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Review Article

Coping Strategies among Elderly Women with Knee Osteoarthritis Pain at Beni-Suef City: Impact of Socio-demographic Characteristics

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Abstract

Background: The leading cause of pain and incapacity in elderly women is Osteoarthritis (OA). It affects females more frequently than males. The quantity and quality of coping resources that a person may have at their disposal affect the coping style they ultimately choose. The purpose of this study was to examine how the socio-demographic features of older women in Beni-Suef city who were experiencing knee Osteoarthritis (OA) pain affected their coping mechanisms.

Design: The current study used a descriptive cross-sectional research design. The investigation was conducted in the orthopaedics outpatient clinic and the physiotherapy unit at Beni-Suef University Hospital.

Subjects: In the current study, 300 studied women were recruited using a non-probability consecutive sampling technique.

Tools: Pain Coping Inventory (PCI), Visual Analog Scale (VAS) and Interview Questionnaire

Results: Based on the visual analogue scale for measuring pain intensity. It demonstrates that 50% of the older women in the study had low coping skills, 49.3% experienced moderate pain, 50.3% had moderate and 50.3% had severe pain. Younger (65-70 years old), women with intermediate education (38.5% and 32.7%), women who were retired and unemployed (48.1% and 32.7%), married (92.3%), women who lived in rural areas (53.8%) and elderly adult women with an adequate family income (92.3%) were more likely to use high levels of coping strategies. There was a positive association between pain level and activities of daily life (r= 0.109 and p= 0.05) and a severe negative link between the overall pain coping inventory and degree of pain (r= -0.280 and p= 0.000).

Conclusion: Age, educational attainment, employment position and marital status all significantly influenced how well older women coped with pain. Even Nevertheless, there was a statistically significant correlation between the ability of older women to cope with pain and their monthly income and area of residence. The overall pain coping inventory and the visual analogue scale were shown to have a substantial negative connection. While the Katz scale for ADL and the pain coping inventory showed a positive association.

Recommendations: Public health education in the media on osteoarthritis management.

Keywords: Socio-demographic Characteristics; Coping Strategies; Elderly; Knee Osteoarthritis; Pain; Women

Introduction

Osteoarthritis (OA) signs and symptoms frequently appear gradually and get worse over time. Osteoarthritis signs and symptoms include pain with every movement, stiffness-which may be worse at first thing in the morning or after being inactive tenderness, loss of flexibility, grating sensation, swelling that may be brought on by soft tissue inflammation around the joint and bone spurs, which are extra pieces of bone that can develop around the affected joint and feel like hard lumps. Osteoarthritis is a degenerative condition that often causes persistent pain as it progresses over time. Joint stiffness and pain might worsen to

the point where they make doing daily duties challenging [1-6].

According to projections by the World Health Organization (WHO), there will be 1.5 billion elderly people globally by 2050, meaning those who are 65 or older. Global population ageing is a growing phenomenon. Currently, more than 60% of the world's population is over the age of 1, which has increased hospital visits and drug use [7-9].

Moreover, the first line of treatment for people with symptomatic osteoarthritis is drug therapy. There are several different NSAIDs that can be used and the decision should take cost, patient acceptance and physician preference into account. The effectiveness, side effects and previous medical history should all be considered when determining the length of treatment with NSAIDs. NSAID use is supported by substantial evidence, according to the AAOS recommendations [10-13].

Coping is defined as the strategies and tactics employed to manage stressful situations on both an internal and external level. Problem-focused coping, emotion-focused coping, meaning-focused coping and social coping are the four basic subcategories of coping. Knee osteoarthritis patients may find it difficult to manage osteoarthritis symptoms that interfere with regular activities. Osteoarthritis of the knee sufferers can control their condition by doing recreational activities, taking care of themselves and occasionally changing their environment even if it's just for a day to avoid aggravating their symptoms. A change of scenery can elevate mood, ease stress, promote physical activity and inspire exercise [14-16].

Coping mechanisms are behavioural and cognitive techniques used to deal with stressful situations, environments and demands. As a result of this generally recognised transactional perspective, coping has come to be seen as the cognitive and behavioural responses made in response to demands that an individual perceives as threats to their wellbeing, whether they come from inside or outside of them. Emotion-focused coping and solution-focused coping are the two basic categories of coping techniques. A person's emotional reaction to the stressor is altered through emotion-focused coping techniques. Emotion-focused coping strategies aim to lessen the unfavourable emotional reactions that stresses could induce [17-20].

In primary care, teaching, research and other duties and contexts, for instance, the nurse's involvement in managing OA risk and progression has evolved. Nurses administer medication and pain management, monitor the progression of the disease, educate patients and coordinate care with other clinicians in addition to helping to diagnose and assess the disease's functional and psychosocial effects (physical, occupational and psychosocial therapists). The basis for these activities is knowledge of OA's clinical symptoms and diagnostic standards [21].

The quantity and quality of coping resources that a person may have at their disposal affect the coping style they ultimately choose. These consist of knowledge-knowledge of how a workplace functions-skills-analytical skills-attitudes-self-efficacy-confidence in one's ability to carry out a particular behavior-social resources-people with whom one can exchange information-physical resources-health and stamina-material resources-money-and societal resources-policies and laws. The patient can employ a variety of effective coping mechanisms, such as diverting attention, talking to someone, tolerating uncertainty, deep breathing, yoga, concentration, controlling mood to control experience, utilizing positive affirmations and sowing self-comfort [22].

Many illnesses and maladaptive coping strategies have been linked, according to research. There is a correlation between somatic symptoms and avoidance-related coping mechanisms in psychiatric disorders such anxiety and serious depression as well as somatic symptoms. This situation can be applied to other problems like hypertension and cardiac conditions when people with more severe symptoms adopted unhealthy coping mechanisms. The medial prefrontal cortex and nucleus accumbens' serotonergic and dopaminergic input play a role in the physiology of various coping mechanisms. The neuropeptides oxytocin and vasopressin also play a significant role in coping mechanisms [23].

