highly statistically significant difference between pre and post program related to patients' total quality of life where few of patients were at high level in pre program and improved in post program to be more than three fifth. Conclusion: Interventional program reported remarkable improvement in all domains of quality of life and practices of patients with osteoarthritis after program implementation. Recommendations: Replication of the study using larger probability samples acquired from different geographic areas.

Key words: Osteoarthritis, interventional program, quality of life.

I. INTRODUCTION:

Osteoarthritis (OA) or degenerative joint disease is a highly prevalent chronic disease characterized by hypertrophic bone changes with gradual cartilage damage in one or more joint, it is a clinical syndrome of joint pain which can affect every population and ethnic groups. OA is the most common form of arthritis and a multifactorial disease affecting millions of people worldwide. Globally, an estimated 500 million people have osteoarthritis. OA affects almost 13% of people worldwide, about 10% of males and 18% of females. In the Middle East (Syria, Iraq, Saudi Arabia, and Yemen) more than one million people suffer from OA. Osteoarthritis symptoms often develop slowly and worsen over time. Signs and symptoms of osteoarthritis include tenderness, stiffness, loss of flexibility, grating sensation, bone spurs and joint pain. Joint pain and stiffness may become severe enough to make daily tasks difficult causing joint degeneration, often leads to severe disability.

Quality of Life (QoL) is the degree to which an individual is healthy, comfortable, and the ability to participate in and enjoy life events. It is a dynamic condition that responds to life events outlining negative and positive features of life and the general well-being of individuals and societies.

The main goal of modern osteoarthritis disease treatment is to reduce the effect of the disease on patients' life through improving their quality of life and reducing disability. surgery may be required as last choice to improve
Clinical guidelines recommend a combination of non-pharmacological treatments such as patient education, exercise and weight control interventions with pharmacological treatments to improve pain and other symptoms.

An intervention program is a combination of strategies or elements designed for the purpose of improving health status or producing behavioral changes among individuals through influencing individuals’ practices, creating supportive environments and increasing social support. Interventions which include multiple strategies are the most effective for producing desired and lasting change.

Community health nurse plays an important and basic role to empower patient and family through teaching practices necessary to reach optimal safe performance in managing osteoarthritis disease and to improve their quality of life, also can help to reduce symptoms by implementing non-pharmacological methods and maintain of healthy and positive adaptation with osteoarthritis disease.

Significance of the study:

Osteoarthritis disease is the most common form of joint damage and one of pathological condition that cause decline in all health indicators. OA is a major cause of disability and consequent decline in the quality of life worldwide. In Egypt, more than five million (5%) have osteoarthritis, it considered the third cause of disability in Egypt after cardiovascular diseases and back disorders. OA severely impair the affected individuals' ability to carry out activities of daily living including basic tasks, ability to work, and reduce physical and social capability, this limitation affected retired patients as well as those still working. OA is a serious joint disease having a significant economic impact on our health system worldwide. It not only affects health of the patients, but also places a tremendous burden on the family and healthcare resources.

Aim of the Study:

The study aimed to evaluate the effect of interventional program for improving quality of life of patients with osteoarthritis.

The aim was fulfilled through:
1. Assess patients' practices regarding osteoarthritis disease as reported by patients.
2. Assess different domains of quality of life (physical, psychological, social and environmental) for patients with osteoarthritis.
3. Implement interventional program for patients with osteoarthritis disease.
4. Evaluate the effect of interventional program on various domains related to quality of life of patients with osteoarthritis.

Research Hypothesis:

H I- Intervventional program for patients with osteoarthritis will improve their practices regarding osteoarthritis disease.

H II- Intervential program for patients with osteoarthritis will improve their quality of life.

II. METHODS:

The technical design:

-It includes research design, setting, subject and tools for data collection.

A) Research design:

A Quasi-experimental research design was utilized to conduct this study.

B) Setting:

The study was conducted at orthopedic outpatient clinics at ElNil hospital for health insurance in Shubra ElKheima city, ELQalyubiyah Governorate. This setting is selected especially because it serves a large number of patients with osteoarthritis from different governorates.
C) Subjects:
A purposive sample of 77 patients with osteoarthritis was selected according to inclusion criteria.

