

Impact of Implementing Prevention and Management Osteoarthritis Training Program on Improving Nurses' Knowledge and Practice

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Abstract: Background: Osteoarthritis is one of the most common musculoskeletal disorders among adults. The aim of this study was to evaluate the impact of implementing prevention and management osteoarthritis training program on improving nurses' knowledge and practice. **Design:** A quasi-experimental design was used in the study. **Setting:** at outpatient clinic of the Rheumatology and Rehabilitation at Zigzag University Hospitals. **Subjects:** All available nurses working at outpatient clinic of the Rheumatology and Rehabilitation consisted of 35 nurses. **Tools:** nurses' knowledge questionnaire sheet about prevention and management osteoarthritis covering demographic characteristics, knowledge about osteoarthritis. Also nurses' practice checklist about prevention and management Osteoarthritis. Training program was developed according to nurses' needs of knowledge and practice according to extensive improve nurses' knowledge and practice about prevention and management of osteoarthritis, in order to prevent complications as possible. **Results:** there is a positive association between total nurses' knowledge and practice about prevention and management of osteoarthritis after implementing training program were highly statistical significant p value (<0.001). **Conclusions:** There were an improvement of nurses' knowledge and practice about prevention and management of osteoarthritis after implementing training program **recommendations:** Procedures manual handbooks containing necessary information related to all nursing procedures related to patients in Rheumatology and Rehabilitation unit should be available and easily used in Arabic language.

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Keywords: Prevention, Management, Osteoarthritis, Training Program,

1. Introduction

Osteoarthritis, the most common form of joint disease, is a slowly progressive non-inflammatory disorder of the synovial joints. Osteoarthritis is no longer considered to be a normal part of the aging process, but growing older continues to be consistently identified as one risk factor for disease development. Cartilage destruction can actually begin between ages 20 and 30, and the most common of adults are affected by age 40 (Lewis et al., 2011).

Osteoarthritis is one of the most common causes of disability due to limitations of joint movement, particularly in people old age above 50. Men tend to develop OA at earlier ages than women, however, after 55 years; it is majority in women (Meszaros, 2005). So Osborn et al., (2010) stated that, (osteoarthritis can occur as a primary idiopathic disorder that is localized or generalized or secondary osteoarthritis is due to an underlying cause for example congenital defects of joint structure, trauma, inflammatory diseases, or metabolic disorders as diabetes). Gregory et al., (2008) added that, (cause of OA is unknown. It is mainly risk factors related to aging, but metabolic, genetic, chemical and mechanical factors can also lead to OA).

Joyce B, and Jane H, (2009), Hairon N., NICE (2017) stated that, the goal of nursing management is maintain of healthy, positive adaptation in the patient with osteoarthritis. Teaching is the key to successful treatment of the disease and the nurse plays a major and important role as patient educator. Therefore, the present study has carried out in an attempt to evaluate the impact of implementing prevention and management osteoarthritis training program on improving nurses' knowledge and practice at Zagazig University Hospitals. As indicated by enrichment, improvement of nurse's knowledge and practices, related to osteoarthritis.

Significance of the study:

Osteoarthritis is the foremost problem reported by elderly. (Abd Allah, 2017). As well as early detection, and management will reduce the load on hospital and safe patient's life. It is also hoped that this effort might generate an attention and motivation for further researches in this area.

Aim of the study:

The aim of this study was to evaluate the impact of implementing prevention and management osteoarthritis training program on improving nurses'

knowledge and practice at Zigzag University Hospitals.

Research hypothesis:

There will be an improvement of nurses' knowledge and practice about prevention and management of osteoarthritis after implementing training program

2. Materials

Research design;

Quasi-experimental research design used in this study.

Study variables:

1. Independent variable in this study is training program
2. Dependent variables are: Nurses' knowledge and practice about prevention and management of osteoarthritis.

Setting:

The study was conducted in the outpatient clinic of the Rheumatology and Rehabilitation at Zagazig University Hospitals.

Subjects:

All available nurses (35) working at outpatient clinic of the Rheumatology and Rehabilitation, who provide direct patient care with different years of experience and level of education and accepted to participate voluntarily in the study.