In general, activity persistence refers to continuing to do something while having symptoms that would make it difficult to do it. Depending on the extent or intensity of an activity's persistence, it may be regarded either adaptive or maladaptive. In the avoidance-endurance model of chronic pain, for instance, "endurance copers" are persons who continue to engage in activities in spite of intense pain. They might engage in excessive amounts of unhealthy activity and react to pain by being overly persistent

rather than avoidant. By dividing up activities into smaller chunks and alternating activity and rest intervals to maintain a constant pace, people can learn to reduce the impact of symptoms on activity through the use of time-based activity pacing [22]. The "overactivity-underactivity" cycle, in which excessive activity can cause symptom flare-ups that necessitate a protracted time of rest to recuperate, is also thought to be lessened by these activities. Also, there are five practical suggestions for dealing with osteoarthritis at home, at work and controlling pain. Be active, modify your diet, wear supportive shoes, utilize specific equipment at home and at work, try topical lotions for rapid relief and educate yourself on all possible treatments. Employ specialized tools like electric can openers, tub bars, desks and seats that can be adjusted in height, as well as wide key holders for automobiles [24].

Aim of the Study

The current study is conducted to assess impact of socio-demographic characteristics of elderly women suffering from knee Osteoarthritis (OA) pain on their coping strategies in Beni-Suef city

Research Questions

Are socio-demographic characteristics of elderly women suffering from knee Osteoarthritis (OA) pain having an impact on their coping strategies?

Subjects and Methods

Research Design

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

Subjects and Setting:

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.

Subjects

Sample Size: The sample size was determined to provide 5% absolute precision and a 95% level of confidence in the prevalence of any coping technique with a 50% or greater prevalence. The estimated sample size is 278 people using the Open-Epi software programme for single proportion estimation for dichotomous variables with finite population adjustment. This was raised to 300 in order to account for a 10% non-response rate.

Sampling Type

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

Sample Criteria

Any senior woman who attended the study settings and had knee Osteoarthritis (OA) pain was chosen for the study sample after meeting the requirements listed below.

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 of Data Collection

A. *Tool (1): Visual Analog scale (VAS):* It was adapted from (Hawker, et al.,) [25]. 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 and Sever pain = 6-10.

B. *Tool (2): Pain Coping Inventory (PCI):* It was adapted from (Kmaimaat and Evers, 2003) [26]. 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:
   - 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 and III (rarely = 1, sometimes few = 2, sometimes a lot = 3 and almost always = 4)
   - Part IV, V and VI (rarely = 4, sometimes few = 3, sometimes a lot = 2 and 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)

Validity and Reliability

- Content Validity: tools were 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

To test the clarity, applicability, practicality and relevance of the instruments employed and to establish the amount of time required for their application, a pilot study including 30 patients (or 10% of the research subjects) was conducted. Because significant changes were made after the pilot research, the patients who were enrolled in the trial were not included in the sample.

Field Work

The preparation phase, which also includes reviewing pertinent material and learning theoretical information about various aspects of the study from books, papers, journals on the internet and magazines, includes developing methods for data collection. The researcher explained the goals of the study to the elder female participants. Beginning in early August 2021, the actual work for this study was completed in eight months, from the beginning to the end of March (2022). Each patient verbally agreed to participate in the study after being informed that their privacy would be protected. The researcher collected data in the aforementioned location twice a week during the morning shifts (Saturday and Wednesday).

Ethical Considerations

The faculty scientific and ethical committee offered its approval for the probe before it got started. Prior to starting, the researcher had a discussion with the patients who would be taking part in the study about its goals and objectives. The researchers provided the public with a guarantee of the confidentiality and anonymity of the study's participants. Patients in the trial were informed that they had the choice to participate or not and that they were free to discontinue the study at any time and without cause.

Administrative Design

The nursing faculty at Beni-Suef University sent a formal letter to the director of the hospital where the study was conducted granting permission for data collection and assistance with conducting the study at their facilities.

Statistical Design

After being obtained, coded and placed into the appropriate Excel sheet, the data was correctly statistically analysed. The data were analyzed using SPSS version 26.0, a statistical tool for social research. Quantitative data were expressed as a mean standard deviation, whereas qualitative data were expressed as frequency and percentage (SD). An important measure of significance called the Chi-square (X^2) was used to compare proportions between qualitative components. The Pearson correlation coefficient (r) test was used to calculate the correlation matrix.

Results

The Fig. 1 portrays total pain level among studied elderly women according to Visual Analog Scale (VAS) for pain severity. It shows that, more than two-thirds (70%) of studied elderly women had severe pain and 30% of them had moderate pain level.

The total level of independence in activity of daily living among studied elderly women are presented in Fig. 2. It illustrates that more than one-third (49.3%) of studied elderly women had moderate, while 3% of them had severe functional impairment. In Fig. 3 presents frequency and percentage distribution of study elderly women' regarding their utilized coping strategies with pain according to Pain Coping Inventory (PCI). It 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.

Table 1 indicates that the 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%).

Total coping level among studied elderly women are presented in Fig. 4. It shows that, half (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.

Fig. 5 reveals relationship between studied elderly women's coping level and their age. It reveals that, younger elderly adult women (65-70 years) had higher coping level (82.7%). There was a highly statistically significant difference between elderly women' coping level with pain and their age ($p<0.001$). Relationship between studied elderly women's coping level and their educational level. It reveals that, primary and intermediate educated elderly adult women had higher coping level (38.5% and 32.7%) was reveled in Fig. 6. There was a highly statistically significant difference between elderly women' coping level with pain and their educational level ($p<0.001$).

Fig. 7 reveals relationship between studied elderly women's coping level activities and their occupational status. It reveals that, retired and did not work elderly adult women have higher coping level (48.1% and 32.7%). There was a highly statistically significant difference between elderly women' coping level with pain and their educational level ($p<0.001$) and Fig. 8 reveals relationship between studied elderly women's coping level and their marital status. It reveals that, married elderly adult women have higher coping level (92.3%). There was a highly statistically significant difference between elderly women' coping level with pain and their educational level ($p<0.001$).

Relationship between studied elderly women's coping level and their residence. It reveals that, rural elderly adult women have higher coping level (53.8%). There was a statistically significant difference between elderly women' coping level with pain and

their educational level ($p<0.05$) was explained in Fig. 9 and Fig. 10 reveals relationship between studied elderly women's coping level and their monthly income. It reveals that, elderly adult women who had adequate family income were had higher coping level (92.3%). There was a statistically significant difference between elderly women' coping level with pain and their educational level ($p<0.05$).

