

## Effect of Self-Care Instruction on Perceived Self-Efficacy among Patients with Rheumatoid Arthritis

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**Abstract:** Rheumatoid arthritis (RA) is a systemic autoimmune Disease with a prevalence of 1% worldwide, more in women than men and with increasing age. It is characterized by chronic inflammation of the synovial joints, which leads to progressive joint erosions and eventually to disability. Self-efficacy characterizes individuals' confidence in performing a specific behavior or task. Patient education in arthritis aims to improve health outcomes by prompting people to adopt self-care behaviors. The current study was performed to evaluate the effect of self-care instructions on perceived self-efficacy among patients with rheumatoid arthritis. Design one-group Pre-test/Post-test research design was used to assess the effect of the self-care instructions intervention two times, once every two months. A convenience sample of 30 adult patients with RA was recruited for the current study. The research was conducted in a rheumatology ward at a selected teaching university hospital in Cairo, Egypt. Tools including structured interview questionnaire and Arthritis Self-Efficacy scale (ASES) were used to collect data related to the study variables. The self-care instructions were provided through oral presentation and the use of pamphlets, video films and demonstration/ re-demonstration for the exercises. Each subject received a total of 12 hours for 6 sessions. Results showed that there was a statistically significant difference between the pre-test, posttest ASES scores of the study subjects. Self-efficacy levels after self-care instructions were significantly improved. It can be concluded that the results of this study showed that the planned education can be considered an effective intervention for increasing self-efficacy perception in patients with rheumatoid arthritis. Recommendation realizing the multi-faceted nature of the problem, a systematic, multi-pronged and an integrated approach is required for promoting self-care practices among RA patients to avert any long-term complications. On the other hand, it is recommended that further studies investigate longer-term effect of such programs and plan individualized education program, focusing and emphasizing on unique needs of each patient. Also, standardized written policy should become an integrated part of the total management of rheumatoid arthritis patients to improve patient's health worldwide.

**Key words:** Self-Care Behavior / Activities • Educational Instruction • Self-Efficacy • Rheumatoid Arthritis

### INTRODUCTION

Rheumatoid arthritis (RA) is a chronic progressive autoimmune disease results in systemic inflammatory disorder that may affect many tissues and organs, but mainly affects synovial joints [1-4]. The disease is characterized by chronic inflammation of the joints, which result in its damage and destruction in most cases. Patients suffer from joint pain, tenderness, stiffness, tiredness which are more pronounced in the morning and potentially leading to severe disability and premature mortality. Rheumatoid arthritis has a negative impact on patients' physical and psychological functioning, which

contributes significantly to the burden of disease. So, the aim of care for RA patients is to suppress disease activity, thus preventing structural damage and maintain function ability, allow achievement of maximum independence and social participation for patients [5-8].

Perceived self-efficacy (SE), as postulated by the American psychologist Albert Bandura, is one's belief that one can perform a specific behavior or task in the future. Perceived SE is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy theory states that 1) perceived SE for behaviors that affect health status will predict future

health status, given that subjects believe that the outcome of the behavior will be improved health status and that they value improved health status, 2) SE is not a static trait; it can be altered and 3) enhanced SE will be associated with improved health status in the areas affected by those specific behaviors [9-11]. When a person exhibits high self-efficacy in the face of a stressor, he or she will be more likely to engage in constructive coping behaviors and to maintain a positive sense of well-being [5, 9, 12].

Self-care means taking a proactive role in treatment and maintaining a good quality of life. In health care, self-care is any necessary human regulatory function which is under individual control, deliberate and self-initiated [13]. Self-care is seen as a partial solution to the global rise in health care costs placed on governments. The notion that self-care is a fundamental pillar of health and social care means it is an essential component of a modern health care system [14]. Self-care is considered a primary form of care for patients with chronic conditions who make many day-to-day decisions, or self-manage their illness. Self-care is critical and self-management education complements traditional patient education in primary care to support patients to live the best possible quality of life with their chronic condition. Self-care is learned, purposeful and continuous [15].

Self-care maintenance behaviors can be influenced by external and internal factors which would decrease the likelihood of participating in self-care maintenance behaviors [16]. Self-efficacy has been shown to be more closely linked to a patient's ability to perform self-care than health literacy or knowledge. Self-care is an important component in nursing care. It must be done along with the other aspects of holistic nursing care, such as physical care and performing the delegated medical tasks and emotional support of the patient and family, to achieve the desired outcome of patient change in behavior and attitudes [17, 18]. World Health Organization emphasizes consistently on the importance of the education to be given to patients about the self-care management of the chronic diseases [19].

Self-care measures in rheumatoid arthritis can prevent RA related morbidity and mortality and influences health behaviors, such as physical activity, proper medications intake, exercise, joint protection, nutrition and how to reduce the risk of complications. So, a major goal for nurses is to help patients improve their health status, control joint damage, prevent loss of function and decreasing pain. In addition; nurses play a pivotal role in improving RA self-efficacy through changing of behavior.

Therefore, the aim of this study was to evaluate the effect of self-care instructions on perceived self-efficacy among patients with rheumatoid arthritis.

**Significance of the Study:** Rheumatoid arthritis occurs in nearly 0.5 - 2% of the population worldwide [20, 21]. The incidence of the RA in Arab countries increased up to 1.5 % of the population in the age group between 30 to 50 years. According to World Health Organization [19] the prevalence of RA varies between 0.3 and 1% in developed countries and is more common among women. Within 10 years of onset, at least 50% of patients in developed countries are unable to hold down a full-time job. About 1% of Egyptians are suffering from rheumatoid arthritis, with a higher incidence in females than males [22, 23].

