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Coping Strategies Among Elderly Women Suffering From Knee Osteoarthritis Pain At Beni-Suef City

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Abstract:

Background: Osteoarthritis (OA) is the main cause of pain and disability among elderly women. It is more common among female than male. ***Aim:*** This study aimed to assess the coping strategies of elderly women suffering from knee osteoarthritis (OA) pain in Beni-Suef city. ***Design:*** A descriptive cross-sectional research design was utilized in the current study. ***Setting:*** the study was carried out at Beni Suef university hospital in orthopedics outpatient clinic and the physiotherapy unit. ***Subjects:*** A non-probability consecutive sampling technique of a total 300 studied women was recruited in the current study. in the previous mentioned setting. ***Tools:*** I– interviewing questionnaire: it was developed by the researcher; it is consisted of 2 parts: - demographic data & Knee arthritis medical history, II- Katz scale, III- Visual Analog scale (VAS) and IV- Pain Coping Inventory (PCI). ***Results:*** revealed that more than two thirds (70%) of studied elderly women had severe pain and (30%) of them had moderate pain level, distraction inventory pain coping strategy had the highest percentage of mean score amongst the other studied strategies (62.46%), and resting pain inventory strategy had the lowest percentage of pain score (55.0%). there was a strong negative correlation between total pain coping inventory and visual analog scale and between Katz scale for ADL and visual analog scale. While, there was positive correlation between Katz scale for ADL and pain coping inventory. ***Conclusion:*** The active coping strategies that most often applied by the studied women were distraction and pain transformation. While concerning passive coping strategies applied by women were resting and retreat were the most utilized by the studied women. ***Recommendations:*** Increase public awareness about efficacy & tolerability of the coping in reducing pain and complications of osteoarthritis through directed program to persons in community.

Key words: Coping Strategies, Elderly, Knee Osteoarthritis, Pain, Women

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INTRODUCTION:

Aging is a gradual, continuous process of natural change that begins in early adulthood. During early middle age, many bodily functions begin to gradually decline. Common conditions in older age include hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive

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pulmonary disease, diabetes, depression and dementia. As people age, they are more likely to experience several conditions at the same time [(1)]

Osteoarthritis (OA) is the most common form of arthritis. Some people call it degenerative joint disease or "wear and tear" arthritis. It occurs most frequently in the hands, hips, and knees. With OA, the cartilage within a joint begins to break down and the underlying bone begins to change. These changes usually develop slowly and get worse over time. OA can cause pain, stiffness, and swelling. In some cases it also causes reduced function and disability; some people are no longer able to do daily tasks or work [(2)]

Knee osteoarthritis (OA) is a common progressive multifactorial joint disease and is characterized by chronic pain and functional disability. Knee OA accounts for almost four fifths of the burden of OA worldwide and increases with obesity and age. Up to now, knee OA is incurable except knee arthroplasty which is considered as an effective treatment at an advanced stage of the disease, however, which is responsible for substantial health costs [(3)]

Coping is defined as the thoughts and behaviors mobilized to manage internal and external stressful situations. Coping is generally categorized into four major categories which are problem-focused, emotion-focused, meaning-focused and social coping. For patients' with knee osteoarthritis it can be difficult to cope with osteoarthritis symptoms that interfere with usual activities of daily living. The patients with knee osteoarthritis can be coping with it by enjoy leisure activities, don't forget to pamper self, sometimes a change surroundings can help, even if it's just for a day trip. A change of scenery is likely to spark a good mood and relieve stress, exercise and increase physical activity [(4)]

The role of the nurse in managing OA risk and progression has been evolving, for example, in primary care, teaching, research, and other tasks and settings. Nurses assist in diagnosing and assessing the disease's functional and psychosocial impacts, provide medication and pain management, monitor disease progress, educate patients, and coordinate care with other providers (physical, occupational, and psychosocial therapists). Understanding the clinical

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manifestations of and the diagnostic criteria for OA provide the foundation for these activities [5]

Significance of the study:

In United States of America, there were 5270.81 prevalent cases of OA. The prevalence was higher in women (3170.44 cases in 2019) than in men (2100.37 cases in 2019) of all ages, and greatest in those aged 60–64 years in both sexes. Also, knee, hip, and other joint OA increased, but decreased for hand OA [6]**.** As the incidence and prevalence of osteoarthritis rise with increasing age, extended life expectancy will result in a greater number of people with the condition. In the United Kingdom (UK) 20% to 30% of elders over 60 years have symptomatic osteoarthritis. In the Middle East, more than one million people suffer from OA in Iraq, Yemen, Saudi Arabia, and Syria [7]

In Egypt prevalence of OA is 8.5% in the total adult population, approximately 85% of individuals over the age of 75 years of age experience some symptoms of osteoarthritis. 40% of individuals with the disorder experience significant difficulties with daily activities to the point of interfering with work-related or social roles. Also, 29.5% most prevalent diseases among elderly females. This might be due to the postmenopausal osteoporotic changes among females [8]

Subjects and Methods:

The aim of the study:

This study aimed to assess the coping strategies of elderly women suffering from knee osteoarthritis (OA) pain in Beni-Suef city.