Table 2 reveals Correlation between Katz scale for ADL, Visual analog scale and pain coping inventor. It reveals that, there was a strong negative correlation between total pain coping inventory and visual analog scale. While, there was positive correlation between Katz scale for ADL and pain coping inventory.

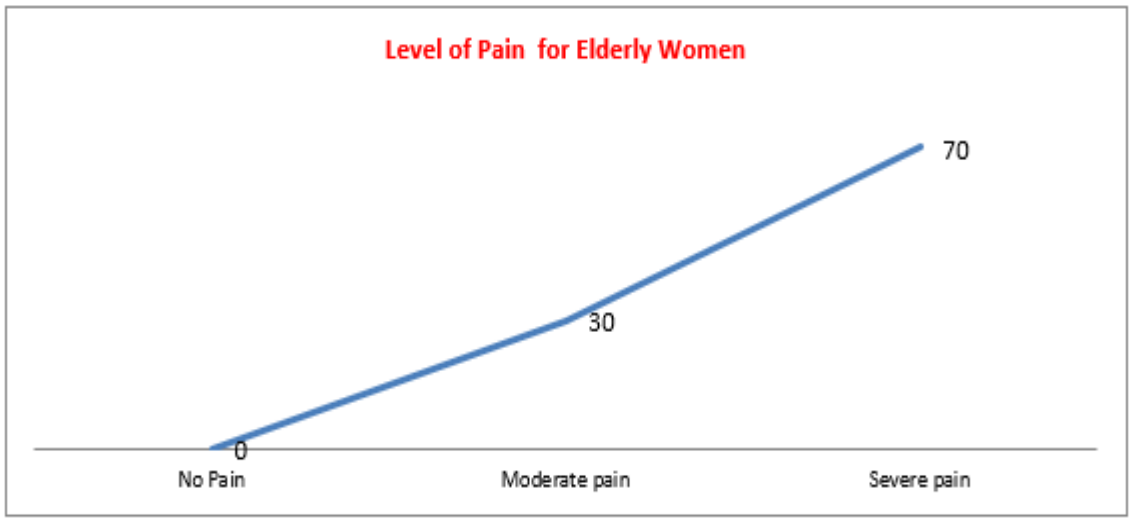

Figure 1: Total pain level among studied elderly women (n=300).

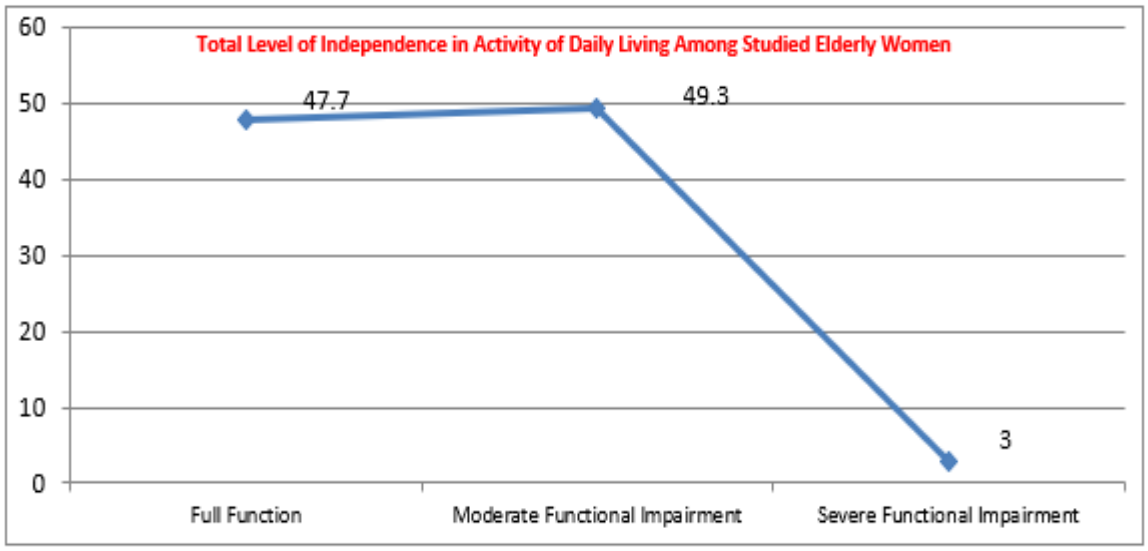

Figure 2: Total level of independence in activity of daily living among studied elderly women (n=300).