Tools of the Study:

Two tools were used in this study.

Tool I: Nurses' knowledge questionnaire sheet about prevention and management of osteoarthritis. This tool was developed by the investigator after reviewing recent related literature to assess nurses' knowledge about prevention and management of osteoarthritis. This tool was developed in English and translates to Arabic and viceversa. It divided into four parts:-

Part (1): Socio demographic characteristics of nurses such as: age, level of education, years of experience and questions related to nursing attendance of training program, workshop, booklet and committee about osteoarthritis

Part (2): Nurses' general knowledge about osteoarthritis such as: definition causes, signs and symptoms and risk factors.

Part (3): Nurses' knowledge about prevention of osteoarthritis such as: control weight, exercises and balanced diet, to prevent osteoarthritis,

Part (4): Nurses' knowledge about management of osteoarthritis such as: physiotherapy, drug therapy, surgery therapy and steam cells,

Scoring system: Scoring was as: a correct answer=1 while incorrect answer or missed = zero. The total knowledge score was 48 points. Represented 100%. It was estimated as:

- Good knowledge > 75.
- Average knowledge 65 – 75.
- Poor knowledge < 65.

Tool II: Nurses' practice checklist about prevention and management of osteoarthritis. This tool was developed by the investigator to assess nurses' practice regarding prevention and management of osteoarthritis, after reviewing recent related literature (National Institute for Health and Care Excellence, 2008), (Stoffer et al., 2014), & (Source, Noohom and Kumbang, 2008), it included 2 parts:

Part (1): Nurses' practice checklist for prevention of osteoarthritis.

Part (2): Nurses' practice checklist for pain management of osteoarthritis (31 items).

Scoring system: Score measure was rated as: done (1) while not done (0). Represented 100%. It was estimated as: Satisfactory practice > 75 and unsatisfactory practice < 75.

Methods:

Official approvals from ethical committee and official approvals from Faculty of Nursing of Mansoura University and official approvals for the responsible administrative personnel were obtained to Zagazig University Hospitals to do the study.

The study tools were developed by the investigator after reviewing recent related literatures for nurse's knowledge and practice about prevention and management of osteoarthritis.

Validity of the tools was tested by seven experts in the nursing and medical fields for its, , comprehensiveness, relevance clarity, and applicability. After that, the necessary modifications were done accordingly.

Oral consents were obtained from nurses who accepted to participate in the study after illustrating the aim and nature of the study. The investigator assured that the nurses that participation in the study is voluntary and they have the right to withdraw at any time

Pilot study was on 10 nurses, they were then excluded from the study.

Data collection: - The investigator collected the data during the period from November 2016 to April 2017. This study was carried out over three phases: preparatory, implementation, and evaluation phase:

Preparatory phase:

A review of the past, current, national and international literatures related the various aspect of the study was done using books, articles, periodicals, internet and magazines. The preparation was included developing tools, 11 and the developing the training program for nurses about prevention and management of osteoarthritis.

Implementation phase:

The investigator was met the nurses in the department of the Rheumatology and Rehabilitation according to their convenience, started to explain the topic, The investigator with nurses arranged session times and dates according to their free times.

The program consisted of two main parts:

Theoretical components:

1st session: included knowledge about osteoarthritis: definition of osteoarthritis, causes, signs and symptoms and risk factors 2nd session: included knowledge about common joint, Common joint that are more susceptible to osteoarthritis diagnosis of osteoarthritis and complications of osteoarthritis.

3rd session: included knowledge about prevention of osteoarthritis: control weight, exercises and balanced diet to prevent osteoarthritis.

4th session: included knowledge about: management of osteoarthritis, through physiotherapy, pharmacologic therapies, Non-pharmacologic treatment, surgical treatment and stem cell therapy in treatment of osteoarthritis.

Practical components:

5th session: included control pain through hot and cold compression.

6th session include: Explain Transcutaneous Electrical Nerve Stimulation (TENS) treatment and Range of motion (ROM) exercises.

