Effect of Nursing Instructions for Rheumatoid Arthritis self-care on Pain Intensity and Functional Ability among Arthritic Women

Eman Elsayed Hussein[1], Heba Al-kotb[2*], Aida Mohamed Ibrahim[3]

[1]Assistant professor of Medical Surgical Nursing, Faculty of Nursing Zagazig University
[2]Assistant professor of Community health nursing department, Faculty of nursing, Suez Canal University
[3] lecturer of Medical- Surgical Nursing, Faculty of Nursing, Zagazig University
* (hebakotb1549@gmail.com)

Abstract

    Background: Arthritic women is one of the most prevalent chronic conditions and a leading cause of long-term disability, pain, and increased health care utilization. Nursing instructions for rheumatoid arthritis self-care is the ability of arthritic women to maintain health, and deal with RA and disability with or without the support of a health-care provider **Aim:** To evaluate the effect of nursing instructions for rheumatoid arthritis self-care on pain intensity and functional ability among arthritic women. **Design:** quasi experimental study design with pre nursing instruction, after one month and after three months was utilized to achieve the aim of this study. **Settings:** The present study was conducted at specialized rheumatology unit, in Zagzig university hospital, Sharkeya Governorate, Egypt. **Subjects**: A convenience sample of 80 women had a definite diagnosis of RA at least one year and willing to participated in the study. **Tools**: three tools were used for data collection: women assessment interview schedule**,** women Self-care practices, Numerical analog scale for pain and Functional ability(ADL & IADL) . **Results:** There was a significant improvement in knowledge and self-care practices of women with RA throughout study phases. Consequently, arthritic women improved in functional ability score and reduce in pain intensity after implementation nursing instruction for RA self-care practices. **Conclusion & Recommendations;** nursing instructions for Rheumatoid arthritis self-care help in reducing pain level and improvement in functional ability among women with rheumatoid arthritis. Rheumatoid arthritis self-care result in beneficial effect on disability and pain scores.

Keywords: Functional ability, Pain intensity, Rheumatoid Arthritis., Self-Care practices

Introduction:

    Rheumatoid arthritis **(RA)** is a chronic inflammatory disease characterized by persistent symmetrical polyarthritis of large and small joints, as well as morning stiffness, which can result in physical and functional limitation. The Severity of the disease stages varies, and predicting the prognosis is challenging *(Battafarano et al., 2018)*. In the long run, RA reduce function, resulting in problems performing daily living activities (ADL) and a detrimental influence on psychosocial aspects *(Chancay et al., 2019).*

    In the United States and northern European countries, estimates of RA prevalence are often higher, ranging from 0.5 to 1 percent of the adult population. It affects people of all ages, although it is most common in persons between the ages of 35 and 50, who are more prone to develop it. *(Ibrahim & Mohamed, 2020) and (Latifi et al., 2021).* The annual

incidence of RA in the United States and northern European countries is estimated to be approximately 40 per 100,000 persons *(England, & Mikuls 2020)*.

    According to the most recent WHO data published in 2018, Egypt's Rheumatoid Arthritis prevalence was 0.5 percent, with 78 percent of those affected being female, a mean age of 56, and a seven-year disease duration *(W.H.O,2018).*

    RA diseases etiology so far unknown, but epidemiological studies show that genetic and environmental predisposing factors for these diseases, as well as viral or bacterial infection from etiological factors for this disease *(Safiri et al., 2019)*. The periodontal pathogens of RA, the body's immune system attacks the lining of the joint capsule, a tough membrane that encloses all the joint parts. This lining (synovial membrane) becomes inflamed and swollen. The disease process can eventually

destroy cartilage and bone within joint *(Battafarano et al.,2018).*

Pain is the most common and important symptom of this condition. Women with rheumatoid arthritis are concerned about pain, and health care providers are concerned about it as well *(Saeedifar et al., 2018)*. RA, pain is one of the predictors of disability, along with self-esteem, exhaustion, depression, and motor restriction, which are all repercussions of pain *(Chattu& Yaya2020)*.

Arthritic women have higher risk of premature death and disability. HEPA (Health-Enhancing Physical Activity) could be a major aspect in minimizing this risk. Increasing health care expanses necessitate the creation and testing of novel ways of rehabilitation, such as physical activity outside of the health care system *(Latifi et al., 2021).*

Previous studies when studying the determinants of pain reduction and control found that self-care is widely recognized as an important tool in pain control in women with rheumatoid arthritis *(Ibrahim & Mohamed, 2020).*

Empowering women with chronic pain through the use of self-care measures is more beneficial than other approaches *(Chancay et al., 2019).* Considering the various methods and medications used to relieve the signs and symptoms of the disease, especially pain in women with rheumatoid arthritis, which causes side effects and costs, it is important to find a method involving a women spending less and increasing the treatment that reduces stress and anxiety and increasing the potential ability of the woman *(Newman et al., 2018).*

In recent years, as prevention and promotion of health have become more essential than treatment, the role of the nurse has shifted, with a greater emphasis on the concept of self-care *(Ovayolu et al.,2012).* RA self-care is a way to confirm that the educator has explained to a woman what is important and in a manner that the women understand *(Michou et al,.2022)*

Significance of the study:

RA is a life altering event, and it causes symptoms that interfere with women 'abilities to function and affects all domains of women' independent functional daily living activities, housekeeping, food preparation, housekeeping, laundering, use of transportation, use of medicine and financial behavior. In this context, maintaining a reasonable functional ability and arthritic pain control in the face of the illness is very challenging, it is about reducing the impact that the illness has on day-to-day living maintaining a flexible approach to life, and being able to express negative emotions openly but not being overwhelmed by these emotions.

In context to Egypt, the pattern of rheumatology care was developed to a large extent as a result of social and economic change. In addition, the number of rheumatologist and their assistants in most of the Places, relatively low compared to specialists working in other health fields. However, the nurses can be effectively employed to assist women with RA in achieving remission or low disease activity, which is the ultimate aim. by using the self-care practices to increase RA women understanding of the disease information being communicated in a health education session by asking them to repeat back key points of the instruction.

Aim of the study:

To evaluate the effects of nursing instructions for rheumatoid arthritis self-care on pain intensity and functional status among arthritic women through:

1.Assessing rheumatoid arthritis knowledge and their self-care practices among arthritic women.

2.Assessing pain intensity and functional ability among arthritic women.

3.Designing and implementing nursing instructions for rheumatoid arthritis self-care among arthritic women.

4.Evaluating the effects of nursing instructions for rheumatoid arthritis self-care on pain intensity and functional ability among arthritic women.

Research hypothesis:

H1: The functional ability of arthritic women will be improved after implementing of nursing instructions for rheumatoid arthritis self-care

H2: pain intensity among arthritic women will be reduced after implementing of

nursing instructions for rheumatoid arthritis self-care.