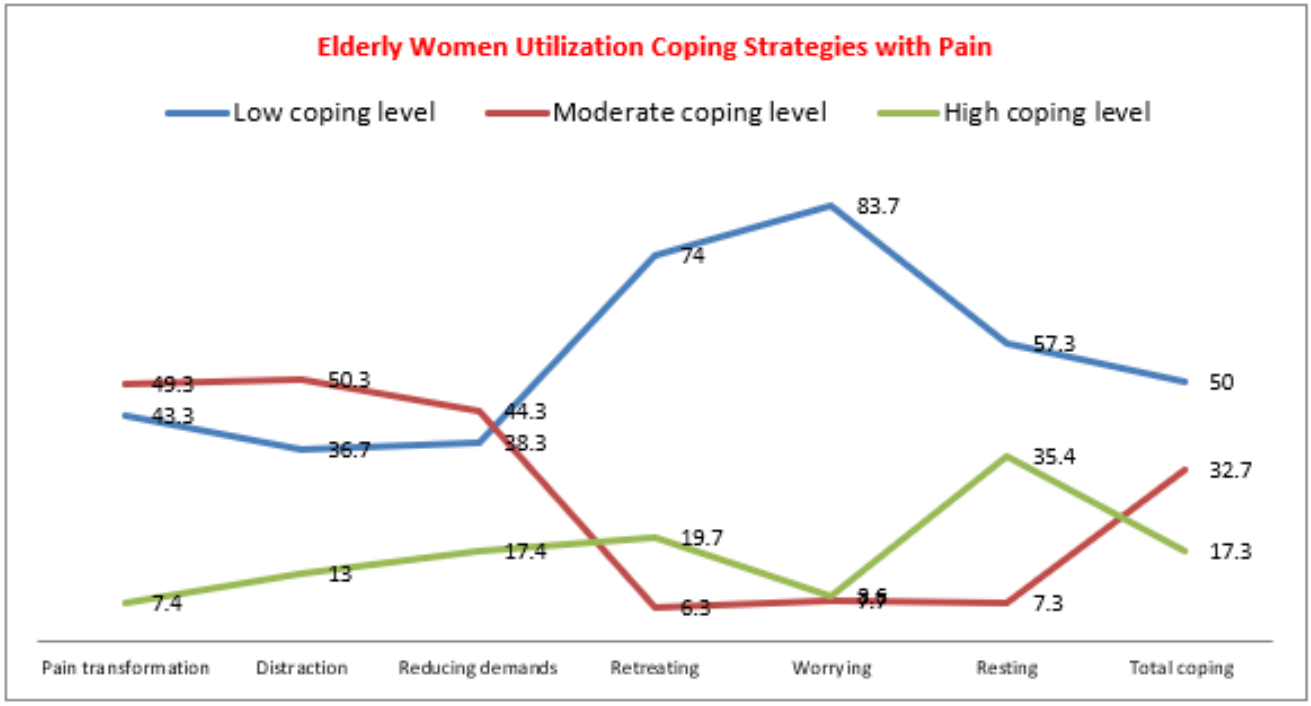

Figure 3: Distribution of study elderly women' regarding their utilized coping strategies with pain.

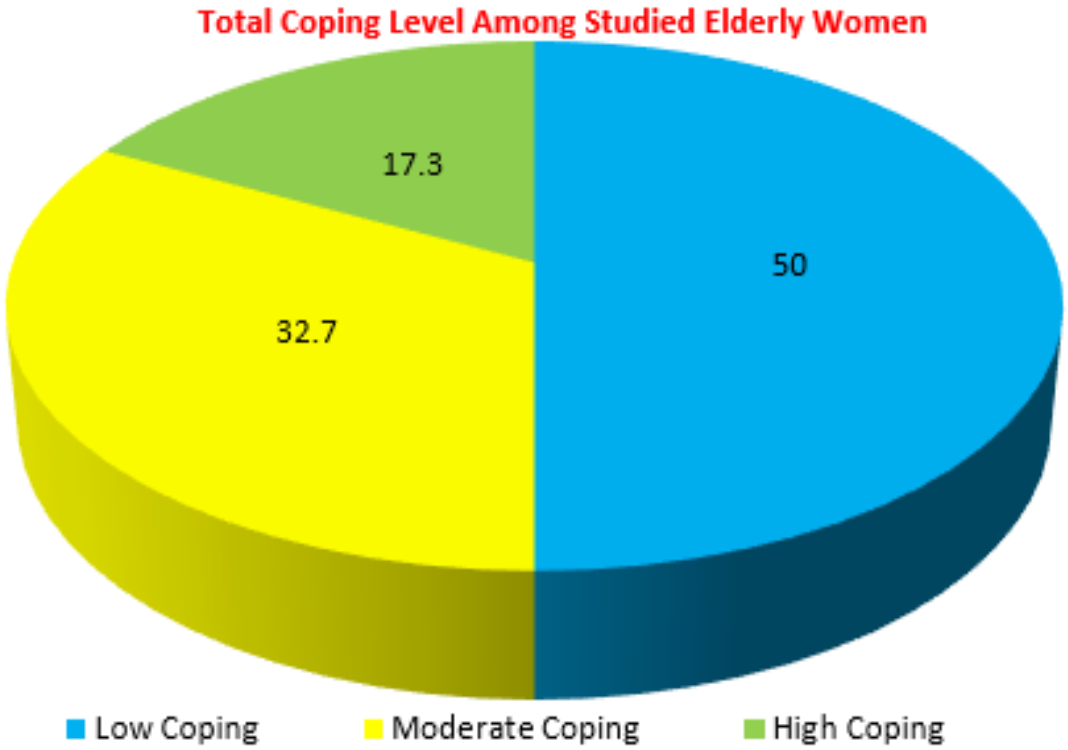

Figure 4: Total coping level among studied elderly women (n=300).

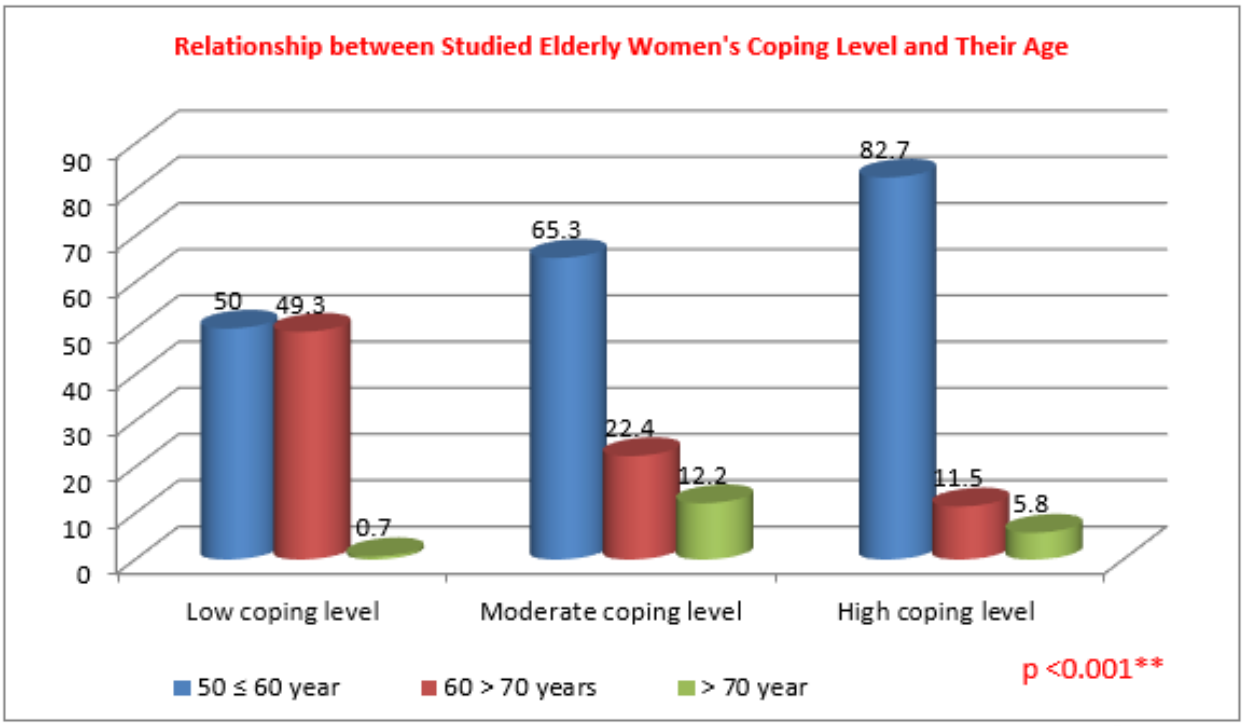

Figure 5: Relationship between studied elderly women's coping level and their age.

