

Knee Osteoarthritis Pain: Coping Strategies among Elderly Women

Mariam Riad Fahmy¹, Eman Mohamed Alsherbieny², Hanan Elzeblawy Hassan^{3,*}

¹Nurse Specialist at the Specialized Medical Center, Beni-Suef University Hospitals, Egypt

²Community Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt

³Maternal and Newborn Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt

*Corresponding author: nona_nano_1712@yahoo.com

Received March 12, 2023; Revised April 17, 2023; Accepted April 26, 2023

Abstract Background: Coping is generally categorized into four major categories which are problem-focused, emotion-focused, meaning-focused and social coping. 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. **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. **Tools:** Visual Analog scale (VAS) and Pain Coping Inventory (PCI). **Results:** 70% of studied elderly women had severe pain, 62% almost always think of things that remain undone because of pain, 83.7% had low coping level regarding reducing demands. **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.

Keywords: coping strategies, elderly, knee osteoarthritis, pain, women

Cite This Article: Mariam Riad Fahmy, Eman Mohamed Alsherbieny, and Hanan Elzeblawy Hassan, "Knee Osteoarthritis Pain: Coping Strategies among Elderly Women." *American Journal of Public Health Research*, vol. 11, no. 3 (2023): 99-106. doi: 10.12691/ajphr-11-3-3.

1. Introduction

Osteoarthritis (OA) is caused by damage or breakdown of joint cartilage between bones. Joint injury or overuse such as knee bending and repetitive stress on a joint, can damage a joint and increase the risk of OA in that joint. The risk of developing OA increases with age. Gender; women are more likely to develop OA than men, especially after age 50. Obesity; extra weight puts more stress on joints, particularly weight-bearing joints like the hips and knees. This stress increases the risk of OA in that joint. Obesity may also have metabolic effects that increase the risk of OA [1-6]. Genetics; people who have family members with OA are more likely to develop OA. People who have hand OA are more likely to develop knee OA. Race; some Asian populations have lower risk for OA [7-11].

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 [11-15].

Symptomatic, slow-acting drugs for osteoarthritis (SYSADOA) such as hyaluronic acid, diacerein (DIA), glucosamine, chondroitin sulfate, and Piasclidine (avocado/soybean unsaponifiable) are widely used for non-acute OA slow-acting treatment with a tolerable safety and potency to relieve pain and somehow to modify the joint functions [16]. Complementary and alternative medicine was used in OA to avoid the unwanted effects of other therapeutic opportunities and searching for more satisfactory results. Nutraceuticals and health supplements are always getting a broad acceptance between patients due to the nature-trust, seeking for safer alternatives than chemical drugs [17].

Treatment for knee osteoarthritis can be broken down into non-surgical and surgical management. Non-surgical management include patient education,

activity modification, physical therapy, weight loss, knee bracing, acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), COX-2 inhibitors, glucosamine and chondroitin sulfate, corticosteroid injections and hyaluronic acid (HA) [18].

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 manifestations of and the diagnostic criteria for OA provide the foundation for these activities [19-23].

Emotion-focused coping strategies such as; letting off steam by venting to friends or family, keeping yourself busy to keep your mind off the stressor, seeking encouragement, moral support, sympathy, and understanding from others and turning to rigorous activities like sports to distract attention from the stressor. People are more likely to adopt emotion-focused coping when they don't think their actions can affect the stressor itself, so they alter their response to the stressor. This is like when a friend says something that hurts feelings. What was said may make person feel badly about self, and you may spend a lot of time and mental energy thinking about it [24].

Talking to other people about the situation or engaging in other activities may help person deal with the emotional stress of that encounter. Problem-focused coping is about trying to deal with the stressor itself so as to avoid the stress response it is causing. Problem-focused coping involves finding practical ways to deal with stressful situation such as put other activities on hold in order to concentrate on and cope with stressor, wait to act until the appropriate time and actively try to remove or work around the stressor. Some of these coping strategies are healthy, for example, applying problem solving skills, some are neither healthy nor unhealthy, for example, practicing some religious rituals, while some are unhealthy or maladaptive such as denying the existence of a stressful situation or escaping through use of drugs [25].