Nurses separated into minor groups each group contains seven nurses in every session. The duration of each session ranged from (30-45 minutes), including 15 minutes for discussion and feedback , each session usually started by a summary of what has been tough in the previous session and objective of new topic teaching methods: included:

- Lecture and group discussion
- Demonstration
- Interactive presentation and brain storming

Evaluation phase:

This is the last phase, which focused on evaluating the impact of training program through using the same tools which used in the pre, immediate posttests (tool I & tool II) and after two

months from implementing training program for follow up nurse's knowledge and practice about prevention and management of osteoarthritis.

Statistical Analysis :

Data entry and statistical analysis were performed using computer software, the statistical package for social sciences (SPSS), version 14. Suitable descriptive statistics were used such as; frequency, percentage, median, range, mean and standard deviation. A Chi-Square test: it is a non-parametric statistic that used to test for the association or relationship between the categories of two independent variables. Correlation coefficient test r (correlation): was used to test the correlation between the studied variables. For all the tests used, statistical significance was considered at p-value < 0.05.

3. Results

Table (1): Shows, the socio demographic characteristics of the studied nurses. According to demographic data. it indicates that 40.0% of them have age above 51 years old with mean of 38.56 ± 7.94 , 62.9% of them are married, 37.1% of them had a secondary nursing education, 42, 9% of them had more than 10 years of experience with the mean of 7.58 ± 4.56 , in addition 65.7% of them had no training or attended a work shops or seminars regarding management of osteoarthritis.

Figure (1): it was revealed that the majority (82.9%) of them had a poor level of knowledge at the pre program, on the other hand (77.1%) of them had a good level of knowledge at the post intervention phase, and after 2ms about (74.4%)

Figure (2): Shows, total nurses' practice pre, immediate post & after 2M training program,, it was revealed that the majority (91.40%) of them had unsatisfactory practice at the pre intervention phase, on the other hand (77.1%) of them had a satisfactory practice at the post intervention phase.

Table (2): Correlation between total nurses' knowledge regarding prevention and management of osteoarthritis pre, immediate post & after 2M training program. This table illustrates that there was a highly statistical significant relation between their nurses total knowledge score at pre and post intervention phases of the studied nurses with p value (>0.001).

Table (3): total nurses' practice regarding management of osteoarthritis pre, immediate post & after 2M training program, there was a significant improvement of all items concerning with studied practice, and there was highly statistical significant difference between pre and post intervention phases, with p value (<0.001).The

highest statistical significant difference was concerning with passive range of motion exercises and pain management practice (41.36, 30.32) respectively.

Table (4): Correlation between different variables

This table demonstrates correlation between studied staff nurses' total knowledge and practice

scores at pre, immediate post & after 2M training program , it reveals that there is a positive association between total knowledge and practice score at the post and after training program. On the other hand there is a negative association between total knowledge and practice score at the pre-training program.

Table (1) Socio demographic characteristics of the studied nurses

Items	No. (35)	%
Age in years		
20-30	13	37.1
31-50	8	22.9
51-60	14	40.0
Range	(20-53)=33	
Mean ±SD	38.56±7.94	
Marital status		
Single	9	25.7
Married	22	62.9
Divorced	3	8.6
Widow	1	2.9
Qualification		
Secondary nursing education	13	37.1
Technical nursing education	10	28.6
Diploma and specialty	12	34.3
Years of experience		
1-< 5years	12	34.3
5-10	8	22.9
>10years	15	42.9
Mean ±SD	7.58±4.56	
Training program, and Committee about prevention and management of OA		
Yes	12	34.3
No	23	65.7