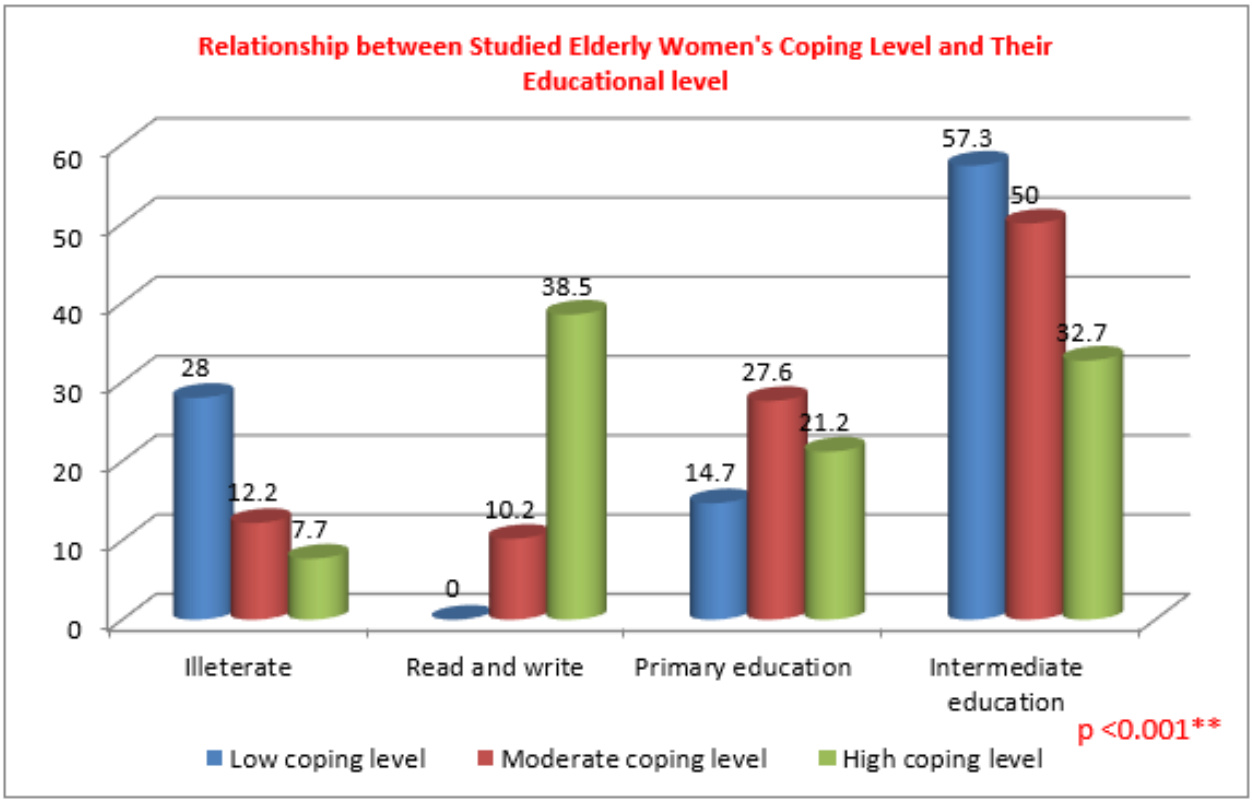

Figure 6: Reveals relationship between studied elderly women's coping level and their educational level.