Inclusion criteria was:
1- Adult patients from 40 to 60 years.
2- Diagnosed with osteoarthritis since at least one year.
3- Registered for follow up in the previous setting.
4- Not diagnosed with rheumatoid arthritis.
5- Not suffering from any type of physical disabilities.

Size: According to (39).

\[ n = \frac{2 \cdot (Z_{1-\alpha} + Z_{1-\beta})^2}{E^2 S^2 (\Delta)^2} \]

The standard normal deviate for \( \alpha = Z_{\alpha} = 1.960 \)
The standard normal deviate for \( \beta = Z_{\beta} = 0.842 \)
A = 2.500
B = \((Z_{\alpha}+Z_{\beta})^2 = 7.849\)
C = \((E/S(\Delta))^2 = 0.1024\)
AB/C = 76.6491.

\[ n = \left( \frac{1.96 + 0.84}{0.1024} \right)^2 = 76.6491 \approx 77 \text{ patients} \]

Sample size was 77 patients to achieve a power of 80% and a level of significance of 5% (two sided), assuming the standard deviation of the differences to be 2.500 between pairs.

D) Tools for data Collection:
Two tools were used to collect data included:

First tool(I): An Interviewing questionnaire:
This tool is an Arabic interviewing questionnaire constructed by the researcher after reviewing related recent literatures, it included the following parts:

Part 1: Socio demographic data for patients with osteoarthritis: such as age, sex, marital status, educational level, occupation, monthly income, residence.

Part 2: Present history: such as smoking, obesity, family history for osteoarthritis, affected joints.

-BMI = Weight (kg) / Height (m²)

-BMI was categorized as following:

<table>
<thead>
<tr>
<th>BMI</th>
<th>Weight status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 18.5</td>
<td>Under weight</td>
</tr>
<tr>
<td>18.5-24.9</td>
<td>Normal or healthy weight</td>
</tr>
</tbody>
</table>
Second tool: Patients’ practice regarding osteoarthritis diseases as reported by patients.

A tool was used to assess the practices of patients with osteoarthritis, it was adapted by the researcher from Western Ontario and McMaster Osteoarthritis Index (WOMAC).

Scoring system: Three scoring levels were assigned (1) if the response was never, (2) if the response was sometimes and (3) if the response was always. These scores were converted into a percent score. Practice level was considered satisfactory if the percent score was equal to 50% (117 degree) or more and was considered unsatisfactory if the percent score was less than 50% (less than 117 degree) (36).

Content validity: The previous tools were tested by five professors from community health nursing department – faculty of nursing – Ain Shams University.

Content reliability: The previous tools were tested by Cronbach alpha test of reliability, the tools were proved to be strongly reliable tool (r = 0.899).

Pilot study:
The pilot study was conducted to test the simplicity of language and to evaluate clarity, visibility and applicability of the study tools which used in data collection in addition to the time required to fill each tool. It was carried out on 10% from total sample size of the patients with symptomatic osteoarthritis (8 patients) which had been included in this study. They were chosen and only from the outpatients’ orthopedic clinics of El Nil hospital for health insurance at Shoubra Elkheima city and there were no modifications applied on tool.

Third tool (II): Quality of life for patients with osteoarthritis disease (24)
The research tool was adopted from World Health Organization (WHOQOL-BREF) assessment instrument to provide a rapid evaluating for the health-related functions in four domains (physical, psychological, social, and environmental). The Arabic version was used by the researcher, it was translated by the WHOQOL group from the English version.

Scoring system: It was possible to derive four domain scores. There were also two items that were examined separately: question 1 asks about an individual's overall perception of quality of life and question 2 asks about an individual's overall perception of their health. The four domain scores denote an individual’s perception of quality of life in each particular domain. The tool was graded on Likert-scale extending from 1 (strongly agree) to 5 (strongly disagree). Domain scores are scaled in a positive direction it means that a higher scores denote a higher quality of life. The mean score of items within each domain was used to calculate the domain score. Mean scores were then multiplied by 4. The first transformation method converted scores to range between 4-20. The second transformation method converted domain scores to a 0-100 scale.