On the other hand, neuroendocrinology involving the level of activity of the hypothalamic-pituitary-adrenocortical axis, corticosteroids, and plasma catecholamines were unlikely to have a direct causal relationship with an individual's coping style. For osteoarthritis patients have behavioral strategies that relate to activity broadly reflect three dimensions: avoidance, persistence, and pacing. The fear-avoidance model describes how the pain experience can lead to a pathway where habitually avoiding activity promotes a cycle of disuse and disability. In essence, catastrophizing about pain and its potential consequences, or ruminating, feeling helpless, or exaggerating the threat of pain, leads to pain-related fear or anxiety, which causes avoidance behaviors and ultimately reinforces this negative cycle [23].

Consistent with the idea that avoidance behaviors are maladaptive coping strategies, research examining avoidance usually associates these behaviors to disability or other outcomes such as depressed mood or maintenance of pain. In OA, use of rest as a coping strategy has been associated with physical disability in cross-sectional

studies as well as in longitudinal studies. In addition, rest and restricting activities have also been related to negative mood and pain at follow-up in people with OA. Another strategy considered being avoidant, Guarding as bracing, limping, flinching and stiffening, had the strongest independent association with disability [24].

Recent research studied pointed out that there is increasing evidence for the role of nurses in the management of patients with chronic inflammatory arthritis. Community health nurses help patients with OA achieve the ultimate goal of remission or low disease activity. Based on the patient's individual needs, encourage and assist patient to establish health behaviors and activities that promote rest and exercise, reduce stress, and encourage independence [25]. So the aim of the current study was to evaluate assess the coping strategies of elderly women suffering from knee osteoarthritis (OA) pain in Beni-Suef city.

2. Aim of the Study

The aim of the current study is to assess the coping strategies of elderly women suffering from knee osteoarthritis (OA) pain in Beni-Suef city

2.1. Research Questions

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

3. Subjects and Methods

3.1. Research Design

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

3.2. Subjects & Setting

3.2.1. Setting

The current study was conducted at Beni-Suef university hospital in orthopedics outpatient clinic and the physiotherapy unit.

3.2.2. Subjects

3.2.2.1. 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%.

3.2.2.2. Sampling Type

A non-probability consecutive sampling technique was used to recruit elderly women.

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

3.2.3. Tools of Data Collection

A. Tool (1): Visual Analog scale (VAS):

It was adapted from (*Hawker et al, 2011*). 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 [26].

❖ 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*) [27]. 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 & 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 $\leq 60\%$ of total score (≤ 79.2 scores)

- Moderate coping level $>60\%$ - $<80\%$ of total score (> 79.2 - <105.6 scores)
- High coping level $\geq 80\%$ of total score (≥ 105.6 scores)

3.2.4. 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 Pain Coping Inventory was 0.784.

3.2.5. 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.

3.2.6. 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.

3.2.7. 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.

3.2.8. Administrative Approval

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.

3.2.9. Statistical Analysis

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 \pm standard deviation (SD), and qualitative data were expressed as frequency and percentage.

4. Results

Figure 1 presents percentage distribution of study elderly women' regarding their total pain level. It shows that, more than two thirds (70%) of studied elderly women had severe pain and (30%) of them had moderate pain level.

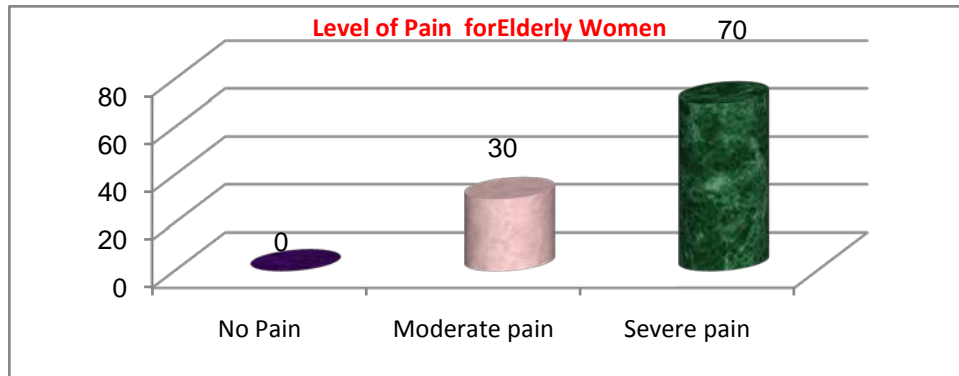


Figure 1. Total pain level among studied elderly women (n=300)