Research Question:

To fulfill the aim of this study the following research question were formulated:

What are the coping strategies utilized by elderly women suffering from knee osteoarthritis (OA) pain in Beni-Suef city?

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Subjects and methods of the study have been portrayed under four main topics as following:

i. Technical design.
ii. Operational design.
iii. Administrative design.
iv. Statistical design.

I- Technical design

The technical design includes design, setting, subjects and tools for data collection.

Design

A descriptive cross-sectional research design was utilized in the current study.

Setting

The current study was conducted at Beni Suef university hospital in orthopedics outpatient clinic and the physiotherapy unit. The orthopedics outpatient clinic was located on ground floor. While, physiotherapy unit were located on third floor.

Subjects

Sample size:

The sample size was calculated to determine the prevalence of any type of coping strategy of 50% or higher prevalence, with 5% absolute precision, at 95% level of confidence. Using the Open-Epi software package for single proportion estimation for dichotomous variables with finite population correction, the estimated sample size is 278 subjects. This was increased to 300 to anticipate a non-response rate of about 10%.

Sampling Technique:

A non-probability consecutive sampling technique was used to recruit elderly women according to the eligibility criteria.

Sample criteria: Any elderly women suffering from knee osteoarthritis (OA) pain and attended the study settings was selected in the study sample after fulfilled the following criteria.

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Inclusion criteria:

- ✓ Elderly (age ≥65 years old)
- ✓ Diagnosed as having knee osteoarthritis (OA) for at least one year; this will be confirmed by chart review or medical report and history.

Exclusion criteria:

- ✓ Cognitive impairment
- ✓ Life-threatening or functionally severely limiting health problems other than OA (e.g., cancer, Chronic Obstructive Pulmonary Disease COPD, etc.).

Tools for data collection

Four tools were utilized to collect data of the current study.

Tool (1) interviewing questionnaire: it was developed by the researcher; it is consisted of 2 parts: -

Part I: Demographic data:

It was developed by the researcher in an Arabic language. This part was concerned with elderly women s' demographic characteristics, such as; age, educational level, occupational status, marital status and residence.

Part II: Knee arthritis medical history:

It aimed to assess patients' present medical history regarding the knee osteoarthritis.

Tool (2): Katz scale:

It was adapted from [9]. It aimed to assess independence among elderly women with knee osteoarthritis concerning daily living activities (ADL). It included the 6 items; shower, getting dressed, use the toilet, mobility, output control and nutrition.

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The scoring system:-

Total global score of 6 for 6 items, were rated on two ranks as (with supervision, guidance, and personal assistance or complete care = Zero and without supervision or direction or personal assistance=1).

The total score of this scale classified into three categories based on the following:

Full function = 6

Moderate impairment = 4-5

Severe functional impairment = ≤3

Tool(3): Visual Analog scale (VAS):

It was adapted from [10]. It aimed to assess pain severity among elderly women with knee osteoarthritis and include numbers from 1 to 10 in box that described how much knee pain patient feel.

The scoring system:-

The total score of this scale was 10 and classified into three categories based on the following:

No pain = 0

Moderate pain = 1<6

Sever pain = 6-10

Tool(4) : Pain Coping Inventory (PCI):

It was adapted from [11]. It aimed to assessment of the coping strategies used in dealing with the OA pain among elderly women with knee osteoarthritis. It included the following items:

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Part I: Pain transformation: it included pretend the pain is not present, pretend pain does not concern body, imagine pain to be less violent than it really is and think of other people's difficulties (4 items with score 16).

Part II: Distraction: it included take a bath or shower, think of pleasant things of events, distract by undertaking a physical activity and distract by reading, listening to music (5 items with score 20).

Part III: Reducing demands: it included continue activities with less effort continue activities with a slower pace and continue activities less precisely (3 items with score 12).