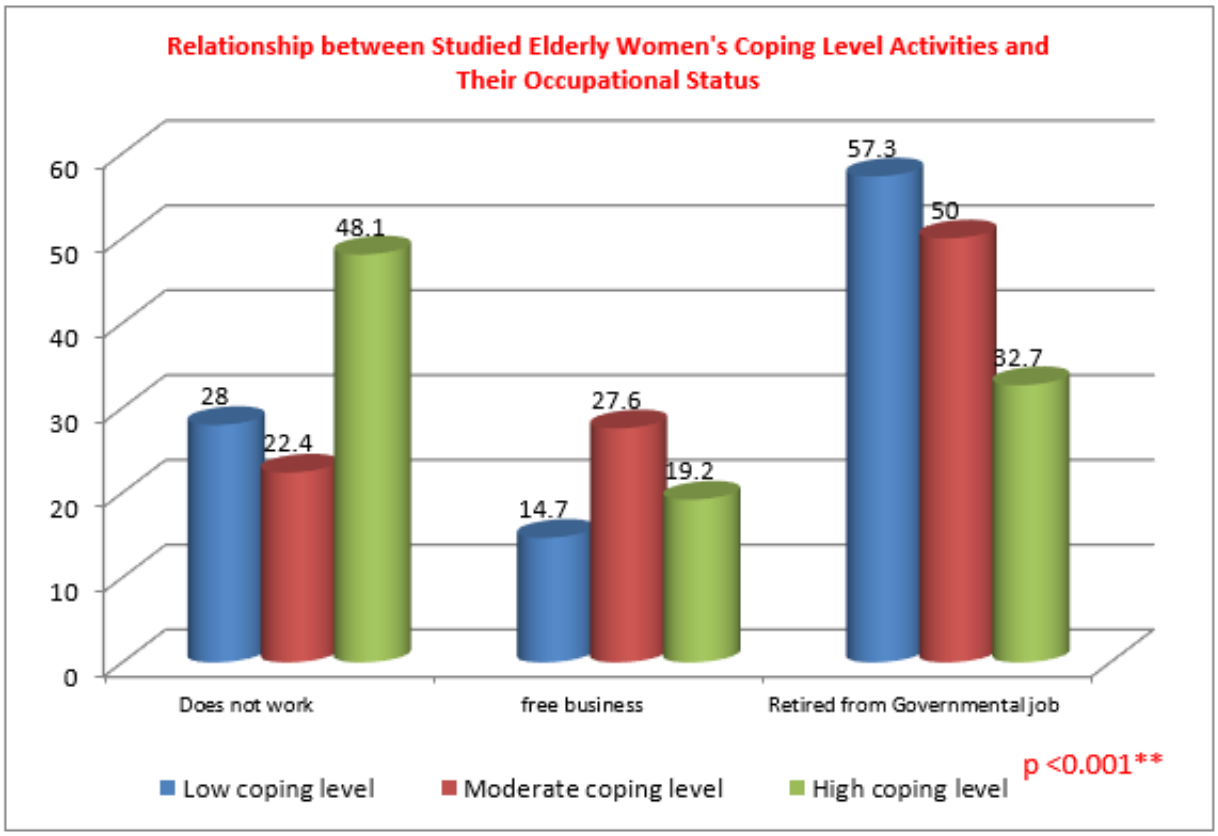

Figure 7: Relationship between studied elderly women's coping level activities and their occupational status.

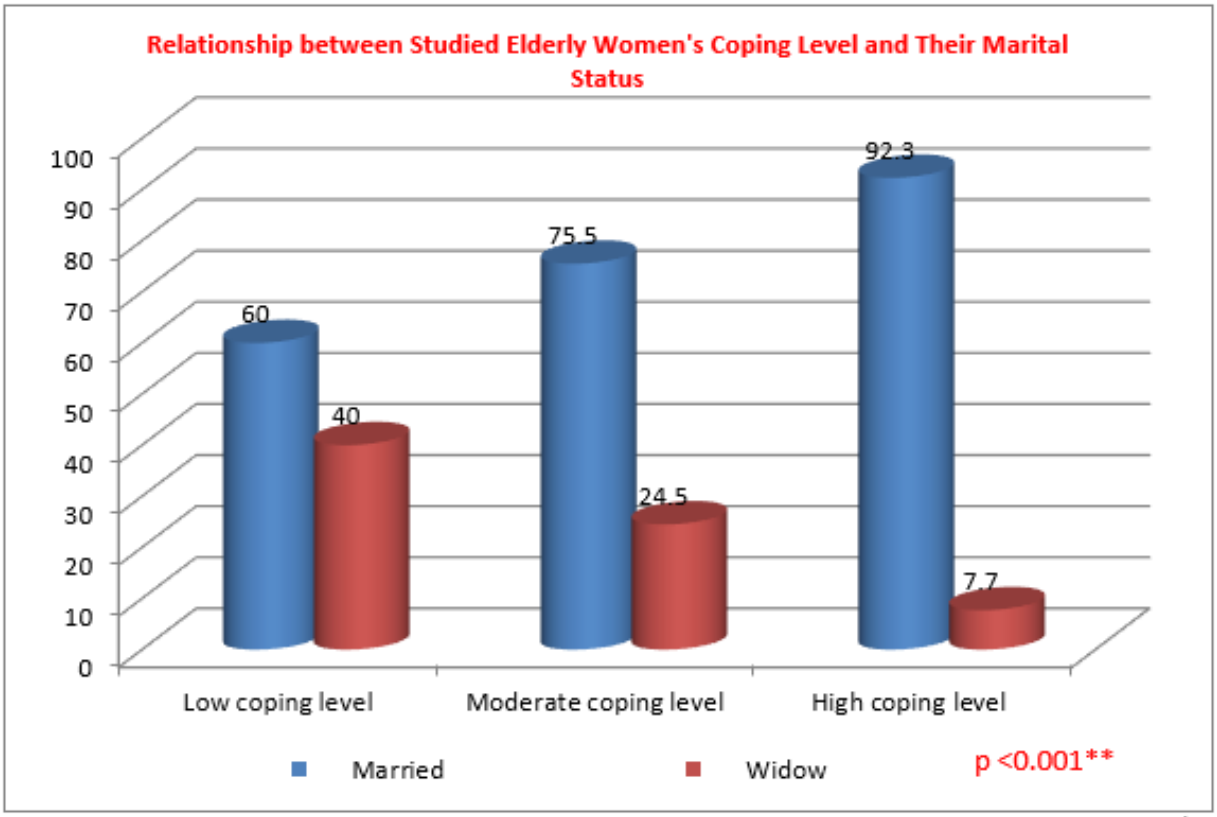

Figure 8: Relationship between studied elderly women's coping level and their marital status.