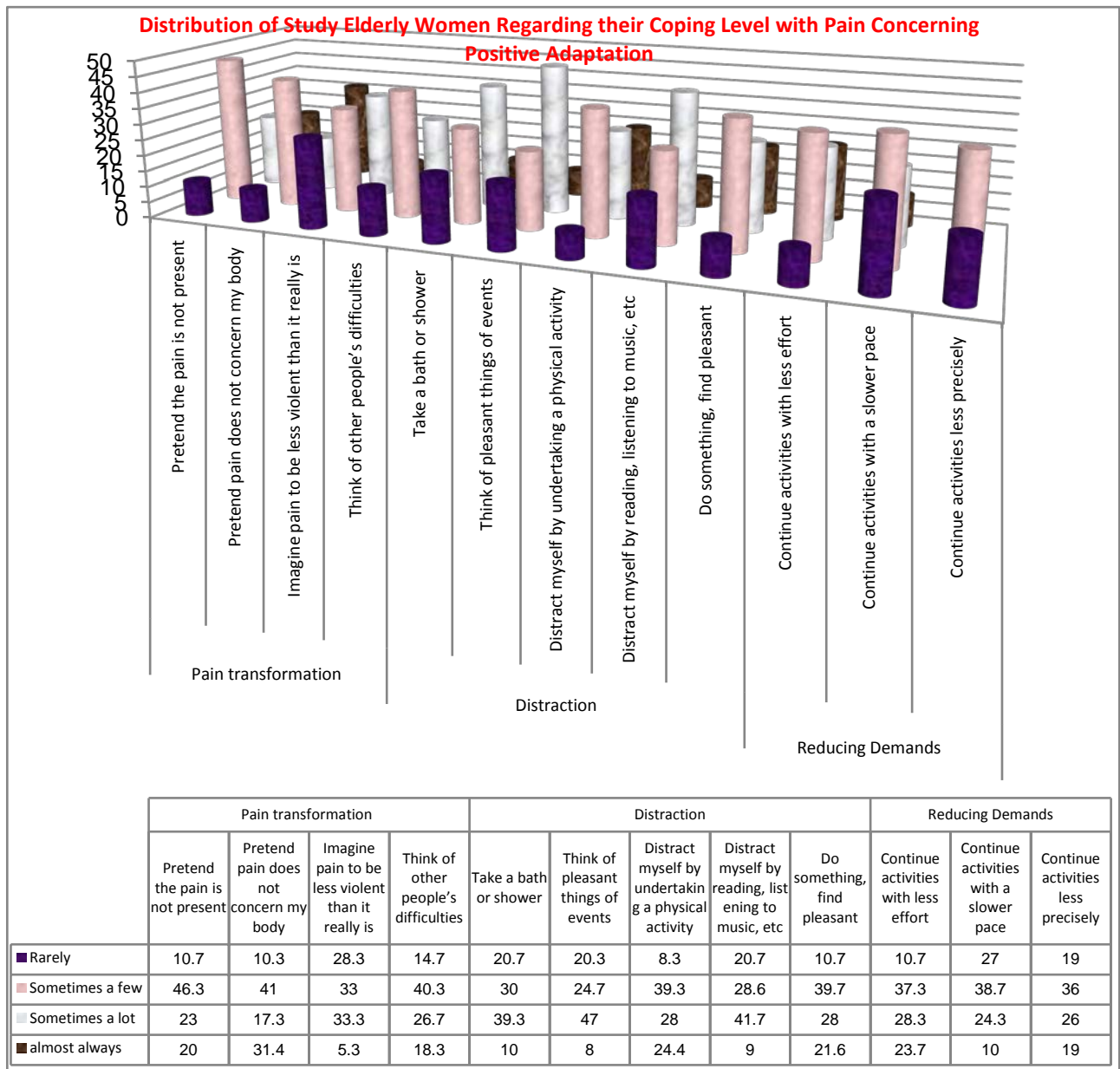


Figure 2. frequency and percentage distribution of study elderly women' regarding their coping level with pain concerning positive adaptation

Figure 2 presents percentage distribution of study elderly women' regarding their coping level with pain concerning positive adaptation. It reveals that, more than half (27%) of studied elderly women rarely continue activities with a slower pace, (41%) of them were sometimes a few pretend pain does not concern my body, (47.0%) of them were sometimes a lot assume think of pleasant things of events and (24.4%) of them were almost always distract their selves by undertaking a physical activity.