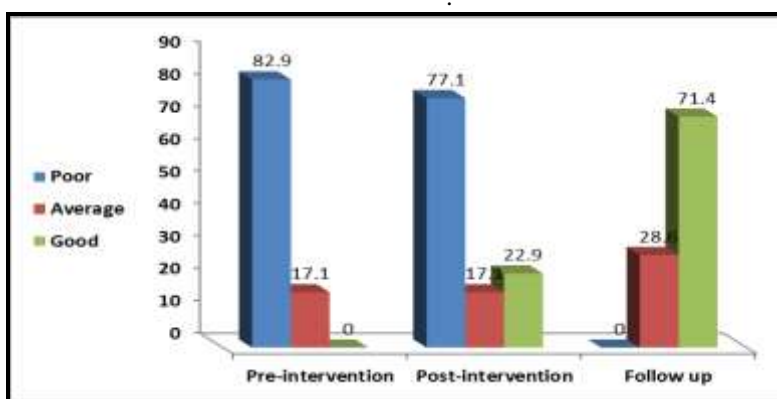


Figure (1): Total nurses' knowledge regarding prevention and management of osteoarthritis pre, immediate post & after 2M training program

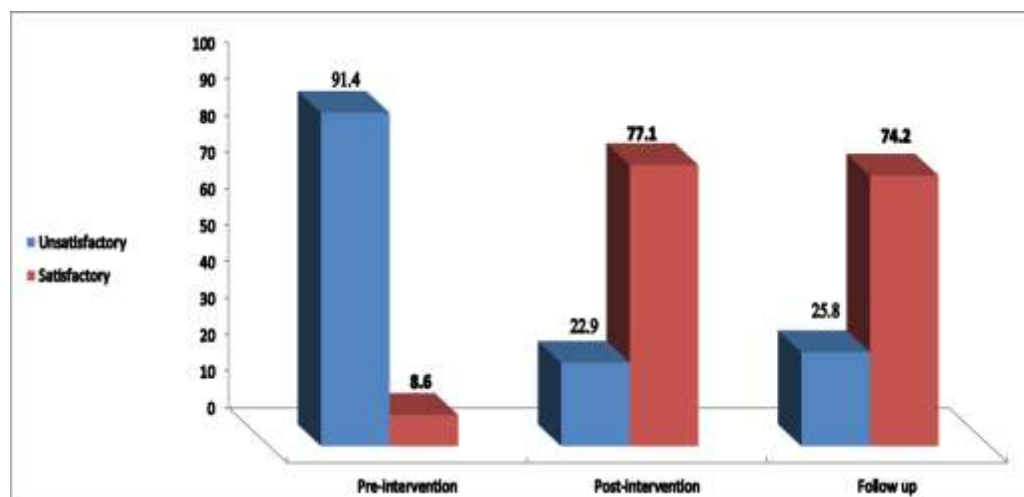


Figure (2): Shows, total nurses' practice pre, immediate post & after 2M training program

Table (2): Correlation between total nurses' knowledge regarding prevention and management of osteoarthritis pre, immediate post & after 2M training program.

Response	Knowledge about Prevention and Management of Osteoarthritis						Chi square test	P value
	Pre		Immediate Post		After 2 months			
	No	%	No	%	No	%		
Poor	29	82.9	0	0.0	0	0.0	56.28	<0.001**
Average	6	17.1	8	22.9	10	28.6		
Good	0	0.0	27	77.1	25	71.4		

Highly statistically significant at<0.001**

Table (3): Total nurses' practice regarding management of osteoarthritis pre, immediate post & after 2M training program

Items	Pre-		Immediate post				After 2 months				Chi square test	P value		
	Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory				Satisfactory	
	No	%	No	%	No	%	No	%	No	%			No	%
Hot or Cold compresses	31	88.6	4	11.4	11	31.4	24	68.6	4	11.4	31	88.6	23.81	<0.001**
TENS management	30	85.7	5	14.3	7	20.0	28	80.0	5	14.3	30	85.7	30.32	<0.001**
Range of motion exercises	35	100.0	0	0.0	9	25.7	26	74.3	0	0.0	35	100.0	41.36	<0.001**
Total	32	91.4	3	8.6	8	22.9	27	77.1	9	25.8	26	74.2	33.60	<0.001**