Scoring system: (0-100 degree) According to (9) Scoring of total domains and total quality of life was as following:

Score ≤ 45 was considered poor quality of life
45 < Score ≤ 65 was considered moderate quality of life
Score >65 was considered high quality of life

The Procedure:
Ethical committee at faculty of nursing, Ain Shams University and agreement letter from the dean of the faculty at first then an official permission for conducting the study was obtained from the director of outpatients’ clinics at El Nil hospital for health insurance in Shoubra Elkheima city. The researcher started with introducing himself and explain the aim of the study for the selected patients, assured that the data collected were confidential and would be only used to achieve the purpose of the study taking in consideration all protective precautions to avoid infection by corona virus for the researcher and for the subjects of the study. Before starting the interview a written consent was obtained from each patient, the study subject have the right to withdraw from the study.
whenever they want. When it is possible the study subject would be provided with feedback about the research out comes. Patients were interviewed using tools 1,2 and 3. The field work was carried out over two days (Saturday, Tuesday or Thursday) per week during morning shift from (10.00am to 1.00pm) in orthopedic outpatients' clinics. Data collection started and completed within 10 months starting from (the beginning of September 2019) until (the end of June 2020). Preparation for assessment took 2 months for developing tools of data collection from literatures of review. Data collection and filling of questionnaire took 3 months. Applications of the intervention program took 3 months after finishing assessment for all patients with osteoarthritis. The program has general objectives and every session has its specific contents and objectives, this was achieved through several teaching methods as, brain storming, lecture, discussions and role playing and intervention booklet using the suitable media as computer, video, and pictures. At end of each session summery and conclusion was done, let a time for asking question, and feedback. To ensure that the patients understand the program content, each session was begun by a summery about what was given through previous session and at the end of each session the patients were oriented about content of the next session by using simple language to suit all patients. Patients were informed to be in contact with the researcher by telephone for any guidance at any time or to find a solution for any complain. The post test assessment was done after application of the interventional program by one month for practices and two months for quality of life.

**Statistical Design:**

The results were revised, coded, analyzed by appropriate statistical methods (*SPSS version 21*) and tests of significance and then were presented in tables, figures and graphics as required. A significant level value was considered when p-value<0.05*, and highly significant level value was considered when p-value<0.001**, while p-value>0.05 indicate non-significant result.
III.

Table (1): Shows that, 33.80% of patients with osteoarthritis aged (45 - <50) years with mean age 48 ± S.D 5 years. 68.80% of them were females. 81.80% of them were married. While 51.90% of them were secondary education. Also 77.90% of them were working in governmental occupation. 67.50% of them had insufficient monthly income and 55.80% of them were living in urban area.

(Table2): Displays that, 51.90% of patients with osteoarthritis had a positive family history for osteoarthritis. 88.30% of them were non smokers, while 33.76% of patients were obese and 74% of them had knee osteoarthritis.

(Table3): Shows that, regarding total domains of quality of life, the high level in physical, psychological, social and environmental domains respectively was 62.30%, 31.20%, 45.50% and 9.10% in pre program and improved in post program to be 81.80%, 76.60%, 81.80 and 55.80%. Difference observed a highly statistically difference with p. value <0.000 for all domains.

Figure(1): Reveals that, regarding total satisfactory level of practice of patients with osteoarthritis, in pre program 72.70% of them had a total satisfactory level and improved to 100% in post program with a highly statistically difference p. value < 0.000.

Figure(2): Illustrates that, regarding quality of life as a general for patients with osteoarthritis, 23.40%, 59.70% and 16.90% of them respectively were at poor level, moderate level and high level in pre program and improved in post program to be 5.20%, 9.10% and 85.70%. Difference observed a highly statistically difference with p. value <0.000.

Figure(3): Reflects that, regarding total quality of life of patients with osteoarthritis 09.10%, 87.00% and 3.90% of them were respectively at poor level moderate level and high level in pre program and improved in post program to be 01.30%, 36.40% and 62.30%. Difference observed a highly statistically difference with p. value <0.000.