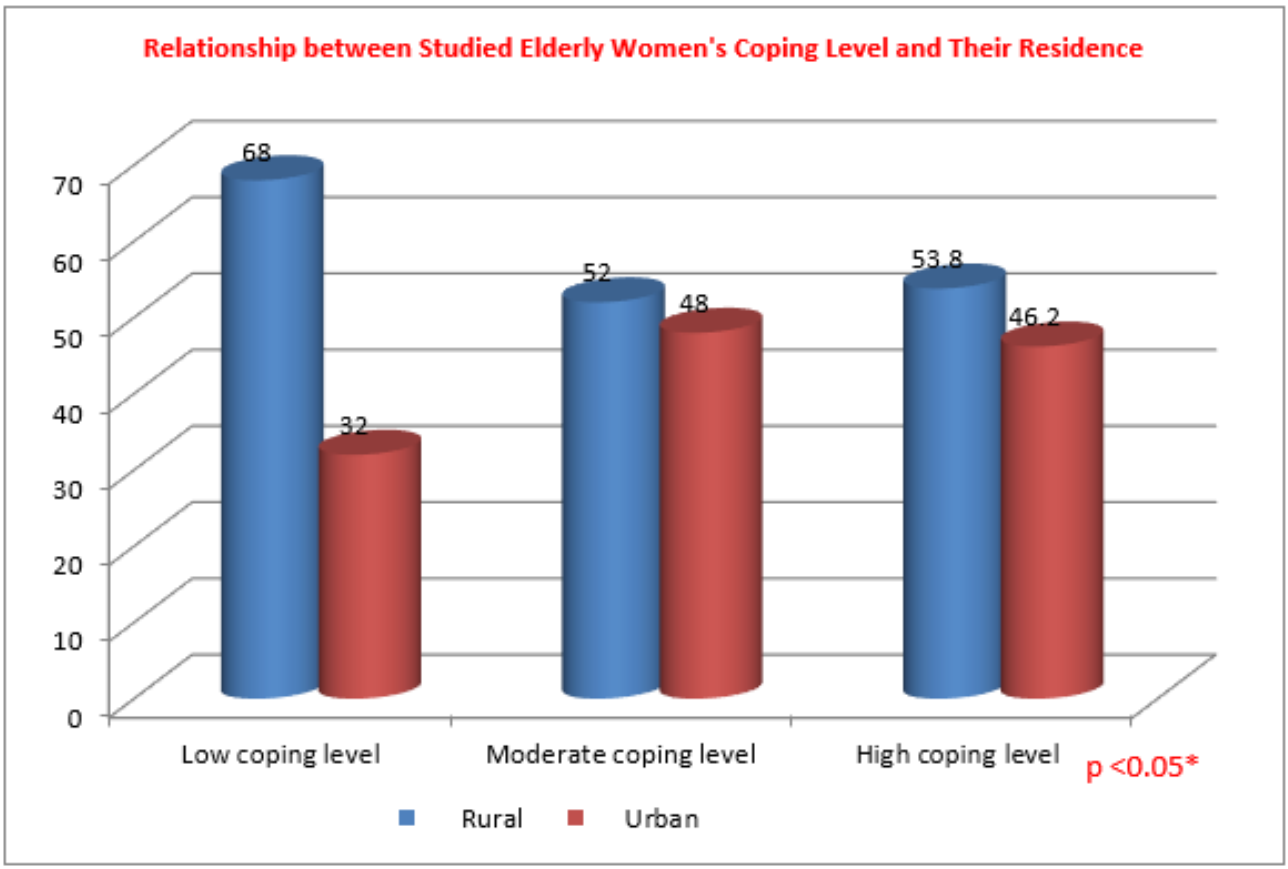

Figure 9: Relationship between studied elderly women's coping level and their residence.

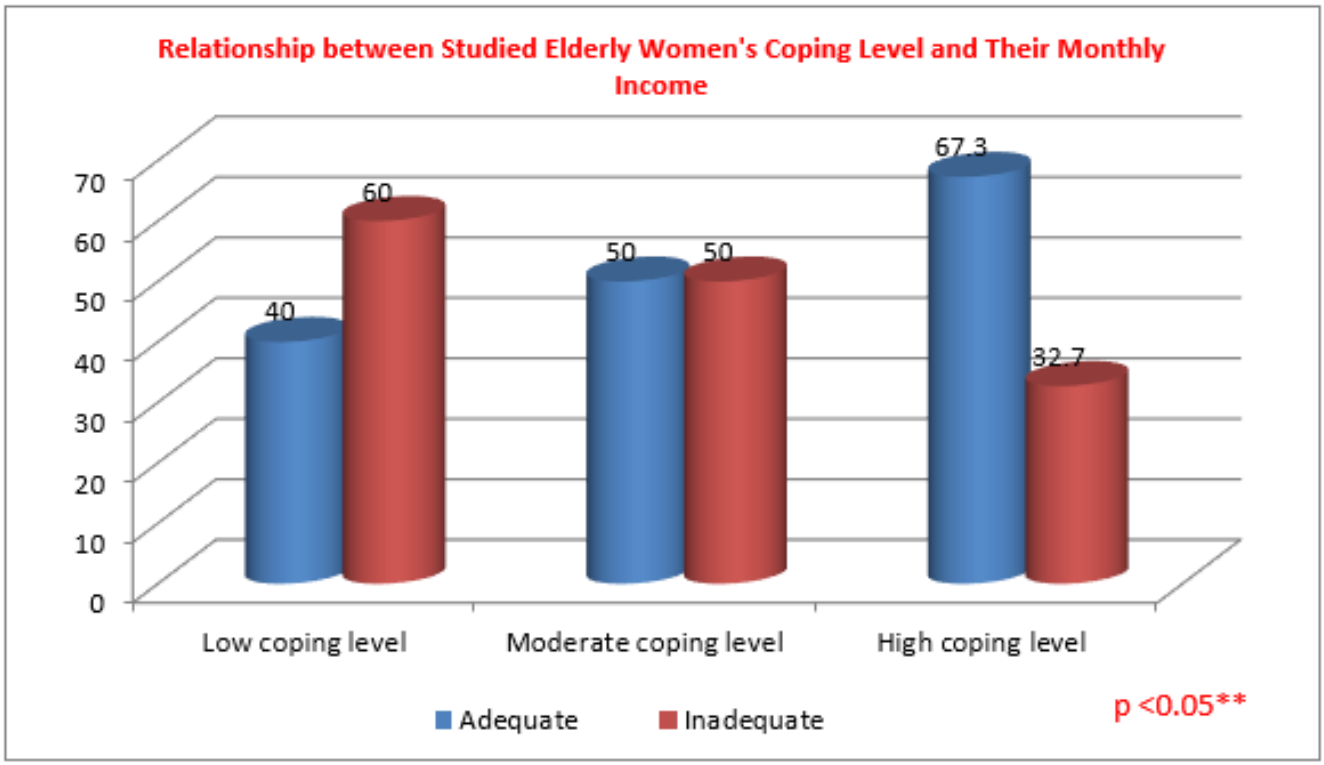

Figure 10: Relationship between studied elderly women's coping level and their monthly income.

Variables	Total score	Minimum	Maximum	Mean ±SD	% of mean score
Pain transformation	16	6.00	15.00	9.86±1.90	61.64%
Distraction	20	7.00	18.00	12.49±2.46	62.46%
Reducing Demands	12	4.00	12.00	7.27±1.85	60.61%
Retreating	28	9.00	27.00	15.24±5.69	54.44%
Worrying	36	11.00	34.00	17.31±6.18	48.08%
Resting	20	5.00	19.00	11.00±4.49	55.0%%

Table 1: Mean and standard of studied elderly women' regarding utilized coping strategies with pain (n= 300).

Variables	Pain Coping Inventory	
	r	p-value
Katz scale for ADL	0.109	0.05*
Visual Analog scale	- 0.280	0.000**
r: Pearson Correlation; *Statistically significant at p≤0.05; ** Highly statistical significant at p≤0.01		

Table 2: Correlation between Katz scale for ADL, Visual analog scale and pain coping inventory.