Part IV: Retreating: it included make sure that I don't get upset, retreat into a restful environment, avoid bothering sounds and avoid light (7 items with score 28).

Part V: Worrying: it included focus on the pain all the time, self-administration of other physical stimuli, think of things that remain undone because of pain and start worrying (9 items with score 36).

Part VI: Resting: it included stop activities, confine self to simple activities, do not exert self physically and rest sitting or lying down (5 items with score 20).

The scoring system:-

Total global score of 132 for 33 sub items, were rated on four ranks as:

- Part I, II & III (rarely = 1, sometimes few = 2, sometimes a lot = 3 & almost always = 4).
- Part IV, V & VI (rarely = 4, sometimes few = 3, sometimes a lot = 2 & almost always = 1).

The total score of this scale classified into three categories based on the following:

- Low coping level ≤60% of total score (≤ 79.2 scores)
- Moderate coping level >60% - <80% of total score (> 79.2 - <105.6 scores)
- High coping level ≥ 80 % of total score (≥ 105.6 scores)

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II- Operational design:

It includes the preparatory phases, tools validity and reliability, pilot study and field work.

Preparatory phase:

It includes reviewing of related literature and theoretical knowledge of various aspects of the study using books, articles, internet periodicals and magazines to develop tools of data collection.

Validity and reliability

Content Validity: tools was examined by a panel of five experts in the field of community health nursing to determine whether the included items are comprehensive, understandable, applicable, clear and suitable to achieve the aim of the study. The modification was done based the opinion of the expertise.

Reliability: In the present study, reliability was tested using Cronbach's Alpha coefficients for Katz scale was 0.833, visual analogue was 0.723 and Pain Coping Inventory was 0.784.

Pilot study:

A pilot study was carried out on 30 patients (10%) of the study subjects to test the clarity, applicability, feasibility and relevance of the tools used and to determine the needed time for the application of the study tools. The patients who were included in the pilot study were excluded from the sample because essential modifications were done after conducting pilot study.

Field Work

The researcher explained the purpose of the study to elderly women included in the study. The actual work of this study started and completed within eight months from beginning of August (2021) to the end of March (2022). Patients' oral consent to participate in the study obtained and every patient was informed that confidentiality was assured. Data were collected by the researcher two days per week (Saturday & Wednesday) at morning shifts in the previous mentioned setting.

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Ethical Considerations:

The research approval was obtained from the faculty scientific ethical committee before starting the study .The researcher clarified the objectives and aim of the study to the patients included in the study before starting. Researcher assured the anonymity and confidentiality of the patients included in the study. The patients in the study was informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time without any reasons.

III- Administrative design:

An official written letter was issued from the faculty of Nursing in Beni-Suef University to the director of Beni-Suef University Hospital in which the study was conducted by which permission obtained for data collection and help in conducting the study in their facilities.

IV- Statistical design:

The data were collected, coded and entered into a suitable excel sheet and analyzed using an appropriate statistical method. Data were analyzed using statistical program for social science (SPSS) version 26.0, quantitative data were expressed as a mean ± standard deviation (SD), and qualitative data were expressed as frequency and percentage. Chi-square ($X^{2)}$ test of significance was used in order to compare proportions between qualitative parameters. Pearson's correlation coefficient test (r) was used to conducted correlation matrix.

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RESULTS:

Table 1: Frequency and percentage distribution of demographic characteristics of the studied elderly women (n=300).

Items	No.	Percentage
Age		
65 -<70 year	182	**60.7**
70-<75years	102	34.0
≥ 75 year	16	5.3
Mean ± SD	69.8±4.71	
Educational level		
Not read and write	58	19.3
Read and write	30	10.0
Primary education	60	20.0
Secondary education	152	**50.7**
Occupational status		
Does not work	89	29.7
free business	59	19.7
Governmental job	110	**36.7**
Retired	42	14.0
Marital status		
Married	211	**70.3**
Widow	89	29.7
Residence place		
Rural	181	**60.3**
Urban	119	39.7
Number of family members		
1-2	91	30.3
3-4	92	30.7
5-6	117	**39.0**
Number of rooms in the house		
One room	29	9.7
2 rooms	119	39.6
3 rooms	152	**50.7**
Monthly income (from women s' view)		
Adequate	144	48
Inadequate	156	**52.0**
With whom do you live		
Alone	29	9.7
With family	271	**90.3**

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Table (1) shows that, more than half (60.7%) of studied elderly women had ages ranged from 65 <70 year with Mean ± SD (69.8±4.71), (50.7%) of them had intermediate education, (36.7%) of them had governmental jobs. While, (70.3%) of studied elderly women were married, (60.3%) of them lived at rural areas, (39%) of them had people in their house ranged from 5-6 people, (50.7%) of them had 3 rooms in their house, (52%) of them had inadequate monthly income and (90.3%) of them were living with their families.