Table(1): Distribution of the studied patients according to their socio demographic characteristics (n=77).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age(years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;45</td>
<td>18</td>
<td>23.40</td>
</tr>
<tr>
<td>45 - &lt;50</td>
<td>26</td>
<td>33.80</td>
</tr>
<tr>
<td>50 - &lt;55</td>
<td>20</td>
<td>25.90</td>
</tr>
<tr>
<td>≥55</td>
<td>13</td>
<td>16.90</td>
</tr>
<tr>
<td>Mean age = 48 ± S.D 5 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24</td>
<td>31.20</td>
</tr>
<tr>
<td>Female</td>
<td>53</td>
<td>68.80</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>3</td>
<td>03.90</td>
</tr>
<tr>
<td>Married</td>
<td>63</td>
<td>81.80</td>
</tr>
<tr>
<td>Divorced</td>
<td>4</td>
<td>05.20</td>
</tr>
<tr>
<td>Widow</td>
<td>7</td>
<td>09.10</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can’t read and write</td>
<td>14</td>
<td>18.20</td>
</tr>
<tr>
<td>Can read and write</td>
<td>2</td>
<td>02.60</td>
</tr>
<tr>
<td>Preparatory education</td>
<td>11</td>
<td>14.30</td>
</tr>
<tr>
<td>Secondary education</td>
<td>40</td>
<td>51.90</td>
</tr>
<tr>
<td>High education</td>
<td>10</td>
<td>13.00</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governmental</td>
<td>60</td>
<td>77.90</td>
</tr>
<tr>
<td>Private sector</td>
<td>14</td>
<td>18.20</td>
</tr>
<tr>
<td>On retire payment</td>
<td>3</td>
<td>03.90</td>
</tr>
<tr>
<td>Monthly income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sufficient</td>
<td>25</td>
<td>32.50</td>
</tr>
<tr>
<td>Insufficient</td>
<td>52</td>
<td>67.50</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table (2): Distribution of patients with osteoarthritis according to their present history related to osteoarthritis (n=77).

<table>
<thead>
<tr>
<th>Present History</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family history for osteoarthritis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40</td>
<td>51.90</td>
</tr>
<tr>
<td>No</td>
<td>37</td>
<td>48.10</td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over weight</td>
<td>8</td>
<td>10.39</td>
</tr>
<tr>
<td>Obese</td>
<td>26</td>
<td>33.76</td>
</tr>
<tr>
<td>Affected Joint*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knee</td>
<td>57</td>
<td>74.00</td>
</tr>
<tr>
<td>Spine</td>
<td>13</td>
<td>16.90</td>
</tr>
<tr>
<td>Hip</td>
<td>11</td>
<td>14.30</td>
</tr>
<tr>
<td>Cervical Vertebrales</td>
<td>08</td>
<td>10.40</td>
</tr>
<tr>
<td>Shoulder</td>
<td>2</td>
<td>02.60</td>
</tr>
<tr>
<td>Fingers</td>
<td>2</td>
<td>02.60</td>
</tr>
</tbody>
</table>

*Total items are not mutually exclusive

Figure (1): Distribution of patients with osteoarthritis regarding to their total practices pre and post program intervention phase (n=77).

Table (3): Distribution of patients with osteoarthritis regarding total dimensions of quality of life pre and post program intervention phase (n=77).

<table>
<thead>
<tr>
<th>Items</th>
<th>Pre intervention</th>
<th>Post intervention</th>
<th>Statistical Test</th>
<th>P -value Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Physical domain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>29</td>
<td>37.70</td>
<td>5</td>
<td>06.50</td>
</tr>
<tr>
<td>Moderate</td>
<td>48</td>
<td>62.30</td>
<td>63</td>
<td>81.80</td>
</tr>
<tr>
<td>High</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>11.70</td>
</tr>
<tr>
<td>Mean and SD</td>
<td>46.718 ± 7.32542</td>
<td>55.6987 ± 7.19002</td>
<td>T = -15.284</td>
<td>0.000</td>
</tr>
<tr>
<td>Psychological domain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>8</td>
<td>10.40</td>
<td>1</td>
<td>01.30</td>
</tr>
<tr>
<td>Moderate</td>
<td>45</td>
<td>58.40</td>
<td>17</td>
<td>22.10</td>
</tr>
<tr>
<td>High</td>
<td>24</td>
<td>31.20</td>
<td>59</td>
<td>76.60</td>
</tr>
</tbody>
</table>
Table: Comparison of Quality of Life Before and After Intervention