Highly statistically significant at<0.001**

Table (4): Correlation between different variables

Variables		Knowledge pre	Knowledge post	knowledge After 2m	Practice pre	Practice post	Practice After 2m
Knowledge pre	R	1	.248		-.139	-.113	-.113
	P		.152		.425	.516	.516
	value						
Knowledge post	R	.248	1	.248	-.319	.028	.028
	P	.152	-.319	.152	.061	.874	.874
	value						
Knowledge after 2m	R	.248	.152	1	.516	.028	.028
	P	-.113		-.113		.516	.516
	value						
Practice pre	R	-.139	-.319	-.139	1	.167	.167
	P	.425	.061	.425		.339	.339
	value						
Practice post	R	-.113	.028	-.113	.167	1	.061
	P	.516	.874	.516	.339		
	value						
Practice after 2m	R	-.113	.028	-.113	.167	.061	1
	P	.516	.874	.516	.339		
	value						

4. Discussion

The present study showed that the majority of nurses (82.9%) had poor knowledge before intervention 31.4% and 42.9 % incomplete answer about definition and risk factors of osteoarthritis.

Concerning nurses' knowledge about osteoarthritis, there was a significant improvement of all item pre and post intervention phase. This finding in the present study also come in accordance with Tyson and York (2012) who concluded that, significant improvement in nurses' knowledge after attending a program emphasized the need of hospital nurses to attend more educational opportunities to strengthen their skills and update their knowledge and improve the quality of care provided to patients.

On the other hand, Healey et al. (2016) who reported that, a significant improvement of nursing knowledge about prevention of osteoarthritis. In 2008, the National Institute for

The present study revealed that, more than two third of the observed nurses had unsatisfactory total practice score before implementation phases. This result may be attributed to decline of nurse's knowledge, limited resources and training; burden of work and due to shortage of the nurses, loading nurses by non-nursing activities added to their nurses' tasks, this finding was satisfactory total practice score after program implementation. These results agreed with Ong et al. (2014) who reported that, all nurses had lacked skills and knowledge of OA before implementation and had unsatisfactory score related their practice..

After the implementation of the program the same line with Hay, Dziedzic, and Foster (2015) who reported that, a lack of knowledge was evident when some nurses confused OA with osteoporosis, but for others, attentiveness in learning from clinical observation was evident.

Concerning correlation in between nurses' knowledge and nurses' age, the present study showed that there was no relation in between nurses' age and nurses' knowledge. It was supported by Ahmed (2008), who reported that, no statistically significant relation was found between nurses knowledge and nurses' age. These findings are consistent with Ahmed (2007) and Gad Allah (2007) who found that, no statistical significant relation between nurse's level of knowledge and their age. In contrast Porto et al. (2010) reported that, nurses' knowledge increases with age, year of experience and qualifications. Abdel elateef (2003) who reported that age factor didn't affect level of nurse's knowledge.

Analysis of data showed that, there was a significant improvement in nurses' practice regarding TENS therapy for management in between pre and post training program. These findings were in the line with Tyson and York (2012) stated that, significant improvement in nurses' knowledge after attending a program emphasized the need of hospital nurses to attend more educational opportunities to strengthen their skills and update their knowledge and improve the quality of care provided to patients

The current study showed that, there is statistically significant correlation between nurses' knowledge and practice pre and post training

program. This finding goes in line with Healey et al (2016) who found that, significant correlation was found between knowledge and practice.

Findings may be informing for nurses to understand self-caring of patients with OA, nurses may use findings to assist patients with OA to care for themselves. And findings may also be useful to nurses in the development and improvement of interventions to promote independent living with osteoarthritis (Carol, 2012).

Conclusion

Based on the results of the present study; the researcher can be concluded that:

- There was an improvement of nurse's knowledge and practices about prevention and management of osteoarthritis after implementing training program .

Recommendations

Based upon findings of the present study, the following suggestions were recommended.

- Procedures manual handbooks containing necessary information related to all nursing procedures related to patients in Rheumatology and Rehabilitation unit should be available and easily used in Arabic language.

- Nurses should be motivated to provide a good practice and compliance to nursing care related to osteoarthritis patient care through annual selection of the ideal nurses and honors him or her certificate.

- Orientation program should be established for newly nurses working at outpatient clinic of Rheumatology and Rehabilitation unit.

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