Table 2: Frequency and percentage distribution of study elderly women' regarding their independence in the activities of daily living (n= 300).

Activities	Without supervision or direction or personal assistance (1)		With supervision, guidance, and personal assistance or complete care (0)	
	No	%	No	%
1. Shower	297	93.0	21	7.0
2. Getting dressed.	210	70.0	90	30.0
3. Use the toilet.	270	90.0	30	10.0
4. Mobility.	265	88.3	35	11.7
5. Output control.	267	89.0	33	11.0
6. Nutrition.	268	89.3	8.9	10.7

Table (2) reveals that, most (93%) of studied elderly women were take shower without supervision or direction or personal assistance. While, (30%) of them were getting dressed with supervision, guidance, and personal assistance or complete care.

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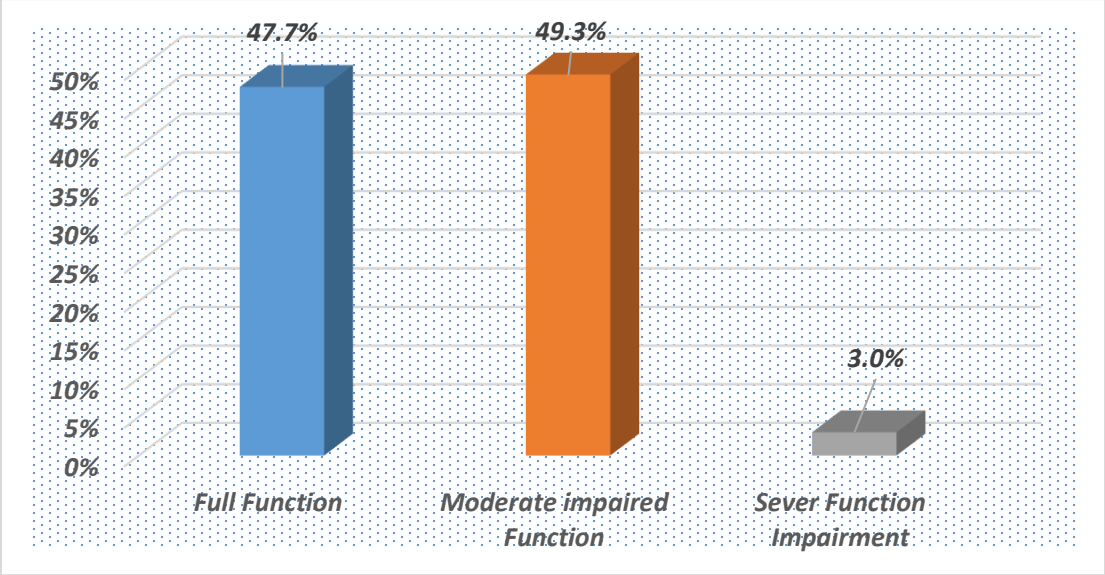

Figure (1): Total level of independence in activity of daily living among studied elderly women (n=300).

Illustrates that, more than one third (47.7%, 49.3%) of studied elderly women had full function and moderate functional impairment. While, (3%) of them had severe functional impairment.

Table 3: Frequency and percentage distribution of study elderly women' regarding their level of pain (n= 300).

Level of pain	No	%
1. No pain.	0	0.0
2. Moderate pain.	90	30.0
3. Severe pain.	210	70.0

Table (3) reveals that, more than two thirds (70%) of studied elderly women had severe pain and (30%) of them had moderate pain level.