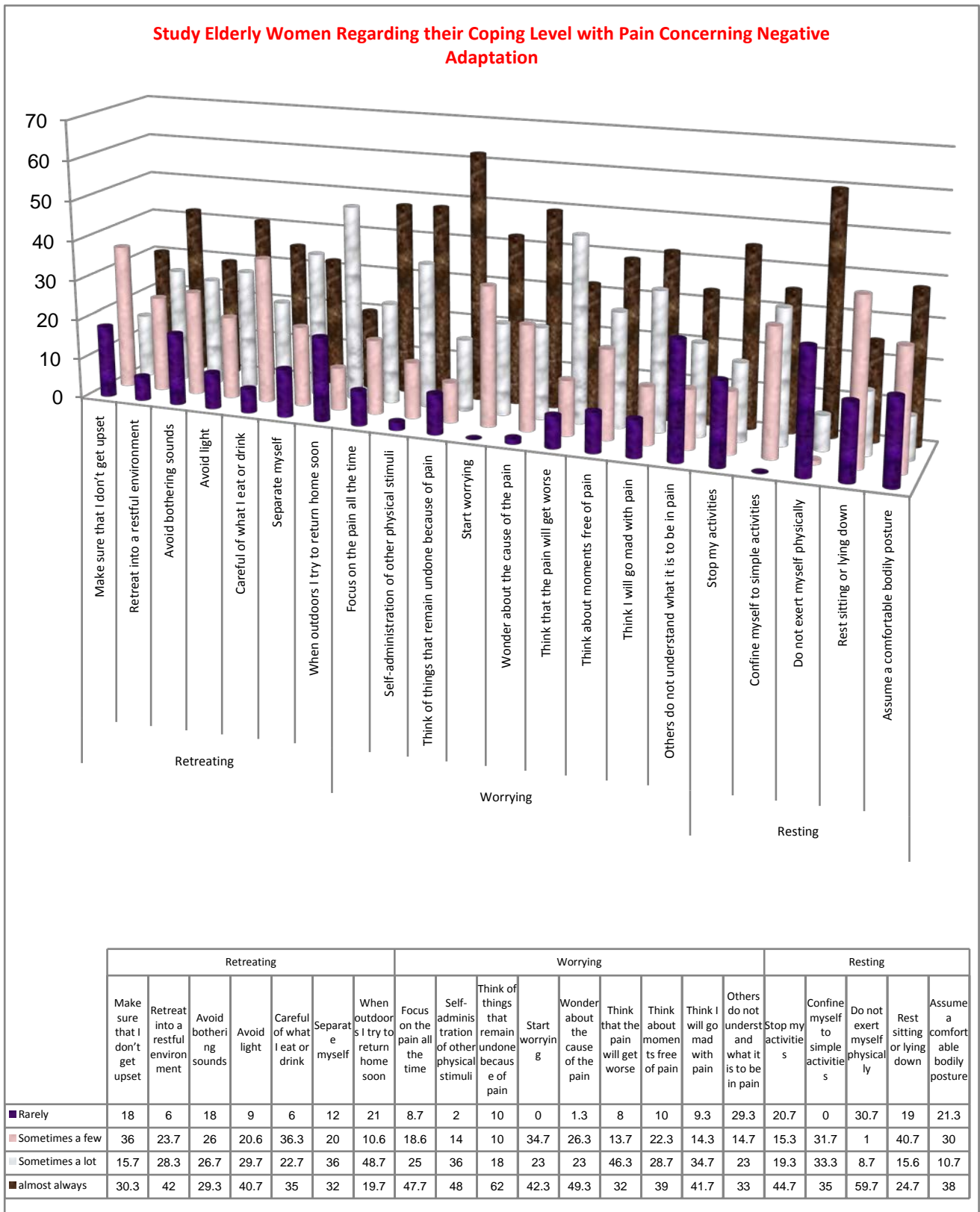


Figure 3. frequency and percentage distribution of study elderly women' regarding their coping level with pain concerning negative adaptation