<table>
<thead>
<tr>
<th>Domain</th>
<th>Pre Mean ± SD</th>
<th>Post Mean ± SD</th>
<th>T-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>58.6558 ± 10.23514</td>
<td>72.7675 ± 10.63212</td>
<td>-21.103</td>
<td>0.000</td>
</tr>
<tr>
<td>Environmental</td>
<td>54.0584 ± 8.80190</td>
<td>66.5260 ± 8.21339</td>
<td>-21.564</td>
<td>0.000</td>
</tr>
</tbody>
</table>

\( \chi^2 \): Chi-square test. 
\( T \): Paired T test. 
P: Significance. * Significant (p \( \leq \) 0.05).

**Figure (2):** Distribution of patients with osteoarthritis regarding quality of life as general pre and post program intervention phase (n=77).

**MC:** Monte Carlo test; 2 cells have expected cell count < 5.  
MC: Monte Carlo test; 2 cells have expected cell count < 5.  
\( \chi^2 \): Chi-square test. 
\( T \): Paired T test. 
P: Significance. * Significant (p \( \leq \) 0.05).

**Figure (3):** Distribution of patients with osteoarthritis regarding total quality of life pre and post program intervention phase (n=77).

**IV. DISCUSSION:**

The current study is a Quasi-experimental study aimed to evaluate the effect of interventional program for improving quality of life of patient with osteoarthritis.

Regarding socio demographic characteristics of the studied patients, the results of the study revealed that, slightly more than one third of the study sample were aged from 45 to less than 50 years with mean age (48±5 years), more than two thirds were female, the majority were married, more than half were secondary education,
more than three thirds were governmental occupation, more than two thirds had insufficient monthly income and more than half were living in urban area (Table 1). These findings in disagreement with the study conducted by (8) on demographic profile, clinical and analysis of osteoarthritis patients in Surabaya and found 43% of the study sample were aged (60-69) years. These findings also in disagreement with the study conducted by (23) on non-surgical treatment of knee osteoarthritis in China and found the mean age of the study sample was (63.3 ± 7.4). The difference may be related to lack of the community awareness about risk factors and complications of osteoarthritis disease resulting in having osteoarthritis disease became at in earlier age, also may be related to health habits, health behaviors and gene type of high risk group.

These results in agreement with the study carried out by (15) on effect of nursing education program on knowledge, uncertainty, mastery, pain, and quality of life for knee osteoarthritis patients in Egypt and found in the study sample that, 61% were female, 67.5% were married, and 55% were living in urban area. Also in agreement with the study carried out by (31) on effect of designed nursing intervention protocol on outcomes of patients with symptomatic knee osteoarthritis in Egypt and found in the study sample that 52% were female, from the other hand disagreed in 64% were single and 85% can read and write. These results contraindicated with the study established by (32) on the effect of nursing intervention on knowledge and practice among elderly with knee osteoarthritis in Egypt and found that 56% were females, 40% were secondary school and 80% not work. These results approved that osteoarthritis more common in females more than males.

According to family history for osteoarthritis, the present study indicated that, slightly more than half of the study sample had a family history for osteoarthritis (Table 2). This result in agreement with the study conducted by (49) on association of osteoarthritis risk factors with knee and hip pain in Denmark and found that 44% of the study sample had family history for osteoarthritis. This result in the same direction with the study conducted by (26) on predicting knee pain and knee osteoarthritis among overweight women in Netherland and found that 48% of the study sample had a family history for osteoarthritis. This similarity may be related to cartilage extracellular matrix structural genes and the genes related to bone density which have implication in disease and proved that, family history for osteoarthritis considered a strong risk factor for the disease.