Discussion

Adults older than 65 account for 12.4 million (33.6%) of all cases of osteoarthritis of the knee. It's noteworthy that knee osteoarthritis affects and burdens women more than it does males. Studies show that osteoarthritis affects women differently than men and may be more severe in some parts of the knee. In addition to the anatomic area affected, women often come in more advanced stages than males, have changed gait patterns and report more pain and impairment [27].

Osteoarthritis (OA) can generate discomfort that is unrelated to the degeneration of the joint and may even begin before the local synovium swells and becomes inflamed. Patients with OA who had more pain reported a greater decline in quality of life [28]. Nurses are crucial in helping patients develop the self-management skills they need to actively participate in the treatment of their chronic diseases. So, the current study's objective was to investigate and assess the coping mechanisms used by older women in Beni-Suef city who were experiencing knee Osteoarthritis (OA) discomfort.

The study's results showed that none of the women in the study reported no pain, but more than two-thirds of them reported severe pain intensity. The level of discomfort associated with arthritis can vary from mild to severe. Also, a study conducted by the World Health Organization (WHO) highlights the strong connections between painful musculoskeletal conditions and decreased physical activity, functional capacity and wellbeing. These conclusions are supported by the majority of the researched women, according to Driban, et al., (2020) [29].

The results of the present investigation showed that the majority of the older women examined exhibited moderate functional immobility. This was related to how OA diseases affected a person's independence in daily life activities as measured by the Katz scale. These findings may be explained by the fact that synovial joints are most commonly affected by rheumatoid arthritis, a chronic, systemic inflammatory disease that also damages cartilage. Many patients as a result have diminished functional status and poor functioning. It's possible that OA will show symptoms outside of the joints.

These results back up the claims made by Mirzaei, et al., that rheumatoid arthritis can impact the majority of the body's organs and raise the risk of mortality and morbidity [30]. In addition, Jeihooni, et al., came to the conclusion that physical exercise has many advantages for RA patients and should be widely adopted after recognising that OA is the cause of a noticeable decline in physical activity. One of the goals of therapeutic patient education for OA should be to encourage physical exercise [31].

Over the past 20 years, treatment approaches for OA have undergone a significant transformation due to early diagnosis, timely administration of Disease-Modifying Anti-Rheumatic Drugs (DMARDs) and the introduction of new and potent "biological agents," all of which have led to decreased disease activity and fewer reported disabilities. It is clear that additional non-pharmacological multi-professional interventions are required to complement the medication because deficiencies are still being

reported despite the use of these novel treatment methods [32]. Two distinct types of coping exist: "active coping" (strategies used to control pain or function despite pain) and "approach" (strategies of interacting with pain or its sources) and "avoidance" (strategies of engaging efforts away from pain) [17].

According to the present study's findings, the older women it questioned have a full range of coping strategies. It reveals that just 17.3% of the older women studied were able to cope well; the other half (50.0%) were unable to cope at all, 32.7% were able to cope only somewhat and 50.0% had neither. These results are in line with those of a study conducted by Janiszewska, et al., in 2020 to "assess coping methods observed in women with rheumatoid arthritis," which also noted that the female patient with rheumatoid arthritis in the study made extensive use of the coping strategy of pain distraction [24]. The study's female participants used pain transformation as well; almost 50% of them did so frequently, if not nearly always. This finding was supported by Santos, et al., who noted that pain transformation was one of the best pain coping strategies utilised by rheumatoid arthritis patients [33]. Because of the physical handicap caused by the physiology of rheumatoid arthritis, more than half of the study's female participants also largely used the passive coping technique of resting; this may explain why. These results concur with those of Martinec, et al., Also, study participants with rheumatoid arthritis preferred to unwind by taking [33].

The current study's findings indicate that younger elderly adult women had higher coping levels in terms of the association between those levels and their age. This is explained by the fact that younger people may be more powerful and energetic and that they also have responsibilities, making their coping mechanisms more effective than those of older people.

In terms of the relationship between the examined elderly women's level of coping and their level of education and employment status, it is evident that retired and better educated older adult women had higher coping levels than those who were illiterate. They are to be expected because education, of course, impacts one's degree of knowledge and increases one's opportunities to study about any issue and discover a solution. The retired women had more leisure time to engage in physical activity and other pursuits that improve coping mechanisms and activities of daily living.

Results for the association between the examined elderly women's degree of coping and their place of residence and family income show that rural senior adult women with sufficient family income reported greater levels of coping than other groups. This characteristic of rural areas gives residents more access to clean air and open spaces surrounded by greenery, increasing their opportunities for activity. Residents with adequate income also have more opportunities to seek medical attention and purchase the tools or equipment they need for activity.

In short, the study's findings on the relationship between the activity level of the women and their personal characteristics, such as age, educational attainment, employment status and marital status, show that there was a highly statistically significant relationship between the activity level of the elderly women and these factors. Even Nevertheless, there was a statistically significant correlation between the ability of older women to cope with pain and their monthly income and area of residence. Allen, et al., who found a strong relationship between the studied sample's age, education level and amount of active coping strategy use, support the study's findings [27].

The findings of the present study indicate a strong negative correlation between the total pain coping inventory and the visual analogue scale in terms of the relationship between daily living activities (ADL) as measured by the Katz scale and pain intensity as measured by the Visual Analogue Scale (VAS) and Pain Coping Inventory (PCI). While the Katz scale for ADL and the pain coping inventory showed a positive association. These results are consistent with those of Driban, et al., who also noted that active coping is related to less pain and disability depression whereas passive coping is associated with increased pain and disability depression [29].

Conclusion

According to the findings of the present study, there was a highly statistically significant relationship between the elderly women's ability to cope with pain and their age, educational attainment, employment position and marital status. Even Nevertheless, there was a statistically significant correlation between the ability of older women to cope with pain and their monthly income and area of residence. The overall pain coping inventory and the visual analogue scale were shown to have a

substantial negative connection. While the Katz scale for ADL and the pain coping inventory showed a positive association.

Recommendation

The important recommendations inferred from the study results were:

1. Health education through mass media concerning how to deal with osteoarthritis
2. Increase public awareness about efficacy and tolerability of the coping in reducing pain and complications of osteoarthritis through directed program to persons in community

Conflict of Interest

The authors have no conflict of interest to declare.

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