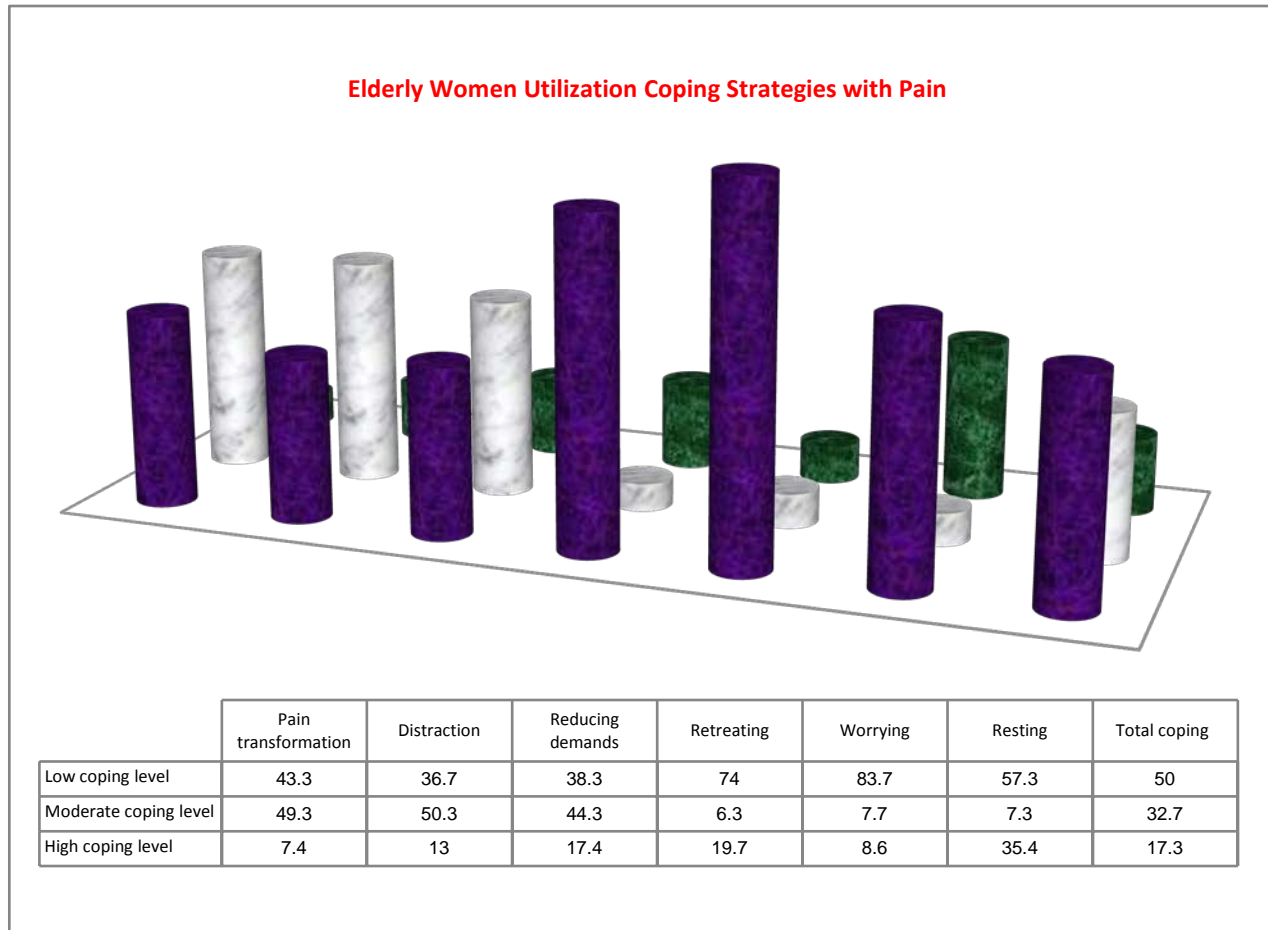


Figure 4. Frequency and percentage distribution of study elderly women' regarding their utilized coping strategies with pain (n= 300)

Figure 3 portrays percentage distribution of study elderly women' regarding their coping level with pain concerning negative adaptation. It reveals that, more than half (62%) of studied elderly women almost always Think of things that remain undone because of pain, (48.7%) of them were Sometimes a lot When outdoors they try to return home soon, (40.7%) of them were sometime Sometimes a few a lot assume rest sitting or lying down and (30.7%) of them were rarely do not exert their selves physically.