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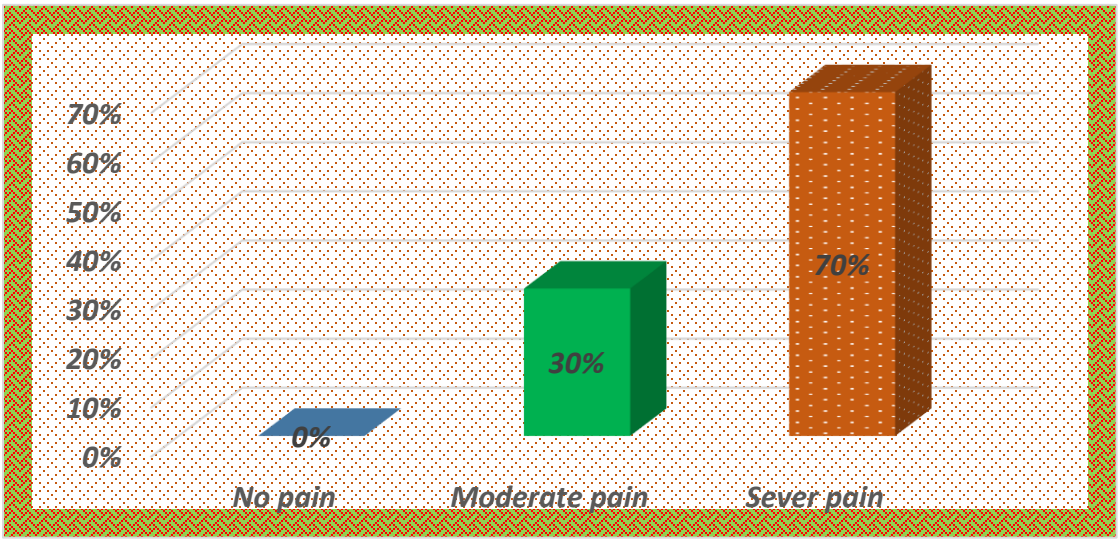

Figure (2) Total pain level among studied elderly women (n=300).

Figure (2) shows that, more than two thirds (70%) of studied elderly women had severe pain and (30%) of them had moderate pain level.

Table 4: Frequency and percentage distribution of study elderly women' regarding their utilized coping strategies with pain (n= 300).

Items	Low coping level		Moderate coping level		High coping level	
	No	%	No	%	No	%
Pain transformation	130	43.3%	148	49.3%	22	7.4%
Distraction	110	36.7%	151	50.3%	39	13.0%
Reducing demands	115	38.3%	133	44.3%	52	17.4%
Retreating	222	74.0%	19	6.3%	59	19.7%
Worrying	251	83.7%	23	7.7%	26	8.6%
Resting	172	57.3%	22	7.3%	106	35.4%
Total coping	150	50.0%	98	32.7%	52	17.3%

Table (4) shows that, more than two third (83.7%) of studied elderly women had low coping level regarding reducing demands, (50.3%) of them had moderate coping level regarding distraction and (35.4%) of them had high coping level regarding resting coping.

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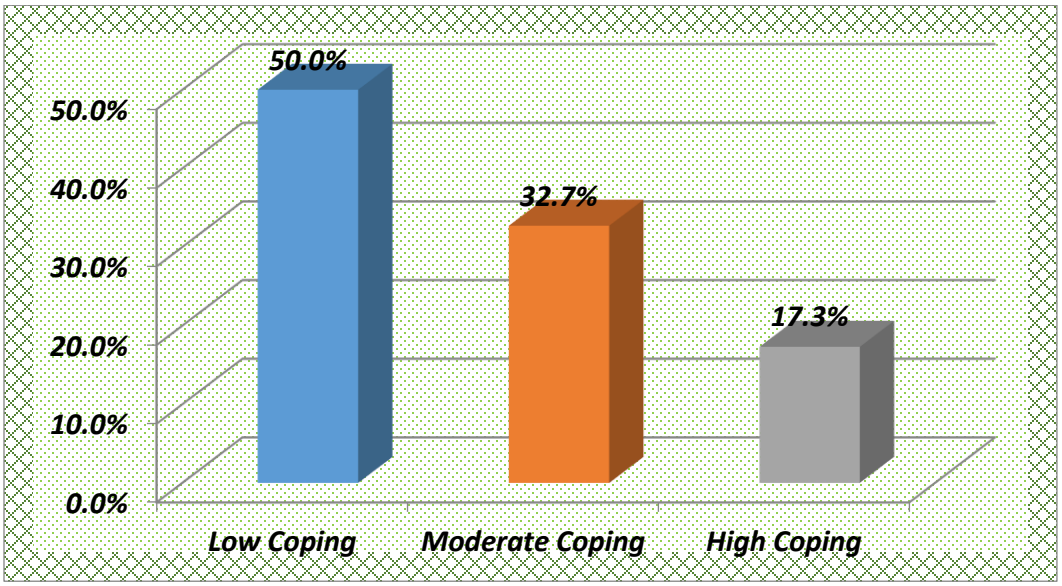

Figure (3): Total coping level among studied elderly women (n=300).