Subjects and Methods:

Research design: A quasi-experimental research design with pre nursing instruction, after one month and after three months was utilized to achieve the aim of this study. Quasi-experimental research involves the manipulation of an independent variable without the random assignment of participants to conditions or orders of conditions. Among the important types are nonequivalent groups designs, pretest-posttest, and interrupted time-series designs **(Ali et al., 2020).**

Setting:

The study was conducted at specialized rheumatology unit, in Zagzig university hospital, Sharkeya Governorate, Egypt. The unit provides medical services in the form of admission for monitoring, diagnosis, and different types of treatment besides out-patient clinic for follow up and rehabilitation physiotherapy unit. This specialized rheumatology unit worked daily form Saturday day to Thursday, but alternative workdays were separated for males and females. The total average number of attendances for follow up about 800 patients/ month: with different rheumatic diseases **e.g. (AR, SLE, AS, MS).** Rehabilitation & physiotherapy unit receive about 10-15 RA patients/day for receiving different physiotherapy and exercises.

Subject:

The subjects were 80 cases of women with RA "purposive sample" who met the following **criteria** during the study period: age between 18 and 65 years old, Women had a definite diagnosis of RA at least one year, from 1st, 2nd and 3rd degree of RA. Free from severe cardiac disease (heart failure, recent myocardial infarction), pulmonary disease, inflammatory or muscle disease or previous hand or arm injuries and lower extremity injuries or operation. Willing to participate in the study.

Sample size:

The sample size is determined according to the power analysis formula as follow:

$$n = \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{ES} \right)^2$$

- Standard normal deviate for $\alpha = Z\alpha = 1.960$
- Standard normal deviate for $\beta = Z\beta = 1.2816$.
- α = Standard normal deviate for $\alpha = 1.9600$.
- $Z\beta$ = Standard normal deviate for $\beta = 0.8416$.
- B = $(Z\alpha + Z\beta)2 = 7.8489$.
- C = $(E/S\Delta)2 = 0.1111$.
- N = B/C = 75.6398

$$n = \left(\frac{1.96 + 0.84}{0.1111} \right)^2 = 75.6398 \approx 71 \text{ woman}$$

Sample size will be 80 women to achieve a power of 80% and a level of significance of 5%, assuming the standard deviation of the differences to be 1.5 between pairs **(Rosner, 2016)**

Tools of data collection:

Four tools were used for data collection, they accomplished after reviewing the recent relevant literatures:

Tool (1): women assessment interview schedule; This tool developed by researchers after reviewing of relevant literature to assess women health status. It consisted of three parts as follows:

Part I: Women socio-demographic characteristics:

This part of the tool included age, educational level, marital status, area of residence, occupation, and income.

Part II: Women clinical data; were collected from women medical record, it was included location of joints (arm/ knee) affected, duration of illness and women habits include smoking, past and present history.

Part III: women knowledge regarding rheumatoid arthritis: this part of tool developed by the researchers after reviewing the relevant literature *(Hinkle & Cheever 2018)*. It included 15 main questions in which each question had group of three or four answer, included definition of RA, causes of arthritis pain, benefits of plans in pain management and importance of joint protecting techniques. In addition, important of resting between activities.

Scoring system:

Each correct answer was scored as one and incorrect as zero. And the scores obtained for each set questions were summed up to get

the total scores for women knowledge. Total knowledge score was categorized by using scoring system as follows; satisfied knowledge ≥ 50% and Unsatisfied knowledge < 50%.

Tool (2): Women Self-care practices questionnaire sheet: This tool was developed by the researchers after reviewing the relevant literature **(Ahmed et al.,2019) and (Abdelmowla et al., 2017)**. Self-care practices questionnaire sheet which included A) **Medical regimen for treatment** (5 questions) to assess adherence of medication (dose & times), taking medication for pain not prescribed by a physician, and how taking and dealing with cortisone medication. **B) correct diet patterns for RA** (7 questions) (moderate protein consumption/ drinking water/ vegetables, avoided foods increase activation of RA disease, reduce salt intake). C) **Joint protection technique and Exercises (10 questions)** about Exercises such as stretching, strengthening exercises for joints, and aerobic exercise such as walking (importance, duration, frequency). D) **Pain controls practices** (8 questions) massaging the painful area, applying cold/heat painful area, using relaxation methods, and resting between activities.

Scoring system:

For scoring item for done answered scored as 1 and not done answered scored as zero. The scores were sum and converted into a percentage score. Woman who achieved total score of more than 75% are considered as high self-care practices, while scores less than 75 % to 50% consider as moderate self-care practices score and scores less than 50% considered as low self-care practices.

Tool (3): Numerical analog scale for pain:

This tool developed by *Hjermstad (2011)* to assess pain intensity. This scale contains standardized linear range from 0-10. The woman was asked to place a mark indicating where the current pain lies on the line. As 0 in "no pain", 1-3 represents "mild pain", 4-7 represents " moderate pain", 8-9 represents " sever pain" and 10 is the "worst possible pain"

Tool (4): - Functional ability of arthritis women: Two instruments were used for measuring functional ability:

A) **Katz Activities of Daily Living (Katz ADL).** This tool was developed by Mary **et al., (1999)** and it was adopted by the researcher. This tool is used for the assessment of the functional ability of arthritic women by measuring the basic activities of daily living. Katz ADL index measured ability to conduct self-care. It consisted of a six-item instrument, which assessed the independence or dependence in the activities of bathing, dressing, toileting, transferring, continence and feeding.

Scoring system for ADL ability:

The scores of each item ranged from 0-1; zero for dependent and one for independence in each of the six activities.

Total Scores were divided into three categories ranged from 0-6, a score of 6 indicated full function, 4 indicated moderate impairment and 2 or less indicated severe functional impairment.

B) **The Lawton Instrumental Activities of Daily Living Scale** developed by **Lawton (2000)** to assess independent functional ability as well as declines and improvements over time. The test measures eight realms of functions through self-report which to attempt to assess everyday functional competence in arthritic women which included telephoning, shopping, food preparation, housekeeping, laundering, use of transportation, use of medicine and financial behavior.

Scoring system for IADL ability: The scores of each item ranged from 1-3; 1 for unable and 2 for needs assistance and 3 for independent. The scores of the items were summed-up and were expressed women scored from zero (low function dependent) to eight (high function independent).

Methods:
The study was carried out as follows:
Ethical and legal Considerations:

▪ Every woman has written informed consent to participate in the study.

▪ The Confidentiality of participated women data was guaranteed.

▪ The study participants' women confidentiality and privacy were protected.

▪ The women were assured that their participation was entirely optional and that they might opt out at any time.