In relation to smoking, the present study reflected that, the majority of the study sample were non-smoker (Table 2). This result contraindicated with the study conducted by (9) on risk factors of knee osteoarthritis in Pakistan and found that 55.3% of the study sample were smokers. This result also contraindicated with the study conducted by (25) on cigarette smoking and knee osteoarthritis in the elderly in Korea and found that 81.3% of the study sample were smokers. The difference may due to culture, traditions and attitude differences between countries and individuals. Smoking become one of the major contributors to existing socio economic disparities in quality of life, morbidity and mortality.

The current study illustrated that, one third of the study sample were obese (Table 2). This result in the same direction with the study conducted by (47) on eight-year trajectories of changes in health-related quality of life in knee osteoarthritis in Finland and found that 33.3% of the study sample were obese. Also in agreement with the study conducted by (27) on nature vs nurture in knee osteoarthritis—the importance of age, sex and body mass index in Sweden and found that 29.5% of the study sample were obese. This accordance may be due to sedentary life style, lack of regular exercise and follow an healthy diet, and highlighted that, obesity is one of the risk factors for osteoarthritis disease.

The present study clarified that, slightly less than three quarters of the study sample had knee osteoarthritis (Table 2). This result in agreement with the study conducted by (23) on the impact of hip and knee osteoarthritis on the subsequent risk of incident diabetes in Canada and found that 80% of the study sample had knee osteoarthritis. This result also in agreement with the study conducted by (42) on effect of tanezumab on joint pain, physical function, and patient global assessment of osteoarthritis among patients with osteoarthritis of the hip or knee in USA and found that 80% of the study sample had knee osteoarthritis. It may be due to that, knee osteoarthritis is the most common type of osteoarthritis.

Regarding total satisfactory level of practice of patient with osteoarthritis the current study displayed that, less than three quarters had total satisfactory level of practice in pre program and improved to all the study sample in post program with high statistical difference between pre and post (Figure 1). This result agreed with the study conducted by (16) on impact of implementing prevention and management osteoarthritis training program on improving nurses’ knowledge and practice in Egypt and found in the study sample that, 8.6% had total satisfactory level of practice in pre program and improved in post program to 77.1% with statistical difference.
between pre and post intervention. This result in the same line with the study conducted by (2) on efficacy of implementing pre-operative health education program on post-operative outcomes of patients undergoing total knee arthroplasty in Egypt and found improvement in total practice of the intervention group by 63.3% compared by 33.3% in control group with observed statistical difference. This improvement in the current study may be due to acquired healthy practices through educational booklet related to effective implementation of interventional program and may be due to the desire of patients to know more about healthy practices to control pain and to adapt effectively with the disease.

The results showed that in relation to total physical domain, less than two fifth, less than two third and no one respectively were at poor level, moderate level and high level in pre program and improved in post program respectively to less than one tenth, the majority and more than one fifth with highly statistically difference between pre and post (Table3). This result agreed with the study established by (33) on effect of aquatic physical therapy on pain perception, functional capacity and quality of life in older people with knee osteoarthritis in Brazil and found in the study sample that reduced pain intensity, increased flexibility, and improved functional capacity. It was believed that the results could be attributed to positive physical and physiological effects on quality of life in post intervention phase with observed statistical difference. This result also agreed with the study conducted by (46) on the effect of Ai Chi aquatic therapy on individuals with knee osteoarthritis in China and found in the study sample that intervention could significantly improved self-perceived physical functions and quality of life.

Regarding total psychological domain, the present study displayed that one tenth, less than three fifth and less than one third were at poor level, moderate level and high level respectively in pre program and improved in post program to the few, more than one fifth and more than three quarters with highly statistically difference between pre and post program (Table3). This result in accordance with the study conducted by (11) on what interventions can improve quality of life or psychosocial factors of individuals with knee osteoarthritis in Australia and found in the study sample that, improvement in psychosocial factors such as self-efficacy, depression and psychological distress in patients with OA after intervention. This result in contrast with the study conducted by (33) on effect of the combined intervention with passive whole-body vibration and auriculo therapy on the quality of life of individuals with knee osteoarthritis in Brazil and found in the study sample that no altering in the psychological domain of quality of life of individuals after intervention with no statistical difference between pre and post intervention.