Figure 4 presents percentage distribution of study elderly women' regarding their utilized coping strategies with pain (n= 300).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.

5. Discussion

The treatment strategies for OA have been dramatically reformed during the last 20 years, through early diagnosis, timely use of disease-modifying anti-rheumatic drugs (DMARDs), and the introduction of new and effective “biological agents,” which have all led to reduced disease activity and fewer reported disabilities. However, despite these new treatment strategies, disabilities are still reported, which indicates the need for further no pharmacological multi-professional interventions to complement the medication [28-32].

There are two types of coping: a) “active coping” (strategies used to control pain or to function despite pain) versus “passive coping” (withdrawing and surrendering control over pain); b) “approach” (strategies of engaging with pain or its causes) versus “avoidance” (strategies of engaging efforts away from pain) [25].

Concerning the strategies that are adopted by the studied women at the current study, the present study revealed that studied women adopted different strategies to cope arthritis pain including; both positive adaptation, and negative adaptation; the positive adaptation strategies including; Pain transformation, distraction and reducing demand. The result of the current study indicated that distraction was one of the highest utilized copying strategies among studied women. These findings are agreed with *Janiszewska et al., (2020)* in the study to “evaluate Coping strategies observed in women with rheumatoid arthritis” and added that coping pain distraction strategy was highly utilized by the studied female patient with rheumatoid arthritis [33].

Moreover, Pain transformation was the second positive adaptation strategy that was utilized by the studied women, nearly 50% of them was utilized it in Sometimes a lot and almost always manner. This result was supported by *Santos et al., (2020)* who indicated that pain transformation is one of the most effective pain coping strategies that was adopted by the patient with rheumatoid arthritis pain [34].

Concerning adoption of the studied women of passive coping, the present study findings revealed that resting

passive coping strategy was mainly utilized by more than half of the studied women, this may be due to that they almost always do not exert their selves physically, due to the physical disability that caused by the physiology of rheumatoid arthritis. These finding are agreed with *Martinec et al., (2019)* who added that studied patient affected with rheumatoid arthritis preferred resting in order to avoid increase intensity of pain [35].

Retreat is an integrative medicine modality that can be helpful in managing not just chronic pain, but also the associated depression and anxiety that comes along with the condition. More than that, it can improve cognitive function deficits associated with chronic pain. Recent research done at Stanford University suggests that retreat and breathing practices could be the solution to overcoming the opioid crisis.

Moreover, the retreating was the second utilized passive coping strategy by the studied women, as nearly half of them almost always retreat into a restful environment, the result of the current study came in the same line with *Clynes et al., (2019)* who added that Patients with OA seek immediate care from multiple traditional providers with a wide range of products and services with no gatekeeping [36]. The most significant concern expressed by practitioners, restful environment retreating as a safety and efficacy of traditional treatments.

6. 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.

7. Recommendation

The important recommendations inferred from the study result was increase public awareness about efficacy & tolerability of the coping in reducing pain and complications of osteoarthritis through directed program to persons in community.

References

- [1] To, B., Ratneswaran, A., Kerr, G., and Beier, F. (2019): Investigating the role of nuclear receptor proliferator-activated receptor delta (PPAR δ) in aging and metabolic models of osteoarthritis. *Osteoarthritis and Cartilage*, 27(95), 267-273.
- [2] Fahmy M., Hassan H., Alsherbiyen E.(2023). Coping Strategies Among Elderly Women Suffering From Knee Osteoarthritis Pain At Beni-Suef City. *Nile journal for geriatric and gerontology*; 6(1): 148-166.
- [3] Hassan H., Badr Elden S., Hamdi S., Aboudonya M. (2021). Poly-Pharmacy among Elderly Patients: Perception and Practices. *Journal of Nursing and Community Medicine*; 1(1): 1-6.
- [4] Fahmy M. (2023). E Coping Strategies among Elderly Women Suffering from Knee Osteoarthritis Pain at Beni-Suef City. A Thesis Submitted to Faculty of Nursing, Beni-Suef University.
- [5] Hassanine Sh., Hassan H., Alkotb Z. (2017). Effect of Preventive Program on Progression of Osteoporosis among Female Patients over 40 years at El-Fayoum City. *American Research Journal of Nursing*; 3(1): 1-15.
- [6] Hassan H., Abozed A., Mohamed A., Ibrahim E. (2021). Compassionate Care Delivery for Elderly Patients: Nurses' Perception. *American Journal of Applied Psychology*; 9(1): 22-35.
- [7] Hassan H., Badr-Elden S., Hamdi S., Aboudonya M. (2021). Control Poly-Pharmacy: Elderly Patients' Perception. *American Journal of Medical Sciences and Medicine*; 9(3): 82-88.
- [8] Mohamed S. (2023). Effect of Deep Breathing and Kegel Exercises on Urinary Incontinence among Elderly Women. A Thesis Submitted to Faculty of Nursing, Benha University.
- [9] Hassan H. (2019). The Impact of Evidence-Based Nursing as The Foundation for Professional Maternity Nursing Practices. *Open Access Journal of Reproductive System and Sexual Disorder*; 2(2): 195-197. OAJRSD.MS.ID.000135.
- [10] Aboudonya M., Badr Elden S., Hassan H., Hafez S. (2022). Knowledge And Practices Used By Old Age Patients To Control Polypharmacy. *Nile journal for geriatric and gerontology*; 5(1): 80-91.
- [11] Hassan H. (2020). Evidence-Based Practice in Midwifery and Maternity Nursing for Excellent Quality of Care Outcomes. *American Journal of Nursing Research*; 8(6): 606-607.
- [12] Runhaar, J., and Zhang, Y. (2018): Can we prevent OA? *Epidemiology and public health insights and implications. Rheumatology*, 57(4), 3-9.
- [13] Sheha E., Hassan H., Gamel W. (2018). Association between pregnant overweight and obesity and periodontal disease during pregnancy: a cross sectional study. *International Journal of Studies in Nursing*; 3(1): 1-21.
- [14] Hassan H., Badr Elden S., Hamdi S., Aboudonya M. (2021). Control Poly-Pharmacy: Elderly Patients' Practices. *American Journal of Pharmacological Sciences*; 9(2): 56-62.
- [15] Mohamed S., Omran, A, Hassan H., Ramadan E. Effect of Deep Breathing and Kegel Exercises on Urinary Incontinence among Elderly Women. *Journal of Nursing Science - Benha University*, 2023.
- [16] Honvo, G., Bruyère, O., Geerinck, A., Veronese, N., and Reginster, J. (2019): Efficacy of Chondroitin sulfate in patients with knee osteoarthritis: A comprehensive meta-analysis exploring inconsistencies in randomized, placebo-controlled trials. *Advances in Therapy*, 36(5), 1085-1099.
- [17] Lindler, B. N., Long, K. E., Taylor, N. A., and Lei, W. (2020): Use of herbal medications for treatment of osteoarthritis and rheumatoid arthritis. *Medicines*, 7(11), 67-70.
- [18] Martel-Pelletier, J., Maheu, E., Pelletier, J., Alekseeva, L., Mkinsi, O., Branco, J., and Rannou, F. (2018): A new decision tree for diagnosis of osteoarthritis in primary care: International consensus of experts. *Aging Clinical and Experimental Research*, 31(1), 19-30.
- [19] Ferri, F. F. (2020): Ferri's clinical advisor 2020: 5 books in 1. Philadelphia; Elsevier, p: 1003-1005.
- [20] Ibrahim E., Mahmod A., Elmaghwry A., Hassan H. (2021). Compassionate Care Delivery: Elderlies' Perception. *Research in Psychology and Behavioral Sciences*; 9(1): 24-32.
- [21] Qalawa Sh., Hassan H. (2017). Implications of Nurse's Moral Distress Experience in Clinical Practice and Their Health Status in Obstetrics and Critical Care Settings. *Clinical Practice*, 6(2): 15-25.
- [22] Hassan H., Abozed A., Elmghwry A., Ibrahim E. (2021). Compassionate Care: Correlation and Predictors of Nurses' and Patients' Opinions. *American Journal of Public Health Research*; 9(5): 234-243.
- [23] Åkesson, K. S., Sundén, A., Stigmar, K., Fagerström, C., Pawlikowska, T., and Ekvall Hansson, E. (2022): Enablement and empowerment among patients participating in a supported osteoarthritis self-management programme – a prospective observational study. *BMC Musculoskeletal Disorders*, 23(1), 298-304.
- [24] Rini, C., Katz, A. W., Nwaduibo, A., Porter, L. S., Somers, T. J., and Keefe, F. J. (2020): Changes in identification of possible pain coping strategies by people with osteoarthritis who complete web-based pain coping skills training. *International Journal of Behavioral Medicine*, 28(4), 488-498.
- [25] Shamekh, A., Alizadeh, M., Nejadghaderi, S. A., Sullman, M. J., Kaufman, J. S., Collins, G. S., and Safiri, S. (2022): The burden of osteoarthritis in the Middle East and North Africa region from 1990 to 2019. 84(9), 687-690.
- [26] Hawker, G. A., Mian, S., Kendzerska, T., and French, M. (2011): Measures of Adult Pain Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS Pain), McGill Pain

- Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ-), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP): *Arthritis Care & Research*; 63(S11): S240-S252, American College of Rheumatology.
- [27] Kmaimaat, F.W., and Evers, A. W. (2003): Pain-Coping Strategies in Chronic Pain Patients: Psychometric Characteristics of the Pain-Coping Inventory (PCI). *International Journal of Behavioral Medicine*; 10(4): 343-363 Copyright © 2003, Lawrence Erlbaum Associates, Inc.
- [28] Lucić, L. B., and Grazio, S. (2018): Impact of balance confidence on daily living activities of older people with knee osteoarthritis with regard to balance, physical function, pain, and quality of life – A preliminary report. *Clinical Gerontologist*, 41(4), 357-365.
- [29] Hassan H., Alsherbieny E., Fahmy M. (2023). Daily Living Activity among Elderly Women with Knee Osteoarthritis Pain: Impact of Socio-demographic Characteristics. *World Journal of Social Sciences and Humanities*; 11
- [30] Hassan H., Alsherbieny E., Fahmy M. (2023). Coping Strategies among Elderly Women with Knee Osteoarthritis Pain at Beni-Suef City: Impact of Socio-demographic Characteristics. *Journal of Orthopaedic Science and Research*; 4(1): 1-14.
- [31] Alsherbieny E., Hassan H., Fahmy M. (2023). Knee Osteoarthritis among Elderly Women. *American Journal of Medical Sciences and Medicine*; 11
- [32] Hassan H., Fahmy M., Alsherbieny E. (2023). Impact of Elderly Women's Knee Osteoarthritis Pain on Daily Living Activity at Northern Upper Egypt. *Journal of Orthopaedic Science and Research*; 4(1): 1-10.
- [33] Janiszewska, M., Barańska, A., Kanecki, K., Karpińska, A., Firlej, E., and Bogdan, M. (2020): Coping strategies observed in women with rheumatoid arthritis. *Annals of Agricultural and Environmental Medicine*, 27(3), 401-406.
- [34] Santos, M. G., Damiani, P., Marcon, A. C., Hauptenthal, A., and Avelar, N. P. (2020): Influence of knee osteoarthritis on functional performance, quality of life and pain in older women. *Fisioterapia em Movimento*, 33(2), 1651-1660.
- [35] Martinec, R., Pinjatela, R., and Balen, D. (2019): quality of life in patients with rheumatoid arthritis - A preliminary study. *Acta Clin Croat. Mar*; 58(1):157-166.
- [36] Clynes, M. A., Jameson, K. A., Edwards, M. H., Cooper, C., and Dennison, E. M. (2019): Impact of osteoarthritis on activities of daily living: Does joint site matter? *Aging Clinical and Experimental Research*, 31(8), 1049-1056.



© The Author(s) 2023. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).