Figure (3) shows that, more than two thirds (50.0%) of studied elderly women had low coping level (32.7%) had moderate coping level, and only (17.3%) of them had high coping level.

Table 13. Correlation between Katz scale for ADL, Visual analog scale and pain coping inventory.

Variables	Pain Coping Inventory	
	r	p-value
Katz scale for ADL	0.109	0.059*
Visual Analog scale	- 0.280	0.000**

r Pearson Correlation
* Statistically significant at p≤0.05
** Highly statistical significant at p≤0.01

Table (13) reveals that, there was a strong negative correlation between total pain coping inventory and visual analog scale and between Katz scale for ADL and visual analog scale. While, there was positive correlation between Katz scale for ADL and pain coping inventory.

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DISCUSSION:

Osteoarthritis (OA) is a chronic, autoimmune, systemic, connective-tissue disease characterized by progressive synovitis in symmetrical joints, which leads to severe disabilities and premature mortality. The most severe effects of rheumatoid arthritis (OA) are loss of physical function and chronic pain, which may have a major impact on different areas of the person's existence. People with OA have significantly worse results in physical functioning in particular. However, OA also has a major impact on other areas of human life, e.g., social relationships, family life, and psychological well-being [(13)].

As regarding the personnel characteristics of the studied women the present study indicated that more than half of studied elderly women had ages ranged from 65 <70 year with mean of 69.8 years old & lived at rural areas, nearly one third of them had governmental jobs, more than two third of them were married. These findings are in the same line with [(14)] who revealed that the majority of patient was in age from 50 to 70 years old and were married. On the other hand, the present study findings are disagreed with [(15)] who added that the majority of the studied sample lived at urban settings and were working.

Regarding the level of education of the studied women, the present study findings revealed that nearly half of the studied women had a secondary education. These study findings are disagreed with [(16)] who indicated that more than half of the studied sample was not educated.

Concerning the honest of OA among the studied women, the present study findings revealed that more than one third of the studied elderly women had knee joint problem from ≥ 5 years. These findings are agreed with [(17)] who indicated that nearly half of the studied sample had a rheumatoid arthritis disorders from 5 years ago.

Pain in OA can be unrelated to joint damage and even occur before the onset of local inflammation and swelling in the synovium, OA patients with a higher degree of pain reported a higher reduction in QoL[(18)].

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The findings of the present study revealed that the severity of arthritis pain varies in its intensity from moderate to severe, and the more than two third of studied women had a severe pain intensity. Furthermore, a report from the World Health Organization (WHO) highlights the strong relationships between painful musculoskeletal conditions and reduced physical activity, functional capacity and well-being [19]. These findings are in accordance with [20] who added that the majority of the studied women had a degree of sever degree of pain

As regarding the effect of OA on studied elderly women' independence in the activities of daily living, the present study revealed that near half of studied women had a moderate functional impairment in generally. Moreover, nearly half of the studied women are independent regarding getting dressed (and needed for supervision, guidance, and personal assistance or complete care. These findings may be due to that fatigue can have a substantial impact on patients' daily living activities and overall quality of life [21]. It is often identified as one of the most challenging aspects of chronic rheumatic diseases. The causes of fatigue appear multi-factorial in arthritis; disease activity plays a role but additional factors such as psychological distress and treatments may be additional causes of fatigue [22].

Concerning the relation between studied women level of independence in activity of daily living and their personnel characteristics including "age and residence, there was a highly statistically significant difference between elderly women' level of independence in activity of daily living and their educational level and occupational status. This is in agreement with [20] who stated that there was a statistically significant relation between patients' level of independency in ADLs and their age, residence, educational level, gender and occupational status.

Concerning the correlation between level of pain and both active and passive coping strategies the present study findings revealed that there was a significant positive association between pain level and negative coping strategies, that mean the greater the negative coping the greater the pain level. These finding are in accordance with [21] who added that passive coping is associated with greater pain and disability depression, whereas active coping is associated with less pain, and disability depression.

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Conclusion:

Based on the result of the current study it can be concluded that:

The active coping strategies that most often applied by the studied women were distraction and pain transformation. While concerning passive coping strategies applied by women were resting and retreat were the most utilized by the studied women.in addition there was a significant relation between studied women personnel characteristics and their physical disability, rheumatoid arthritis pain, and total score of their coping. Furthermore, there was a strong negative association between total pain coping inventory and visual analog scale and between Katz scale for ADL and visual analog scale. While, there was positive correlation between Katz scale for ADL and pain coping inventory.

DISCLOSURES

Authors declare that there is no conflict of interest**.**

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