Validity of Study Tools:

To ensure content validity, study tools were submitted to a panel of three experts in the fields of medical surgical nursing and community health nursing. Modifications were made based on the panel's assessment of sentence clarity and topic appropriateness.

Reliability:

The reliability of the tools was tested by means of Cronbach's alpha. The reliability coefficient for the tool I was (0.913.) and tool II was (0.942.) which means all tools were reliable.

Pilot study:

A pilot study was carried out on 10% of the total studied subjects (8 women) to ascertain the clarity, feasibility, and applicability of the developed tools, then the necessary modifications were done. Arthritic Women included in the pilot study were excluded from the total number of study subjects.

Field of work:

A written approval to conduct this study after clarifying its purpose was taken from responsible authorities at the faculty of nursing at Zagzig university. The written approval letter was given to the directors of the chosen clinic unit named, specialized rheumatology unit in Zagzig hospital. The study was carried out through four main phases: assessment, planning, implementation, and evaluation.

These phases were carried out from the beginning of May to the end of October 2021, covering along a period of six months. The previous setting was visited by the researchers one day/week (Saturday) which is the workday of the unit, from 9.00 am to 1.00 pm. The time needed to complete interviewing questionnaires was (20-30 minutes). The average number of the interviewed arthritic women were about (8-10) women per visit.

Phase I: Assessment Phase:

Through using the pre-instructions nursing sessions assessment tools, the researchers interviewed the arthritic women during attendance rheumatology unit. Upon consent to participate arthritic women were interviewed to assess demographic data, RA knowledge, RA self-care practice, pain intensity, and functional ability (ADL/IADL). The data attained during this phase was considered the bassline for further comparisons to evaluate the effect of nursing instruction on arthritic women.

Phase II: Planning Phase

Planning The nursing instructions sessions for rheumatoid arthritis self-care program was designed by the research team based on the self-care model that focuses on the arthritic women ability to self-care themselves and how to deal with RA pain and his influence their life. The researchers prepared printed Arabic booklet to satisfy arthritic women deficit of knowledge and skills according to the self-care practices of RA. it was based on arthritic women needs and reviewing recent, related literature. The general objective of nursing instruction session was for improving knowledge and self-care practice of arthritic women.

Phase II: Implementation Phase

Each arthritic women were planned to present four sessions of nursing instructions for RA selfcare program that included face to face group. The proposed nursing instructions for RA self-care were conducted in the examination room of the outpatient clinic at rheumatology unit.

At the beginning of the first session, an orientation to the nursing instructions and its purpose was presented. Each session started with the previous sessions and the objectives of the new session, taking into consideration the use of simple language to suit the level of arthritic women.

The details of the nursing instructions for RA self-care consisted of four sessions: two theoretical and two practical sessions. Theoretical sessions were held as follow; **First session** was covered the definition overview of rheumatoid arthritis, causes of arthritic pain, symptoms of affected joints, and Benefit of plans in pain management. Important of joint protecting techniques, **Second session**: Reiterating the prior session's content, the definition of self-care practices, Exercise types for rheumatoid arthritis (stretching, strengthening exercises for joints) and aerobic exercise such as walking. Nutrition and correct food pattern for RA, Changes in lifestyle and environment for rheumatoid arthritis. Pain controls Heat, and cold applications, as well as assistive equipment, are used to massaging the

painful area, applying cold/heat painful area, using relaxation methods, and resting between activities

Practical sessions were held in two sessions, as follows: **Third session**: Emphasis on previous session information, exercises technique, use of assistance equipment such as a cane, crutch, or walker, demonstration by the researcher. **Fourth session**: Reiterating the previous session's topic, utilizing a booklet, and seeing a video regarding workout steps, women perform a demonstration and redemonstration. The researcher reviews their rheumatoid arthritis knowledge and exercises at home.

After each session, arthritic women were guided for monitoring and recording their daily exercises for joints movements protection through a workbook of self-monitoring, in which arthritic women can monitor and recognize potential causes or situations that cause management problems. Group discussions, homework, and various media such as graphics and images are various methods and techniques used in applying the program.

One day/week (Saturday), from (9.00 am. to 1.00 pm.). The time of each session ranged between 30 to 45 minutes, the implementation of the nursing instructions started immediately based on the assessment of arthritic women's needs, using illustrative media for conveying information such as laptops, posters, and brochures. During each session, an illustrated booklet was distributed in order to clarify the knowledge and practices for each woman.

Evaluation phase:

The evaluation phase was divided into two times: first time was done immediately after the completion of nursing instruction for RA self-care second time was done after three months after first time of post-assessment by using the same pre- nursing instruction tools to compare changes in knowledge, self-care practices, and also changes in pain intensity and functional status among studied arthritic women In these phase of nursing instruction, each woman was evaluated via scheduling meeting with them on the same day for his/her follow-up appointment or by telephone calls.

Statistical analysis of the data:

Data were fed to the computer and analyzed using IBM SPSS software package

version 20.0. (Armonk, NY: IBM Corp) Qualitative data were described using number and percent. The Kolmogorov-Smirnov test was used to verify the normality of distribution Quantitative data were described using range (minimum and maximum), mean, standard deviation, median. Significance of the obtained results was judged at the 5% level.

Results:

Table (1) Demonstrates that 75% of the studied women aged $\geq$ 40 years, 75% of them were married. Regarding the educational level, 33.8% of them were able to read and write, 30% of them had diploma. Regarding residences areas, 61.3% of them live in urban areas. Table illustrates also 55% of the study sample have not health insurance services.

Table 2; Demonstrates that 48.7% of the studied sample had RA from more than five years, 53.8% of them have medical history of chronic diseases and 31.3% of them had family history of RA. Regarding type of arthralgia complain 82.5% of them wrist joint followed by 72.5% elbow joint, and 71.3% ankle joint

Table (3); Shows that the women had a satisfactory level of knowledge about RA, Causes of arthritis pain, symptoms of affected joints and Importance of joint protection techniques after one month and three months from nursing instruction implementation. The table also shows a statistically significant difference between pre nursing instruction and after implementation nursing instruction (after one month/ three months) (p = 0.001).

Figure (1); It was found that the total score knowledge of the studied women had improved from 27.4 % before the implementation of nursing instruction to 58.3 % after one month, and 91.3 % after three months.

Table (4): Table illustrates that the majority of studied women were not done RA self-care practices in all items. More than half of studied women were done RA self-care practices after one month of nursing instruction implementation. While after three months from nursing instruction RA self-care implementation most of them were done RA self-care practice. Table also showed a significant difference in all

items of RA self-care practices among studied women throughout phases of the study.

Figure (2); Shows the total score of the studied women self-care practices. pre nursing instruction 83.3% of studied women had low RA self-care practices, 36. 1% of them had moderate self-care practices after one month from nursing instruction implementation, and 76% of them had high self-care practices after three months from nursing instruction implementation.

figure 2 depicts the difference in pain intensity between before and after implementation and. The figure illustrated that the 48.8% of studied women had worst possible pain followed 37.5% had severe pain before implementation nursing instruction RA self-care. After three from implementation nursing instruction RA self-care 55% of the studied women had mild pain followed 20% of them had moderate pain. This figure answered research hypothesis was pain intensity among arthritic women were reduced after implementing of nursing instructions for rheumatoid arthritis self-care.

Represents the distribution of the studied women according to their performance of activities of daily living and answered research hypothesis. The table illustrates that the most performance of activities of daily living improved throughout study phases. Table reveals that there were highly statistical differences improvement were noticed among studied women related to overall performance of activities of daily living in pre and nursing

instruction for RA self-care implementation phases. Figure 4; outlines that there was a huge reduction in severe functional impairment in the subjects in first and second posttest. This figure illustrates the realization of the first research hypothesis, which is that there was positive effect for nursing instruction for RA self-care on independency for activities of daily living activities among studied subjects.

Table 5 Represents the distribution of the studied women with rheumatoid arthritis according to their performance of instrumental activities of daily living. The table illustrates that performance of instrumental activities of daily living improved throughout study phases. Table reveals that there were highly statistical differences improvement were noticed among studied women related to overall performance instrumental of activities of daily living in pre and nursing instruction for RA self-care implementation phases.

Figure 5; outlines that there was a huge reduction in severe functional impairment in the subjects in first and second posttest. This figure illustrates the realization of the first research hypothesis, the nursing instruction for RA self-care have positive effect on functional ability for instrumental activities of daily living among studied subjects.**Table 6:** This table showed that there was a significant difference between ALDs and IALDs in relation RA self-care practices after implementation nursing instruction. This relationship was statistically significant (P value < .001*).

Table (1): Distribution of studied arthritic women according to their socio-demographic characteristics (n=80).

Items	No	%
Age:		
Less than 40 years	22	27.5
More than 40 years	58	72.5
Mean ±SD	45.27±4.12	
Education level:		
Illiterate	13	16.3
Read and write	27	33.8
Diploma	24	30.0
High education	16	20.0
Marital status:		
Single	7	8.8
Married	60	75.0
Divorced	6	7.5
Widow	7	8.8
Occupation:		
Housewife	44	55.0
Working	36	45.0
Residence area:		
Urban	31	38.8
Rural	49	61.3
Treatment with health insurance:		
Yes	36	45.0
No	44	55.0
Monthly income:		
Sufficient	39	48.75
Insufficient	61	76.25

Table (2): Distribution of studied arthritic women according to their medical clinical data (n=80).

Items	NO	%
Duration of RA:		
One year	15	18.8
1-3 year	18	22.5
3-5 year	16	20.0
More than 5 year	31	38.8
Chronic disease		
No	37	46.3
Yes	43	53.8
Family history of RA		
Yes	25	31.3
No	55	68.8
Type arthralgia complain:		
Fingers	66	82.5
Wrist	58	72.5
Foot	37	46.3
Ankle	57	71.3

Table (3) Distribution of satisfactory knowledge about RA among studied women throughout study phases (N=80)

Items	Pre-nursing instruction		After one month		After three months		X²(P1)	X²(P2)
	No	%	No	%	No	%		
Definition of RA	15	18.8	45	56.3	76	95	43.95(0.001)*	81.39(0.001)*
Causes of arthritis pain	30	37.5	50	62.5	80	100	72.72(0.001)*	38.23(0.001)*
Symptoms of affected joints	16	20	31	38.8	62	77.5	69.41(0.001)*	118.73(0.001)*
Benefit of plans in pain management.	12	15	31	38.8	80	100	106.66(0.001)*	62.69(0.001)*
Important of joint protecting techniques.	28	35	74	92.5	80	100	71.78(0.001)*	48.54(0.001)*
Important of resting between activities.	16	20	67	83.8	78	97.5	36.40(0.001)*	55.67(0.001) *

P1: comparison between pre-implementation and after one month of implementation (P=<0.05)*

P2: comparison between pre-implementation and after three months of implementation
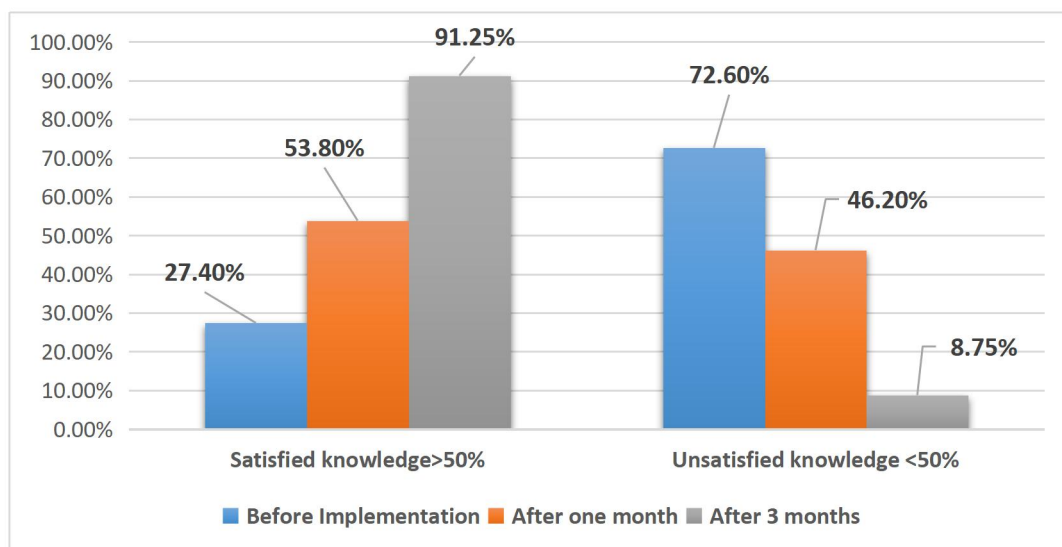

Figure1: Total score of knowledge about rheumatoid diseases

Table (4): Distribution of RA self-care practices among women throughout study phases (n=80)

RA self-care Variables	Pre-nursing instruction		After one month		After three months		x²(P1)	x²(P2)
	No	%	No	%	No	%		
Medical regimen for treatment								
Done	28	35.0	41	51.25	60	75.0	25.85	128.50
Not done	52	65.0	39	48.75	20	25.0	(0.000) *	(0.000) *
Nutrition and correct food patterns								
Done	10	12.5	34	42.5	44	55.0	32.31	101.76
Not done	70	87.5	46	57.5	36	45.0	(0.000) *	(0.000) *
Joint protection technique and Exercises								
Done	21	26.3	51	63.75	62	77.5	42.08	115.21
Not done	59	73.7	29	36.25	18	22.5	(0.000) *	(0.000) *
Pain controls practices								
Done	9	11.25	44	55	67	83.75	48.81	106.30
Not done	71	88.75	36	45	13	16.25	(0.000) *	(0.000) *

P1: comparison between pre-nursing instruction and after one month of nursing instruction

P2: comparison between pre-nursing instruction and after three months of nursing instruction. Statistically significant at (P=<0.05) *
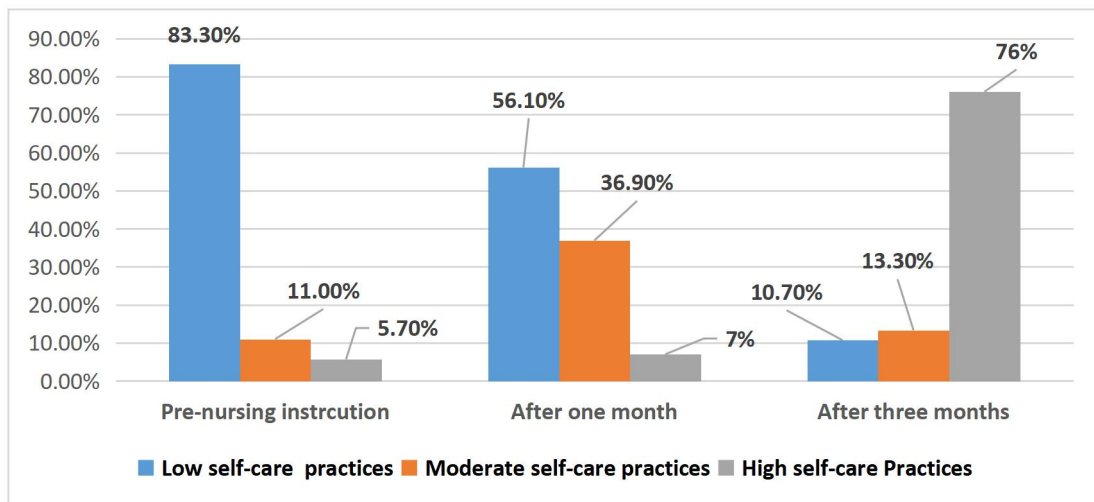

Figure (2): Total score of RA self-care practices among studied women Throughout study phases (n=80)
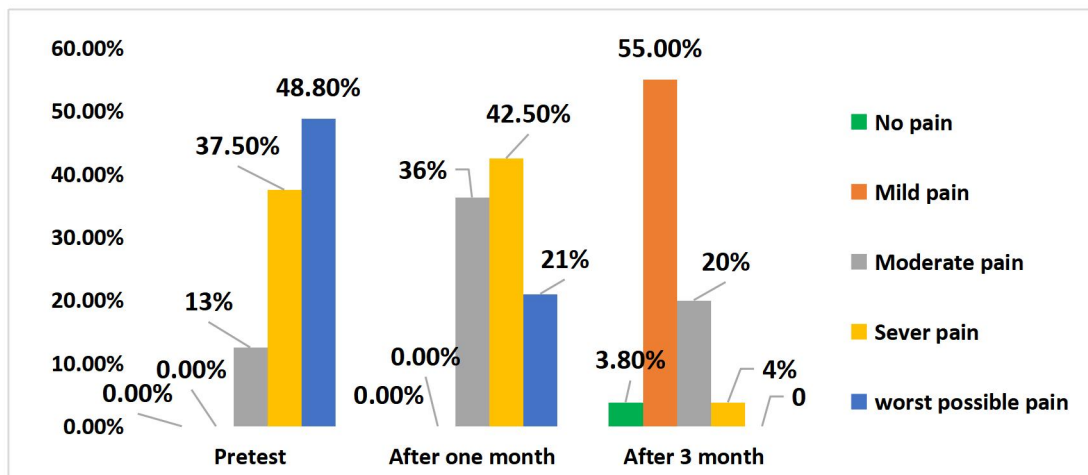
Figure (3): Distribution of pain severity among studied arthritic women throughout the study phases (N=80)

Table 4; Distribution of idependent activities of daily living among studied women throughout study phases (n=80).

Items	Pre- nursing instruction		After one month		After 3 months		x^2(P1)	x^2(P2)
	Dependent	Independent	Dependent	Independent	Dependent	Independent		
Bathing	57	23	24	56	6	74	0.577 FE	21.600 (<0.001) *
	71.3%	28.7	30%	70%	7.5%	92.5%	(0.706)	
Dressing	55	25	16	64	18	62	0.218 FE	35.306 (<0.001) *
	68.7%	31.3%	20%	80%	22.5%	77.5%	(1.000)	
Toileting	38	42	13	67	13	67	0.162 FE	10.00 (<0.001) *
	47.5%	52.5%	16.25%	83.75%	16.25%	83.75%	(1.000)	
Transferring	44	36	16	64	9	71	1.176 FE	27.187 (<0.001) *
	55%	45%	20%	80%	11.25	88.75	(0.706)	
Continence	74	6	49	31	27	53	1.667 FE	16.484 (<0.001) *
	92.5%	7.5%	61.25%	38.75	33.75%	66.25%	(0.333)	

P1: comparison between pre-nursing instruction and after one month of nursing instruction

P2: comparison between pre-nursing instruction and after three months of nursing instruction.
Statistically significant at (P=<0.05) *

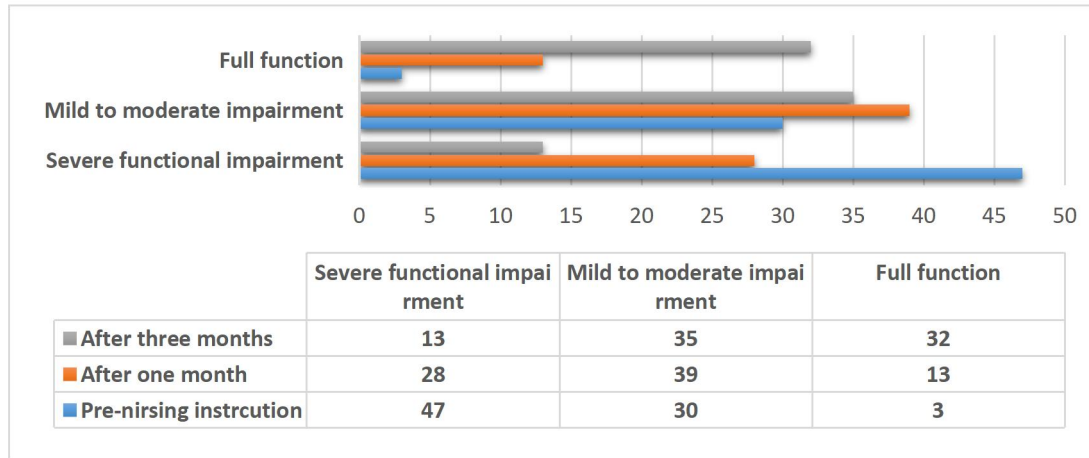|	Severe functional impairment	Mild to moderate impairment	Full function
■ After three months	13	35	32
■ After one month	28	39	13
■ Pre-nirsing instrcution	47	30	3

Figure 4; Distribution of Total degree of independency for activities of daily living among studied women throughout study phases (n=80)

Table 5; Distribution of instrumental activities of daily living among studied women throughout study phases (n=80).

IADL Variables	Pre- nursing instruction			After one month			After 3 months			x²(P1)	x²(P2)
	Unable	Needs assistance	Independent	Unable	needs assistance	Independent	Unable	needs assistance	Independent		
Ability to Use Telephone	15	10	55	11	14	55	7	10	63	27.26(0.001) *	21.91(0.001) *
	18.75	12.5	68.75	13.75	17.5	68.75	8.75	12.5	78.75		
Shopping	23	39	18	21	34	25	17	15	48	42.19(0.001) *	84.65(0.001) *
	28.75	48.75	22.5	26.25	42.5	31.25	21.25	18.75	60		
Food preparation	19	18	43	14	33	33	5	23	52	90.98(0.001) *	89.38 (0.001) *
	39.5	22.5	53.75	17.5	41.25	41.25	6.25	28.75	65		
Housekeeping	15	21	44	15	31	34	11	12	57	90.98(0.001) *	27.09(0.001)*
	18.75	26.35	55	18.75	38.75	42.5	13.75	15	71.25		
Laundry	48	20	12	38	27	25	31	17	32	90.98(0.001) *	88.15(0.001) *
	60	25	15	747.5	33.75	31.25	38.75	21.25	40		
Mode of Transportation	28	37	15	22	29	29	9	17	54	90.98(0.001) *	84.65(0.001) *
	35	46.25	18.25	27.5	36.25	36.25	11.25	21.25	67.5		
Responsibility for Own Medications	23	31	26	19	35	26	13	28	39	90.98(0.001) *	66.04(0.001) *
	28.75	38.75	32.5	39.5	43.75	32.5	16.25	93.3	48.75		
Ability to Handle Finances	16	34	21	13	44	23	7	50	23	42.19(0.001) *	84.65(0.001) *
	20	42.5	26.25	16.25	55	28.75	8.75	62.5	28.75		

P1: comparison between pre-nursing instruction and after one month of nursing instruction
P2: comparison between pre-nursing instruction and after three months of nursing instruction.
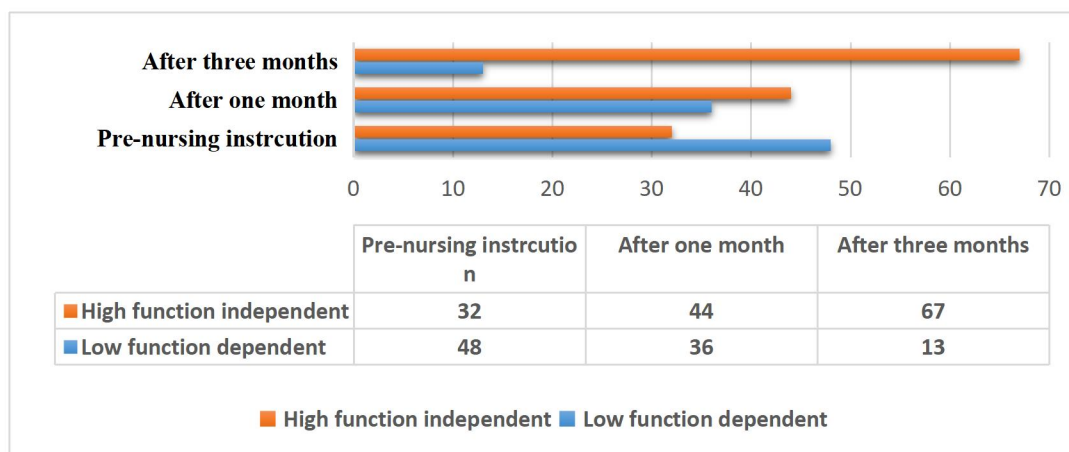Statistically significant at (P=<0.05) *

Figure 5; Distribution of Total degree of independency for instrumental daily living activities among studied women throughout study phases (n=80).

Table 6; Statistically difference between RA self-care practices, activities of daily living and instrumental activities of daily living among studied women throughout (Pre/ after three months) implementation of nursing instructions (n=80).

Items	Pre-nursing instructions		After three months		X²	P-value
	No	%	No	%		
Activities of daily living (ADLs)						
Full function	3	3.75	32	40		
Mild to moderate functional impairment	30	37.5	35	43.75	84.65	.000**
Sever functional impairment	47	58.75	13	16.25		
Instrumental activities of daily living (IADLs)						
Low function dependent	48	60	13	16.25	21.91	.000**
High function independent	32	40	67	83.75		

Discussion:

Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease that basically influences the covering of the synovial joints and is related with dynamic inability, sudden passing, and financial weights. RA is an intricate illness that influences every patient in an unexpected way. Individuals from every single ethnic foundation are in danger of creating RA. It considered as the third most basic kind of joint inflammation behind osteoarthritis and gout **(Oliveira, 2020).**

The aim of present study was to evaluate the effects of nursing instructions for rheumatoid arthritis self-care on pain intensity and functional status among arthritic women. So, the discussion of the present study results will cover the following items: demographic, clinical medical data, RA self-care practice, pain intensity, and functional status.

Regarding demographic data the majority of arthritic women included in this study were married, housewives, and don't have health insurance system for treatment. The current study illustrated also more than three quarter of studied women had insufficient monthly income. It may be due to conducting the study in governmental hospital with high percentage of low social class patients.

This finding was in accordance with **Ibrahim & Mohamed (2020),** Mansoura University, who found that the majority of study subjects' women, married and had basic education level.

With regard to medical clinical data, the results of this the study clarified that one third of studied arthritic women suffering from chronic illness (hypertension and diabetic). This finding disagreed with **Metwaly et al., (2017),** Zagazig University و when studied the effect of nonpharmacological methods on female patient activities found that the female patients did not have any chronic diseases.

Concerning disease duration, the results of the present study illustrated that fewer than half of the studied arthritic women the duration more than five years. This finding as in accordance with **Ahmed (2009),** Cairo University, who found that the majority of subjects studied had had arthritis for five to ten years. This finding contrasted with **Ibrahim (2013),** Benha University, who found that more than half of the studied subjects had had the disease for ten years or more. This might be because RA is a chronic progressive inflammatory disease that patients can adapt to.

Regarding family history, the study findings indicated that the one third of studied arthritic women had a family history of RA. This finding is supported by **Metwaly et al., (2017),** Zagzig University, who found that a minority of a studied sample had a family history of RA. This could be because there is no clear pattern of inheritance, despite a twofold rise in first-degree relatives of RA patients.

Considering the knowledge of women about rheumatoid arthritis, the present study illustrates that through pre nursing instruction implementation more than half of women respectively had incorrect knowledge related definition of RA, causes of arthritic pain and benefit of plans in pain management, which improved to more than two thirds respectively after three months nursing instruction implementation, with a highly statistically significant difference between pre nursing instruction and after implementation nursing instruction. This could be explained by the fact that patients do not receive sufficient information from healthcare providers and/or that health professionals do not have time to provide them with sufficient information, and because, in addition, the minority of the studied women were higher education.

The previous results agree with the results of **Selim et al., (2019)** in the study about effect of nursing interventions on self-care behaviors and knowledge for rheumatoid arthritis elderly patients at Mansoura university who found that patients' knowledge of RA and its management was significantly increased at four months after participation in an arthritis self-care education program.

The present study showed that there was a statistically significant difference in the total knowledge score of the studied women about RA disease throughout study phases.

The previous results came in the same line in the same study of **Nadrian et al., (2019)** in Iran stated that their participants total score knowledge was improved after implementation educational program as the mean overall knowledge score was significantly higher at after education program. It may be Enhancing RA Women's knowledge about RA disease and their condition is very important because increasing their level of knowledge will affect their disease control and decrease symptoms severity, level of pain, and improve their quality of life, allowing them to live without disabilities, lessen complications, and be independent in their daily activities.

Regarding RA self-care practices, the present study showed that after implementing nursing instructions improved RA self-care practices among studied women throughout study phases. These results agree with **Ibrahim & Mohamed** *(2020)* in the study about effectiveness of structured self-care model on Self-Care, disability, and pain among patients with RA in Egypt and reported that patient get higher scores in regard to level of self-care practices in follow up after 2 month and after 4month than pre-test after self-care model program implementation. It may education program for RA Self-care capable of producing significant beneficial effects on functional ability and pain among RA women.

Accordingly, the result of the present study showed that after nursing instruction implementation, reduction in pain intensity scores compared with pre nursing instruction scores among studied women. These findings were in line with **Selim et al., (2019)** in Egyptian study, reposted that there was positive

effect of non-pharmacological nursing intervention program on female patients with rheumatoid arthritis in improvement pain intensity, also in this regard **Parlar et al., (2013)** in Turkish study, who concluded that, the nursing education can improve patients' self-care ability and positively effect on pain intensity outcomes.

Evaluation of the effect of the nursing instruction RA self-care on the utilization of various pain management methods revealed that the frequencies of massaging the painful area, exercising, and using complementary methods such as breathing exercises to control stress were significantly increased in studied women after the implementation. We think that because women skills and knowledge about pain management increased after the nursing instruction implementation, they used more pain management methods. They learned how to massage more effectively, how to choose the more suitable exercises, how to perform these exercises, what to pay attention to while performing them.

Regarding to independent of daily living activity and instrumental daily living activity, the current study revealed that the studied women had improvement in daily living activity scores and instrumental daily living activity after implementation nursing instruction for RA self-care compared with pre nursing instruction. This finding agrees with **Luyster et al., (2011)** in the United States study, who found that independence was significantly lower in the initial assessment but was significantly higher at the first and second follow-up. This is in line with **Mohamed& Mohamed (2015)** in Egyptian study, concluded the planned rehabilitation program have significant impact on ADL and IADL among female patients with RA. also the study findings agree with **Jönsson et al., (2018)** in a Swedish study, reported education for exercise and physical activity practices had statistically significant improvements in their performance of ADL and IADL.

Consequently, RA knowledge, self-care practices (medication adherence, correct food pattern, joints exercises and physical activity) improve ADL, IADL and reduction pain intensity. There are numerous studies in the literature that reported beneficial effects of RA self-care education on joint pain and joint pathologies, resulting in significant reduction in the intensity of pain and functional ability.

These results were supported by **Sánchez et al., (2022)** in American study, who revealed that the patient's self-care practices in long term improve functional ability for ADL and IADL.

Finally, women with RA may play an essential role in the control of their disease. extensive educational programs such as nursing instructions for RA self-care is recommended, which helps to reduced pain intensity and improved functional status. It is clearly seen that, in particular, the low level of education and lack of information about the disease decreases the patients "possibility to develop positive self-care practice.

Conclusion:

Based on the findings of the present study, it can be concluded that, more than three quarters of the studied women with RA had unsatisfied knowledge about RA disease and most of them had a low self-care practice. After implementing nursing instructions for self-care practices for RA, the women improved in knowledge and related self-care practices (correct eating pattern, joint exercises, physical activity, adherence to medication, and pain control strategies). This result confirmed hypothesizes, which is that high level of RA self-care practices leading to reduce in pain intensity and improvement in functional ability.

Recommendation

The following recommendations are made based on the findings of this study:

▪ Replication of the current study on a larger probability sample is recommended to achieve generalization of the results and wider utilization of the designed implementation.

▪ Hold continuous educational and orientation program for rheumatoid arthritis patients to upgrade their knowledge about rheumatoid arthritis's disease and its management and encourage them for high level of self-care, health status, follow up.

▪ Instructional guidelines should be applied on a wide range through different social media.

References:

Abdelmowla, R. A. A., Hussein, A. H., Shahat, A. A., Ahmed, H. A., and Abdelmowla, M. A. A. (2017): Impact of nursing interventions and patients' education on quality of life regarding renal stones treated by percutaneous nephrolithotomy. Journal of Nursing Education and Practice, 7(12), 52-63

Ahmed EM (2009): Quality of life among arthritic elderly in geriatric homes – Cairo Governorate. Unpublished master thesis. Egypt: Faculty of Nursing, Cairo University.

Ahmed, H. A., Mohammad, Z. A. E. L., Abdelmaged, E. S., Shahat, A. A., & Abdalla, M. A. (2019): Effect of Nursing Teaching Guideline on Patient Anxiety before Radical Nephrectomy at Assiut University Hospital. Assiut Scientific Nursing Journal, 7(19), 82-91.

Ali, A. E. S., Talat Mohamed, A., & Hedaya Morad, A. (2020): Effect of Implementing Intervention protocol on Self Efficacy of Patient's Post Knee Joint Replacement. *Egyptian Journal of Health Care*, *11*(4), 843-858.

Battafarano, D. F., Ditmyer, M., Bolster, M. B., Fitzgerald, J. D., Deal, C., Bass, A. R., ... & Monrad, S. U. (2018):2015 American College of Rheumatology workforce study: supply and demand projections of adult rheumatology workforce, 2015–2030. *Arthritis care & research*, *70*(4), 617-626.

Chancay, M. G., Guendsechadze, S. N., & Blanco, I. (2019): Types of pain and their psychosocial impact in women with rheumatoid arthritis. *Women's midlife health*, *5*(1), 1-9.

Chattu, V. K., & Yaya, S. (2020):Emerging infectious diseases and outbreaks: implications for women's reproductive health and rights in resource-poor settings. *Reproductive health*, *17*(1), 1-5.

England, B. R., & Mikuls, T. R. (2020): Epidemiology of, risk factors for, and possible causes of rheumatoid arthritis. *URL: https://www. uptodate. com/contents/epidemiology-of-risk-factors-f or-and-possible-causes-of-rheumatoid-arthr itis. UpToDate*.

Hinkle, J. L., & Cheever, K. H. (2018): Brunner and Suddarth's textbook of medical-surgical nursing. Edition 13. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, pp768-801.

Hjermstad, M. J., Fayers, P. M., Haugen, D. F., Caraceni, A., Hanks, G. W., Loge, J. H., ... & European Palliative Care Research Collaborative (EPCRC. (2011): Studies comparing numerical rating scales, verbal rating scales, and visual analogue scales for assessment of pain intensity in adults: a systematic literature review. *Journal of pain and symptom management*, *41*(6), 1073-1093.

Ibrahim KAM (2013): Quality of life among older adults with arthritis attending the out-patient clinics in Benha hospitals. Unpublished doctorate thesis. Egypt: Faculty of Nursing, Benha University.

Ibrahim, M.M., & Mohamed, A.G (2020): Effectiveness of structured self-care model, disability and pain among patients with rheumatoid arthritis. Assiut Scientific nursing journal, 8(22), 62-71.

Jönsson, T., Hansson, E., Thorstensson, C., Eek, F., Bergman, P., & Dahlberg, L., (2018): The effect of education and supervised exercise on physical activity, pain, quality of life and self-efficacy-an intervention study with a reference group. BMC musculoskeletal disorders, 19(1), 198.

Latifi Shahandashti, S. R., Kashaninia, Z., Khachian, A., & Haghani, H. (2021): Effects of the Teach-back Method of Self-care Education on the Pain Intensity and Sleep Quality of Rheumatoid Arthritis Patients. *Iran Journal of Nursing*, *34*(129), 15-26.

Luyster, F. S., Chasens, E. R., Wasko, M. C. M., & Dunbar-Jacob, J. (2011). Sleep quality and functional disability in patients with rheumatoid arthritis. *Journal of Clinical Sleep Medicine*, *7*(1), 49-55.

Metwaly, E. A., Taha, N. M., Seliem, H. A. E. W., & Sakr, M. D. (2017): Effectiveness of non-pharmacological nursing intervention program on female patients with rheumatoid

arthritis. *central European journal of nursing and midwifery*, *8*(3), 682-690.

Michou, L., Julien, A. S., Witteman, H. O., Légaré, J., Ratelle, J., Godbout, A., ... & Fortin, P. R. (2022). Measuring the impact of an educational intervention in rheumatoid arthritis: An open-label, randomized trial. *Arch Rheumatol*, 37.

Mohmed, E. A., & Mohamed, Z. A. E. L. (2015): Rheumatoid arthritis: The effect of physical rehabilitation guideline on improvement the Activity of daily living (ADL) of female patients. *Assiut Scientific Nursing Journal*, *3*(5), 176-191.

Nadrian, H., Niaz, Y. H., Basiri, Z., & Roudsari, A. T. (2019): Development and psychometric properties of a self-care behaviors scale (SCBS) among patients with rheumatoid arthritis. BMC Rheumatology, 3(1), 4 Vol. 6, Issue 3, pp: (272-285), Month: September - December 2019, Available at: www.noveltyjournals.com

Newman, S., Mulligan, K., & Steed, L. (2018): What is meant by self-management and how can its efficacy be established?. *Rheumatology*, *40*(1), 1-4.

Oliveira, S., (2020): Talking About Rare Diseases: A Compendium on Rare Diseases and Online News. In Communicating Rare Diseases and Disorders in the Digital Age (pp. 1-86). IGI Global

Ovayolu, O. U., Ovayolu, N., & Karadag, G. (2012): The relationship between self-care agency, disability levels and factors regarding these situations among patients with rheumatoid arthritis. *Journal of clinical nursing*, *21*(1-2), 101-110.

Parlar, S., Fadiloglu, C., Argon, G., Tokem, Y., & Keser, G. (2013). The effects of self–pain management on the intensity of pain and pain management Methods in Arthritic Patients. *Pain Management Nursing*, *14*(3), 133-142.

Rosner B. Fundamentals of Biostatistics. 8th ed. Duxbury Press; 2016.

Saeedifar, E. S., Memarian, R., Fatahi, S.,& Ghelichkni, F. (2018): Use of Orem self-care model on pain relief in women with rheumatoid arthritis: a randomized. Electronic physician, 10(6), 6884.

Safiri, S., Kolahi, A. A., Hoy, D., Smith, E., Bettampadi, D., Mansournia, M. A., ... & Cross, M. (2019): Global, regional and national burden of rheumatoid arthritis 1990–2017: a systematic analysis of the Global Burden of Disease study 2017. *Annals of the rheumatic diseases*, *78*(11), 1463-1471.

Sánchez-Laulhé, P. R., Luque-Romero, L. G., Barrero-García, F. J., Biscarri-Carbonero, Á., Blanquero, J., Suero-Pineda, A., & Heredia-Rizo, A. M. (2022). An Exercise and Educational and Self-management Program Delivered With a Smartphone App (CareHand) in Adults With Rheumatoid Arthritis of the Hands: Randomized Controlled Trial. *JMIR mHealth and uHealth*, *10*(4), e35462.

Selim, T. M., Elashri, N. I. E. E. A., & Hasanein, A. A. (2019): Effect of Nursing Interventions on Self Care Behaviors and Knowledge for Rheumatoid Arthritic Elderly Patients.

World Health Organization. (2018). Annual technical report 2018: department of reproductive health and research, including UNDP/UNFPA/WHO/World Bank Special Program of Research Training in Human Reproduction (HRP) (No. WHO/RHR/HRP/16.08). World Health Organization.