Considering total social domain, the results revealed that, less than one tenth, less than half and less than half were at poor level, moderate level and high level respectively in pre program and improved in post program to the few, less than one fifth and the majority with highly statistically difference between pre and post program (Table3). This result agreed with the study conducted by (44) on effect of yoga on the quality of life of patients with rheumatic diseases in Brazil and found improvement in social domain of quality of life after intervention with observed statistical difference. This result also in the same line with the study conducted by (48) on promoting health and quality of life of patients with osteoarthritis of knee joint through non-pharmacological treatment strategies in India and found that interventional group had more significant improvement in social domain after intervention more than experimental group.

In relation to total environmental domain the current study showed that less than one fifth, less than three quarters and less than one tenth were at poor level, moderate level and high level respectively in pre program and improved in post program to the few, more than two fifth and more than half with highly statistical difference between pre and post program (Table3). This result agreed with the study conducted by (3) on effect of rehabilitation program on quality of life & coping strategies among patients with knee osteoarthritis in Egypt and found improvement in environmental domain in the study group with statistically difference between control group and study group after intervention. This result in contrast with the study conducted by (4) on effect of cold application versus contrast hydrotherapy on patients knee osteoarthritis outcomes in Egypt and found no statistically difference in environmental domain between pre and post intervention phase.

Regarding total of general quality of life, the current study demonstrated that, less than one quarter, slightly less than three fifth and less than one fifth were at poor level, moderate level and high level respectively in pre program and improved in post program to the few, less than one tenth and the majority with highly statistically difference between pre and post program (Figure 2). This result in the same direction with the study conducted by (45) on good Life with osteoarthritis in Denmark and concluded that intervention improved general health and
reduce societal costs. This result in accordance with the study conducted by (17) on effect of contrast hydrotherapy on pain intensity and quality of life outcomes for patients with knee osteoarthritis in Egypt and found improvement in quality of life as a general with highly statistically difference between pre and post intervention.

Considering total quality of life, the present study illustrated that less than one tenth, the majority and the few were at poor level, moderate level and high level respectively in pre program and improved in post program to the few, more than one third and more than three fifth with highly statistically difference between pre and post program (Figure 3). This result in accordance with the study conducted by (40) on effect of aerobic physical activity on health-related quality of life in middle aged women with osteoarthritis in Korea and found that the intervention showed significantly higher quality of life in experimental group than controlled group. This result also in agreement with the study conducted by (28) on impact of home exercise program on self-efficacy and quality of life among primary knee osteoarthritis patients in Egypt and found that, the program improved quality of life of patients with osteoarthritis.

These results may be attributed to physical, psychological, social and environmental dimension were highly affected because there is a great interference between all dimensions of quality of life. It means that, physical condition will affect psychological status and psychological status will affect social domain.

Marked improvement in all dimensions of quality of life after program implementation may be proved the need for such intervention program to change practices of patients with osteoarthritis and to improve their quality of life.

V. CONCLUSION:

There was a highly statistically significant difference between pre and post program related to patients' total practices regarding osteoarthritis disease and there was a highly statistically significant difference between pre and post program related to patients' total quality of life. Intervventional program reported remarkable improvement on all domains of quality of life of patients with osteoarthritis after program implementation.

Recommendations:

In nursing practice:

1- Increasing awareness of patients with osteoarthritis about the importance of maintaining QOL through mass media and social networks.

2- Availability of relevant written and visual information in osteoarthritis clinics and in outpatients' clinics to facilitate patients' education about proper coping strategies with osteoarthritis.

In nursing program:

3- Conducting in service counseling and training programs periodically and regularly to teach patients the practices related to osteoarthritis disease.

In further research:

4- Replication of the study using a large probability samples acquired from different geographic areas.

List of abbreviations:

Body mass index (BMI)
Osteoarthritis (OA)
Quality of life (QoL)
World Health Organization (WHO)
Western Ontario and McMaster Osteoarthritis Index (WOMAC).

REFERENCES:


