

The Effect of Nursing Intervention on Knowledge and Practice among Elderly with Knee Osteoarthritis

Magda M. Mohsen⁽¹⁾, Nabila E.Sabola⁽²⁾, Nagwa I. El-khayat⁽³⁾,
Entsar A. Abd El-Salam⁽⁴⁾

^{(1), (2)} Family and Community health Nursing, ^{(3), (4)} Geriatric health Nursing

^{(1), (2), (3), (4)} Faculty of Nursing, Menoufia University-Egypt

Abstract: Knee osteoarthritis (KOA) has been highlighted as one of the top contributors to global disability. **Purpose:** This study aimed to assess the effectiveness of nursing intervention on knowledge and practice among elderly with knee osteoarthritis. **Design:** A quasi- experimental design was utilized to conduct this study. **Setting:** The study was conducted at outpatient clinic of Shebin- Elkom University and Educational Hospital, and then they were following up at their homes. **Sample:** 100 elderly patients were selected who met inclusion and exclusion criteria. **Tool:** A constructed interviewing questionnaire developed by the researcher. **Results:** There was an improvement in studied elderly patient's knowledge in study group than control group after intervention which reflected in improving their practice toward symptoms management. **Conclusion:** Implementation of nursing intervention for elderly patients was effective in management symptoms of knee osteoarthritis among study group compared to control group. **Recommendations:** Awareness programs, targeted for all elderly patients, their family caregivers and general public about nursing intervention for knee osteoarthritis and its importance for increasing knowledge and improving practice toward disease.

Keywords: Elderly, Knee osteoarthritis, nursing intervention.

1. INTRODUCTION

Knee osteoarthritis is a common progressive multifactorial joint disease characterized by chronic pain and functional disability (Hunter & Bierma-Zeinstra, 2019), affecting 25% of those over the age of 65 years. It increases with obesity and age (Khachiana, Seyedoshohadaeia, Haghanib & Amiria, 2020; Vos, Allen, Arora et al, 2016). Other risk factors associated with knee OA such as female sex, hypertension, raised glucose, history of knee injury, quadriceps muscle strength, physical workload and occupations involving repetitive knee or hip bending and lifting (Yoo, Kim and Kim, 2018).

The intensity of the clinical symptoms may vary from each individual. However, they typically become more severe, more frequent, and more debilitating over time. The rate of progression also varies for each individual. Common clinical symptoms include knee pain that is gradual in onset and worse with activity, knee stiffness and swelling, pain after prolonged sitting or resting, and pain that worsens over time (Elsiw, Jovanovic, Doma, Hazratwala, Letson, 2019; Lundgren-Nilsson, Dencker, Palstam, et al., 2018).

Knee osteoarthritis (KOA) has been highlighted as one of the top contributors to global disability(Cross, Smith, Hoy, Nolte, Ackerman, Fransen , et al.,2014 & Nguyen,2014). Knee pain, joint stiffness and lower limb muscle weakness are the predominant complaints related to KOA which impair mobility, leading to functional limitations (Araujo, Castro, Daltro, Matos ,2016 ; Ponvel, Singh, Shan, Kamsan, Ahmad,2019). The impairments and limitations associated with KOA may lead to psychosocial issues such as anxiety, depression and helplessness (Iijima, Aoyama, Fukutani, Isho,

Yamamoto, Hiraoka, et al.,2018 and Sharma, Kudesia, Shi, Gandhi,2016). As a result, a decline in quality of life is reported by people with KOA (Araujo,et al.,2016; Aksekili, Fidan, Alkan, Alemdar, Aksekili, Ardıçoğlu,2016). The impact of KOA extends beyond the individual level, as it imposes a significant burden on society and health care services (Kiadaliri, Lohmander, Moradi-Lakeh, Petersson, Englund,2018 ; Shaik, Kothandan, Singareddy, Sanku,2018).

The nurse has important role in helping knee OA patients to manage their condition. The focus of KOA management primarily concerns symptom relief and optimization of functional outcomes (Lespasio, PiuZZi, Husni, Muschler, Guarino , Mont,2017). Within management guidelines for OA, education intervention has been recognized as one of the fundamental components for successful management of KOA (Nelson, Allen, Golightly, Goode, Jordan,2014). Such interventions involve acquisition of knowledge and skills in order to empower individuals towards self-management. Providing disease information about KOA is more likely to engage people with KOA in positive behavior change for better health outcomes (Marconcin, Espanha, Teles, Bento, Campos, Andre´, et al., 2018).

Aim of the study:

The study aimed to assess the effectiveness of nursing intervention on knowledge and practice among elderly with knee osteoarthritis.

Research Hypotheses:

- Elderly patients who will receive nursing intervention will be more likely to have change in their knowledge regarding osteoarthritic knee than elderly patients who will not receive the intervention.
- Elderly patients who will receive nursing intervention will be more likely to have change in their practice than elderly patients who will not receive the intervention.

2. SUBJECT AND METHOD

Research Design:

A quasi- experimental design (study and control) was utilized to conduct this study.

Setting:

This study was conducted at outpatient clinic of Shebin- Elkom University and Educational Hospital, and then they were following up at their homes.

Sample:

A convenience sample of 100 elderly patients with osteoarthritic knee, were recruited. They were assigned randomly by tossing a coin for two groups (study group from University Hospital and control group from Educational Hospital). The sample was selected according to the following inclusion criteria:

- Elderly (over 60 years)
- Both sexes
- Diagnosed with osteoarthritic knee.

Exclusion criteria:-

- Having medical history of stroke or other disorder that substantially affected lower-extremity function.

Tool of data collection:- A constructed interviewing questionnaire developed by the researcher based on pertinent literature which includes:

1. **Part 1:** Demographic data: age, gender, marital status, and level of education.....etc.
2. **Part 2:** History of chronic diseases and medication taken.
3. **Part 3:** Assessment of information regarding knee osteoarthritis
4. **Part 4:**Practices toward pain ,swelling, stiffness, fatigue, and insomnia management of knee osteoarthritis

Scoring: The questionnaire contained, 7 items related to the elderly' knowledge about knee osteoarthritis, with a Likert scale of 1 – 3 where 1 = I don't know/wrong answer, 2= correct incomplete answer, and 3 = Correct complete answer. Total score of knowledge was range 7 - 21. The total score of each elderly patient was categorized arbitrary into “(poor kn.)” when he/she achieved less than $< 60\%$ of the total score, i:e (7 - <12) , “pass kn.” was considered when he/she achieved $60\% - 75\%$ of the total score, i:e (12-15), and “good kn.” was considered when the he/she achieved more than $> 75\%$ of the total score, i:e (16 - 21).

Concerning practice to diminish pain, the questionnaire contained, 10 items with a Likert scale of 0 – 1 where 0 = wrong done, and 1 = correct done. Total score of practice to diminish pain was range 0 - 10. The total score of each elderly was categorized arbitrary into “(wrong done.)” when he/she achieved less than $\leq 50\%$ of the total score, i:e (0 - 5) , and “correct done” was considered when he/she achieved $> 50\%$ of the total score, i:e (6-10).

Regarding practice for management swelling and stiffness, the questionnaire contained, 6 items with a Likert scale of 0 – 1 where 0 = wrong done, and 1 = correct done. Total score of practice for management swelling and stiffness was range 0 - 6. The total score of each elderly was categorized arbitrary into “(wrong done.)” when he/she achieved less than $\leq 50\%$ of the total score, i:e (0 - 3) , and “correct done” was considered when he/she achieved $> 50\%$ of the total score, i:e (4-6).

Concerning practice for management of fatigue and insomnia, the questionnaire contained, 4 items with a Likert scale of 0 – 1 where 0 = wrong done, and 1 = correct done. Total score of practice for management of fatigue and insomnia was range 0 - 4. The total score of each elderly patient was categorized arbitrary into “(wrong done.)” when he/she achieved less than $\leq 50\%$ of the total score, i:e (0 - 2) , and “correct done” was considered when he/she achieved $> 50\%$ of the total score, i:e (3-4).

Validity:

The validity of tool was done by a jury of four experts who reviewed the questionnaire for clarity, relevance, comprehension, understanding and applicability, content accuracy and internal validity. Also, professors were asked to judge the items for completeness and clarity (content validity). Suggestions were incorporated into the three tools.

Reliability:

Reliability was estimated among 10 participants by using test retest method with two weeks apart between them. Then Cronbach alpha reliability test was done through SPSS computer package. It was 0.80 for **interviewing questionnaire (with the following** Cronbach alpha reliability values for its parts:

1. knowledge about OA: 0.75,
2. Practice to diminish the knee pain: 0.83
3. Practice to diminish the knee swelling: 0.80
4. Practice for management of stiffness: 0.77
5. Practice for management of fatigue:0.81
6. Practice for management of Insomnia: 0.76

The Cronbach alpha reliability for all parts of the tool indicate that the they are reliable to detect the objectives of the study.

Pilot study:

The pilot study was conducted on 10 of elderly patients to evaluate the effectiveness of the study tool, clarity, techniques and the availability of the study sample.

Ethical consideration:

- Approval of the ethical research Committee was obtained at the Faculty of Nursing, Menoufia University.
- The agreements for participation of the elderly patients were taken after the aim of the study was explained to them.

- The elderly patients had the full rights to refuse to participate in the study or to withdrawal at any time. Also they were assured that, the information would remain confidential and used for the research purpose only.
- The researcher gave copies of general information package (booklet) about nursing intervention to elderly with knee OA for achieving the ethical principles of research as the principle of beneficence that all subjects should benefit from the research's knowledge.

Data collection procedure

- Data collection started on February 2019 and lasted until January 2020. The initial visit (pretest): First time meeting with the participants was considered the base line for the study. Oral consent was taken from each elderly prior to filling in the interviewing questionnaire.
- Filling in the questionnaire for elderly (case and control) was conducted at the waiting area of orthopedic Out-patient Clinic affiliated to Shebin- Elkom University and Educational Hospital, after the elderly patients receiving medical examination and treatment.
- Each subject was personally interviewed for about 45 minutes-1 hour (according to the level of patient understanding) to fill the questionnaire for case and control group and give simple intervention about knee osteoarthritis only for case group (if possible according to the time of participants).
- The implementation of the home visit for nursing intervention sessions was achieved within 6 months one session per week for every individual (total duration 3weeks for every individual).
- Each session started by a summary about what was given through the previous sessions and objectives of the new one, taking into consideration using simple language suitable to the elderly patients. Discussions, explanation, and motivation during sessions were used to enhance learning and elderly' cooperation. At the end of each session, the researcher concluded session, take feedback from the elderly patients and plan for the next session (topic, time).
- The intervention included telephone follow up to elderly patients for completing intervention sessions for reassurance, support and keep contact.
- The final session (fourth): was done after 3 month (post intervention): After the implementation of the nursing intervention each elderly was assessed using the study tool to determine the effect of the sessions on their pain, other symptoms and physical function of knee. Time required for the session was 20 minutes.

Statistical Analysis:-

Quantitative data were presented by mean (X) and standard deviation (SD), and it was normally distributed. Accordingly, it was analyzed using student t- test for comparison between two means, and ANOVA (F) test for comparison between more than two means. Correlation coefficient (r) was used to test the correlation between two quantitative variables. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square (χ^2) test. Level of significance was set as P value <0.05 for all significant tests.

3. RESULTS

Table (1) Show that, seventy percent of control group, and 74% of cases of the studied elderly with osteoarthritic knee aged between 60 to 70 years with mean of 65 ± 5.1 years and 66.2 ± 6.4 respectively. Majority of control group were illiterate /R&W (44%), while 40% of cases , and 22% of control had secondary school or a technical diploma . As regards marital status, 68% of control and 72% of cases were married and 26% for each were widow/divorced.

Table (2) Indicates the efficacy of nursing intervention for the osteoarthritis pain intensity among control and cases groups. Post -intervention program revealed a highly significant improvement ($p < 0.000$) in the pain intensity levels. The post program' mild pain response among case group was increased from 10% pre intervention to 40% post intervention , while among control group, it remain the same percentage (18%), and the difference was highly significant ($P < 0.007$).

Fig 1: Highlight the efficacy of the nursing intervention for the total score of knowledge levels about osteoarthritis among control and cases groups. Post-intervention program revealed a highly significant improvement ($p < 0.000$) in the total knowledge score. Good knowledge response among case group was increased from 2% pre intervention to 28% post intervention, while among control group, it remain the same percentage (2%), and the difference was highly significant ($P < 0.0001$). In addition, the mean total knowledge score among case group was increased from 9.1 ± 1.9 pre intervention to 12.9 ± 3.0 post intervention, while it was nearly the same among control group (9.4 ± 2.1 pre intervention, and 9.5 ± 2.1 post intervention). The difference between case and control group mean total Kn. score post intervention was high statistically significant ($P < 0.0001$).

Table (3) Demonstrate the effect of the nursing intervention on pain, swelling and stiffness management among control and cases groups. Post intervention results revealed a highly significant improvement ($p < 0.000$) in the practice of pain Management; where correct done response among case group was increased from 0% pre intervention to 74% post intervention, while among control group, it increased from (2% pre intervention to only 6% post intervention), and the difference was highly significant ($P < 0.0001$). The table also shows a similar pattern of high statistical significant differences between control and case groups regarding swelling, stiffness, ($P < 0.0001$ for each).

Table (4) Show the effect of nursing intervention on fatigue and insomnia management among cases and control groups. Post intervention results revealed a highly significant improvement ($p < 0.0001$) in the practice of fatigue Management; where correct done response among case group was increased from 37.5% pre intervention to 87.5% post intervention, while among control group, it remain the same. The table also shows a similar pattern of high statistical significant differences between control and case groups regarding insomnia, ($P < 0.0001$).

Table (5) Demonstrate the relation between knowledge of participants and their post practice pain management post intervention among cases and control groups of elderly with OA. Majority of Elderly who were poor knowledge showed wrong done practice for pain management either among control group (100%) or case group (61.9%), but 38.1% of later group showed correct done, and the difference was high significant statistically ($LR = 18.0, P < 0.0001$). In addition, all Elderly who were either pass or good knowledge categories among case group, showed correct done practice for management of pain (100% for each), while among control group they constitute only 28.6% in pass category. The only patient in control group (100%) who had good knowledge showed correct done, and the difference was high significant statistically ($LR = 19.9, P < 0.0001$).

Table (1): Socio-demographic characteristics of the studied elderly patients with osteoarthritic knee among cases and control groups (N = 100)

Socio demographic characteristics	Control		Cases		P value
	N0.	%	N0.	%	
Age (Years): 60 – 70 years	35	70	37	74	$X^2 = 0.19,$ $P = 0.61$
71 – 80 years	15	30	13	26	
Mean ± SD	65 ± 5.1 Y		66.2 ± 6.4 Y		$t = 1.4, p = 0.08$
Gender: Male	19	38	22	44	$X^2 = 0.19,$ $P = 0.61$
Female	31	62	28	56	
Educational Level	22	44	15	30	$X^2 = 4.1,$ $P = 0.26$
Illiterate/Read & Write	10	20	9	18	
Secondary school or technical diploma	11	22	20	40	
University	7	14	6	12	
Marital status: Single	3	6	1	2	$X^2 = 1.4,$ $P = 0.69$
Married	34	68	36	72	
Divorced/Widow	13	26	13	26	
Occupation: Work	15	30	10	20	$X^2 = 1.3,$ $P = 0.24$
Not work	35	70	40	80	
Total	50	100	50	100	100

Table 2: Knee pain characters among studied elderly patients with osteoarthritic knee, pre and post intervention

Knee pain characters and intensity	Pre intervention					Post intervention				
	Control		Cases		P1 value	Control		Cases		P2 value
	No	%	No	%		No	%	No	%	
Pain occur with :										
Without effort	9	18	13	26	X ² =1.04 P=0.59 NS	8	16	12	24	X ² =2.0 P=0.36 NS
After movement and effort	32	64	30	60		29	58	30	60	
Both of above	9	18	7	14		13	26	8	16	
Pain Intensity:										
Mild	9	18	5	10	X ² =2.5 P=0.28 NS	9	18	20	40	X ² =9.8 P<0.007 HS
Moderate	18	36	25	50		16	32	19	38	
Severe	23	46	20	40		25	50	11	22	
Total	50	100	50	100		50	100	50	100	

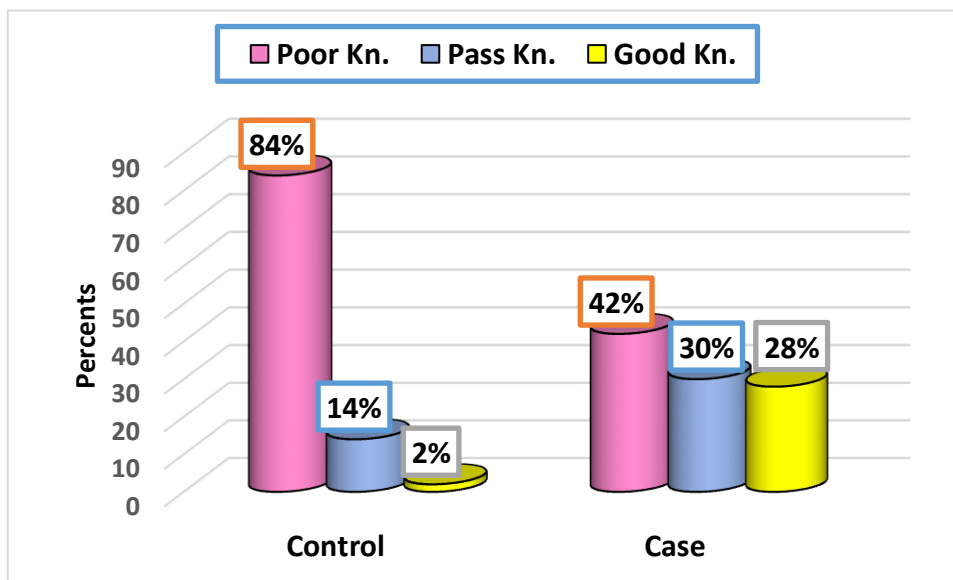


Fig.1: Comparison between control and case groups regarding post intervention knowledge levels about osteoarthritis

Table 3: Distribution of the studied elderly with osteoarthritic knee according to their practices toward pain ,swelling, stiffness, fatigue, and insomnia management, pre and post intervention.

pain & other symptoms Management	Pre intervention					Post intervention				
	Control		Cases		P1 value	Control		Cases		P2 value
	No	%	No	%		No	%	No	%	
pain										
Wrong done	49	98	50	100	Fisher=1.0	47	94	13	26	X ² =48.2 P<0.0001
Correct done	1	2	0	0		3	6	37	74	
Mean total pain	3.1±1.2		3.7±0.1		0.04	3.2±1.2		6.9±1.7		t=5.8, p<0.0001

Swelling	N=21 had swelling		N=28 had swelling			N=21 had swelling		N= 12 had swelling		X ² =29.4 P<0.0001 HS
	Wrong done	Correct done	Wrong done	Correct done	Mean total swelling	Wrong done	Correct done	Wrong done	Correct done	
Wrong done	3	14.3	5	17.9	X ² =2.5 P=0.28 NS	19	90.5	2	16.7	t=5.7, p<0.0001
Correct done	18	85.7	23	82.1		2	9.5	10	83.3	
Mean total swelling	1.3± 0.8		1.4±0.4		0.17	2.0 ±0.9		4.2 ±1.3		
Stiffness	N=42		N=48			N=45		N=39		X ² =53.6 P<0.0001
Wrong done	38	90.5	45	93.8	Fisher=1.0	40	88.9	9	23.1	
Correct done	4	9.5	3	6.2		5	11.1	30	76.9	
Mean total stiffness	1.7± 0.3		2.1±0.5		0.06	1.9 ±0.7		4.4 ±1.2		t=6.6, p<0.0001

Table 4: Distribution of the studied elderly patients with osteoarthritic knee according to their practices toward fatigue, and insomnia management pre and post intervention.

pain & other symptoms Management	Pre intervention					Post intervention				
	Control		Cases		P1 value	Control		Cases		P2 value
	No	%	No	%		No	%	No	%	
Fatigue management	N=47	100	N=48	100		N=48	100	N=40	100	
Wrong done	33	70.2	30	62.5	X ² =1.34 P=0.53	34	70.8	5	12.5	X ² =45.2 P<0.0001
Correct done	14	29.8	18	37.5		14	29.2	35	87.5	
Mean total fatigue Management	1.9± 0.9		2.3±0.6		0.09	2.1 ±0.9		3.2 ±1.0		t=4.8, p<0.0001
Insomnia management	N=36	100	N=44	100		N=36	100	N=35	100	
Wrong done	36	100	44	100	NA	35	97.2	8	22.9	X ² =64.3 P<0.0001
Correct done	0	0	0	0		1	2.8	27	77.1	
Mean total insomnia Management	0.8±0.2		0.7±0.1		0.06	0.8 ±0.1		2.7 ±0.2		t=7.6 p<0.0001

NA= Not applicable

Table (5): Relation between knowledge and pain management practice post intervention among cases and control among elderly with osteoarthritis.(N=100)

Groups	Groups of pain practice post				Total	P Value			
	Wrong done(0-5)		Correct done(6-10)						
Control group	total Kn post	Poor knowledge(<12)	42	100	0	0	LR=14.3, P<0.001		
		Pass knowledge(12 - 15)	5	71.4	2	28.6		7	100
		Good knowledge(16 - 21)	0	0	1	100		1	100
	Total*		47	94	3	6	50	100	
Case group	total Kn post	Poor knowledge(<12)	13	61.9	8	38.1	LR=29.4, P<0.0001		
		Pass knowledge(12 - 15)	0	0	15	100		15	100
		Good knowledge(16 - 21)	0	0	14	100		14	100
	Total*		13	26	37	74	50	100	

* X2 between total control and total case groups=7.4, P<0.006

4. DISCUSSION

Osteoarthritis (OA) is the second largest cause of disability among older adults, with the knee being the joint to be most commonly affected. In older adults, knee OA causes pain that leads to the deterioration of lower limb movement and physical performance (**Ponvel, Ajitsingh, Shan, Kamsan & Ahmad, (2019)**). The present study aimed to assess the effectiveness of nursing intervention on knowledge and practice among elderly with knee osteoarthritis.

Regarding the effect nursing intervention on pain intensity, the current study revealed that there was a highly significant improvement in the pain intensity levels, among case group than control group post intervention. This result is supported by study conducted by **Hatefi, Parvizi, Borji and Tarjoman, (2019)** who examined "Effect of Self-Management Program on Pain and Disability Index in Elderly Men with Osteoarthritis" in Iran. They reported that the implementation of the nursing intervention program diminished pain in patients with knee osteoarthritis.

Also, this finding is consistent with the results of a study by **Ganji, Pakniat, Armat, Tabatabaeichehr, Mortazavi, (2018)** who studied "The effect of self-management educational program on pain intensity in elderly patients with knee osteoarthritis" in Iran. They showed that a group of elderly people with knee osteoarthritis showed reduced pain after the implementation of six sessions of the nursing intervention. In addition, this finding is on the same line with the results of a Study by **Egwu, Ayanniyi, Adegoke, Olagbegi, Ogwumike & Odole, (2018)** who studied "Effect of self-management education versus quadriceps strengthening exercises on pain and function in patients with knee osteoarthritis" in South Africa. They showed that the implementation of a nursing intervention program could reduce the pain of the patients. This may be attributed to educations about pain control measures, physical exercises, and diet can reduce knee pain for elderly.

Concerning the effect of nursing intervention on knowledge of knee osteoarthritis patients the results of the current study revealed a highly significant improvement in total knowledge score level. This finding is similar to what was reported by **Kamsan, Singh, Tan, Kumar, (2020)** who studied "The knowledge and self-management educational needs of older adults with knee osteoarthritis" in South Australia. They showed that older patients with KOA showed good understanding of disease processes and clinical manifestations of knee osteoarthritis.

Also, the results is supported by **Marconcin et al., (2018)**, who studied "A randomized controlled trial of a combined self-management and exercise intervention for elderly people with osteoarthritis of the knee" in Portugal and **Kwok, Au and Li-Tsang, (2016)** who studied "The role of patient's education in knee osteoarthritis management" in China. They concluded that of nursing education such as providing disease information about knee osteoarthritis helps with relieving knee osteoarthritis symptoms and promoting positive behavior.

In addition, the finding is agreement with a study by **Hamad Sghir, Maraoui, Guedria, Zrour, Kessomtini, (2018)** who studied "The role of patient's education in knee osteoarthritis management" in Tunisia and **Johansson, (2015)** who studied "AB0862 Patient Education and Exercise for Persons with Osteoarthritis of the Hip or Knee" in Sweden. They showed that providing sufficient information about knee osteoarthritis to patients are particularly vital in supporting decision-making, promoting positive behavioral changes and improving health outcomes.

Regarding the effect of self-management on the practice of elderly patients with knee osteoarthritis, the results of the current study revealed a highly significant improvement in the practice of knee signs and symptoms management. The results came on the same line with study conducted by **Soliman, Abd ElWahed, El-Mowafy, EL-Alem, El-Swerky, (2016)** who studied "Self-Care Program for Improving the Daily Stressors of Osteoarthritic Elderly Patients Residents of Elderly Homes in Port Said City" in Egypt. They reported that the program succeeded in improving elders 'self-care practices which in turn, has a positive effect in all disease related stressors such as difficulties in carrying out activity of daily living, pain, limitation in mobility, helplessness and dependency on others.

Also, this finding is similar to what was reported by **Mirzaee Shahbolaghi, Nowroozi, Biglarian, Rangin, (2016)** who studied "Effect of Self-Management Training on Performance of Elderly Patients with Knee Osteoarthritis" in Iran. They showed improved performance in patients with osteoarthritis of the knee due to self-management training program, through using appropriate diet and pain relief methods, along with exercise, patients will be able to better tolerate exercise movements, and thus improve their performance.

In addition, the finding is consistent with a study by **El-saidy, El- Nagar ,Abd Elsalam., (2015)** who studied “Effect of Self-Management and Home Remedy on Symptoms of Rheumatoid Arthritis among Elderly Clients” in Egypt. They reported that elderly clients who used self-management measures, their practices toward signs and symptoms' management was improved, and they had a significant reduction of rheumatoid arthritis joints pain, joint swelling, redness, and stiffness feeling of fatigue, and insomnia after intervention.

Moreover This result is congruent with study by **Khachiana et al., (2020)** who studied “Effect of self-management program on outcome of adult knee osteoarthritis” in Iran. They reported that the self-management program, which included pain relief methods, proper diet and exercise, aimed to improve pain, symptoms, function and quality of life. They have demonstrated that participants in the nursing intervention program experienced improvements in the outcome of knee osteoarthritis. That may attributed to improvement in knowledge lead to improving in practice and behavior change.

Concerning Relation between post knowledge about osteoarthritis and practice of management of pain the current study revealed that all elderly patients who were either pass or good knowledge categories among case group, showed correct done practice for management of pain. This results supported by a study by **Gad Allah, Ragheb, Mahmoud & Mohamed (2019)** who studied" Effect of Non Pharmacological Nursing Guidelines on Pain Relief among Patients with Rheumatoid Arthritis" in Egypt. They reported that there was a positive correlation between total knowledge and practices pre and post guidelines in study and control group.

Also this finding is in agreement with **Metwaly et al.,2017)** who studied "the effectiveness of non-pharmacological nursing intervention program on female patients with rheumatoid arthritis" in Egypt, they founded that the intervention program showed an improvement in patients' knowledge which reflected an improvement in their practice, either in post or follow-up phases. In addition, patients demonstrated a high level of independence regarding ability to perform activity dialing living in post or follow-up phases.

5. CONCLUSION

Implementation of nursing intervention for elderly patients was effective in management symptoms of knee osteoarthritis among study group compared to control group which was resulting in increasing knowledge about disease and promote positive adaptation with the disease in study group than control group.

6. RECOMMENDATIONS

Awareness programs targeted for all elderly patients, their family caregivers and general public about nursing intervention for knee osteoarthritis and its importance for increasing knowledge and improving practice toward disease.

REFERENCES

- [1] Aksekili MA, Fidan F, Alkan BM, Alemdar A, Aksekili H, Ardıçoğlu O,(2016) . Quality of life in knee osteoarthritis; correlation with clinical measures and the knee injury and osteoarthritis outcome score. Acta Med Anatol. 2016; 4(1): 1–7.
- [2] Araujo IL, Castro MC, Daltro C, Matos MA,(2016). Quality of life and functional independence in patients with osteoarthritis of the knee. Knee surgery & related research. 28(3): 219.
- [3] Cross M, Smith E, Hoy D, Nolte S, Ackerman I, Fransen M, et al(2014). The global burden of hip and knee osteoarthritis: Estimates from the global burden of disease 2010 study. Annals of the Rheumatic Diseases. 73(7): 1323–30. <https://doi.org/10.1136/annrheumdis-2013-204763> PMID: 24553908.
- [4] doi: 10.3889/oamjms.2018.225. [PubMed: 29983802]. [PubMed Central: PMC6026434].
- [5] Egwu OR, Ayanniyi OO, Adegoke BDOA, Olagbegi OM, Ogwumike OO, Odole AC(2018): Effect of self-management education versus quadriceps strengthening exercises on pain and function in patients with knee osteoarthritis. Human Movement. 2018;19(3):64–74. doi:10.5114/hm.2018.76081.
- [6] El-saidy T M, El- Nagar S A,Abd Elsalam E. A(2015).Effect of Self-Management and Home Remedy on Symptoms of Rheumatoid Arthritis among Elderly Clients; Vol.11, No.2.

- [7] Elsiwy Y, Jovanovic I, Doma K, Hazratwala K, Letson H(2019): Risk factors associated with cardiac complication after total joint arthroplasty of the hip and knee: a systematic review. *J Orthop Surg Res.* 11;14(1):15.
- [8] Gad Allah W.M, Ragheb M.M, Mahmoud M.H& Mohamed R.F,(2019): Effect of Non Pharmacological Nursing Guidelines on Pain Relief among Patients with Rheumatoid Arthritis; Faculty of Nursing, Benha University. Available at <https://www.researchgate.net/publication/335684945>
- [9] Ganji R, Pakniat A, Armat MR, Tabatabaeichehr M, Mortazavi H(2018).The effect of self-management educational program on pain intensity in elderly patients with knee osteoarthritis: A randomized clinical trial. *Open Access Maced J Med Sci.*;6(6):1062–6.
- [10] Hamad WH, Sghir M, Maraoui M, Guedria M, Zrour S, Kessomtini W,(2018). The role of patient’s education in knee osteoarthritis management. *Annals of Physical and Rehabilitation Medicine*; 61: e 128.
- [11] Hatefi M, Parvizi R, Borji M and Tarjoman A., (2019). Effect of Self-Management Program on Pain and Disability Index in Elderly Men with Osteoarthritis; *Anesth Pain Med.* 9(4):e92672doi: 10.5812/aapm.92672.
- [12] Hunter DJ & Bierma-Zeinstra B S,(2019). Osteoarthritis; *Lancet*;393(10182):1745–59.
- [13] Iijima H, Aoyama T, Fukutani N, Isho T, Yamamoto Y, Hiraoka M, et al,(2018). Psychological health is associated with knee pain and physical function in patients with knee osteoarthritis: An exploratory cross-sectional study. *BMC Psychology.* 2018; 6(1): 19. <https://doi.org/10.1186/s40359-018-0234-3> PMID: 29716654
- [14] Johansson M, (2015). AB0862 Patient Education and Exercise for Persons with Osteoarthritis of the Hip or Knee—a Clinical Study: 1188–1189.
- [15] Kamsan SS, Singh DKA, Tan MP, Kumar S, (2020) .The knowledge and self-management educational needs of older adults with knee osteoarthritis: A qualitative study. *PLoS ONE* 15(3): e0230318. <https://doi.org/10.1371/journal.pone.0230318>.
- [16] Khachiana.A , Seyedoshohadaeia. M , Haghanib. H , Amiria.F,(2020). Effect of self-management program on outcome of adult knee osteoarthritis ; *International Journal of Orthopaedic and Trauma Nursing*; 29 Jul 2020, 39:100797. DOI: 10.1016/j.ijotn.2020.100797 PMID: 32888898.
- [17] Kiadaliri AA, Lohmander LS, Moradi-Lakeh M, Petersson IF, Englund M,(2018). High and rising burden of hip and knee osteoarthritis in the Nordic region, 1990–2015: Findings from the Global Burden of Disease Study 2015. *Acta Orthopaedica.* 2018; 89(2): 177–83. <https://doi.org/10.1080/17453674.2017.1404791> PMID: 29160139
- [18] Kwok EY, Au RK, Li-Tsang CW,(2016). The effect of a self-management program on the quality-of-life of community-dwelling older adults with chronic musculoskeletal knee pain: A pilot randomized controlled trial.*Clinical Gerontologist*; 39(5): 428–48. <https://doi.org/10.1080/07317115.2016.1171818> PMID: 29471771.
- [19] Lespasio MJ, Piuze NS, Husni ME, Muschler GF, Guarino AJ, Mont MA,(2017). Knee osteoarthritis: A primer. *The Permanente Journal.* 21.
- [20] Lundgren-Nilsson A, Dencker A, Palstam A, Person G, Horton MC, Escorpizo R, Küçükdeveci AA, Kutlay S, Elhan AH, Stucki G, Tennant A, Conaghan PG (2018): Patient-reported outcome measures in osteoarthritis: a systematic search and review of their use and psychometric properties. *RMD Open.* 2018;4(2):e000715.
- [21] Marconcin P, Espanha M, Teles J, Bento P, Campos P, Andre´ R, et al.,(2018). A randomized controlled trial of a combined self-management and exercise intervention for elderly people with osteoarthritis of the knee: The PLE2NO program. *Clinical Rehabilitation.* 2018; 32(2): 223–32. <https://doi.org/10.1177/0269215517718892> PMID: 28714343.
- [22] Metwaly E.A., Taha N.M., Seliem H.A., Sakr M.D., (2017). Effectiveness of non-pharmacological nursing intervention program on female patients with rheumatoid arthritis, *central European journal of nursing and midwifery*; Vol (3): 6%2–631.

International Journal of Novel Research in Healthcare and Nursing

 Vol. 8, Issue 1, pp: (716-726), Month: January - April 2021, Available at: www.noveltyjournals.com

- [23] Mirzaee N. , Shahbolaghi M ,Nowroozi K, Biglarian A. , Rangin H, (2016). The Effect of Self- Management Training on Performance of Elderly Patients with Knee Osteoarthritis; *Journal of Nursing* ;Vol.28, No.98, 10-20.
- [24] Nelson AE, Allen KD, Golightly YM, Goode AP, Jordan JM,(2014). A systematic review of recommendations and guidelines for the management of osteoarthritis: the chronic osteoarthritis management initiative of the US bone and joint initiative. *In Seminars in Arthritis and Rheumatism* 43(6); 701–712). [https:// doi.org/10.1016/j.semarthrit.2013.11.012](https://doi.org/10.1016/j.semarthrit.2013.11.012) PMID: 24387819
- [25] Nguyen TV,(2014). Osteoarthritis in southeast Asia. *International Journal of Clinical Rheumatology*. 9 (5): 405.
- [26] Ponvel P, Ajitsingh D K, Shan S M, Kamsan S.S& Ahmad M A,(2019). Comparison of Physical Performance between Older Adult Fallers with and without Knee Osteoarthritis; *Jurnal Sains Kesihatan Malaysia* 17(2): 147-155.DOI : <http://dx.doi.org/10.17576/JSKM-2019-1702-17>
- [27] Ponvel P, Singh DK, Shan SM, Kamsan SS, Ahmad MA,(2019). Comparison of Physical Performance between Older Adult Fallers with and without Knee Osteoarthritis. *Jurnal Sains Kesihatan Malaysia (Malaysian Journal of Health Sciences)*. 17(2).
- [28] Shaik SF, Kothandan D, Singareddy P, Sanku S,(2018). Cost of illness analysis of knee osteoarthritis in a tertiary care hospital. *Journal of Young Pharmacists*. 2018; 10(3): 322.
- [29] Sharma A, Kudesia P, Shi Q, Gandhi R,(2016). Anxiety and depression in patients with osteoarthritis: Impact and management challenges. *Open Access Rheumatology: Research and Reviews*. 2016; 8: 103.
- [30] Soliman N M, Abd ElWahed H A, El-Mowafy R I, EL-Alem O M, El-Swerky F (2016). Self-Care Program for Improving the Daily Stressors of Osteoarthritic Elderly Patients Residents of Elderly Homes in Port Said City; 9, Volume 3, Issue 2, Page 148-156 .
- [31] Vos T, Allen C, Arora M, et al (2016). Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 19902015: a systematic analysis for the global burden of disease study 2015; *Lancet*;388(10053):1545–602.
- [32] Yoo J, Kim.D,and Kim .H, (2018). Risk factors for progression of radiographic knee osteoarthritis in elderly community residents in Korea: *BMC Musculoskeletal Disorders* : 19:80 <https://doi.org/10.1186/s12891-018-1999-5>.