The disease represents the paradigm of chronic inflammatory musculoskeletal disorder with a progressive clinical course negatively affecting patients' physical and psychological function and life expectancy. Besides the consequences on the health status of individuals, RA is associated with a heavy burden on society in terms of physical disability and economic costs on patients, their families and society; predominantly in less-developed countries [24-27].

Improvement in RA diagnosis and treatment decreases the impact of the disease on physical and psychological functioning ; with new biologics have led to considerable progress in the treatment of chronic autoimmune diseases. Educational interventions provide an additional 15-30% improvement over and above the effects of medication alone [28]. Patient education is recently a part of patient healthcare to improve the lives of patients suffering from chronic diseases. Among health professionals, nurses are closer to patients than other health professionals and play a crucial role in RA care. In rheumatology, many aspects of patient education are performed by nurses, essentially to help patients with their health practices; increase patients' self-efficacy and give the therapeutic information in order to facilitate better self-care behavior [24]. Self-care instructions regarding medication, pain control, nutrition, rest, joint protection and physical exercise for patients with rheumatoid arthritis may help in changing patients' behaviors and enhancing self-efficacy.

## MATERIALS AND METHODS

**Aim:** The aim of the current study was to evaluate the effect of self-care instructions on perceived self-efficacy among patients with rheumatoid arthritis.

**Research Hypothesis:** To fulfill the aim of this study, the following research hypothesis was formulated:

H. Patients with rheumatoid arthritis who will receive self-care instructions will demonstrate higher levels of self-efficacy.

**Design:** One-group quazi- experimental Pre-Test / Post-Test research design was used to achieve the aim of the current study. This design helped to determine the existing level of self-efficacy of patients with rheumatoid arthritis before providing the self-care instructions and evaluate the effect that occurred after. It is a method for assessing the effect of an intervention by comparing scores on a variable before and after an intervention [29].

**Subject:** A convenience sample of 30 adult patients who were admitted to a rheumatology department at the university hospital, in Cairo-Egypt was selected as a study sample. Those who were newly medically verified with a diagnosis of RA according to ACR guidelines 2010, with age range between 30 and 50 years, fully conscious, following a written prescription treatment plan and who can communicate verbally were included. Patients who were illiterate, having metabolic or neoplastic disease; visually or cognitively impaired; or scheduled for surgical management were excluded from the study.

**Setting:** The current study was conducted in a rheumatology ward at a University Hospital, in Cairo-Egypt.

**Tools:** Data pertinent to the study variables were collected through two main tools:

**Structured Interview Questionnaire:** It was designed by the researcher and covered two sections: (a) Socio-demographic characteristics such as age, marital status, residence, education and occupation. (b) Medical data assessment sheet related to chief complain, past medical history and present treatment strategies as medications therapy and exercises.

**Arthritis Self-Efficacy Scale (ASES):** It is developed by Lorig *et al.* [30]. This scale was designed to measure patient's perceived self-efficacy to cope with the consequences of chronic arthritis. The ASES has three subscales: (i) Pain (PSE - 5 items), (ii) Function (FSE - 9 items) and (iii) Other Symptoms (OSE - 6 items). Scoring system: Each item is scored on a 10 cm numeric rating scale ranging from 1 = very uncertain, 5 - 6 =

moderately uncertain and 10 = very certain. The score for each subscale is the mean of scores of items. The total score for the scale is the mean of the scores of the three sub scales. Interpretation: higher scores indicate higher self-efficacy.

**Validity and Reliability:** Study tools were designed and adopted by the researcher after extensive literature review and submitted to a panel of five reviewers and experts in medical surgical nursing and rheumatology department. Modifications of tools were done according to panel judgment. Reliability of the tools was tested using Cronbach's Alpha. Test-retest reliability for the three subscales ranged from 0.85 to 0.90.

**Pilot Study:** Once permission was granted to proceed with the proposed study, a pilot study was conducted on 10% of the sample in the same selected study setting to estimate the needed time for data collection to judge the feasibility, objectivity, test the ability of the tool to elicit the desired information and also, to test appropriateness, content, wording and order. The needed modification was done and the subjects of the pilot study were excluded from the actual research subject.

**Protection of Human Rights:** An official permission to conduct the study was obtained from the vice dean of higher education and research Faculty of Nursing and director of rheumatology department at Cairo university hospitals. At the first educational session, purpose of the study was explained to the study subjects and was informed briefly on the whole subject, participation in the study was entirely voluntary and informed written consent was obtained. Each patient was free to either participate or not in the current study and had the right to withdraw from the study at any time without any rational. Also, patients were informed that obtained data will not be included in any further researches. Confidentiality and anonymity of each subject were insured through coding of all data.

**Procedure:** The study was conducted through the following phases.

**Assessment Phase:** In which specific needs/ problems of the patients with rheumatoid arthritis subjects were identified, as well assessment of the environmental facilities was done. Extensive literature review and contact with health care providers to explore different aspects of the research area and problem.

Table 1: The educational self-care instruction for RA participants

Session	Content
First session	Mental preparation for the subject about the disease as definition, individuals at risk, signs and symptoms, diagnosis and treatment
Second session	Pain management strategies as resting of involved joints can assist with pain management and decrease the inflammation of the involved joint. Also, joint protection, balance, fall prevention.
Third session	Exercise: a structured exercise can be greatly beneficial to the overall well-being and functioning of the patients with RA. Such exercises should focus on stretching, strengthening while conserving energy.
Fourth session	Cold and heat applications: heat has its greatest effect on the skin and subcutaneous tissues. It is especially useful in circumstances where the goal is to heat joints that are covered by little soft tissue such as those in the hands and feet to overcome signs of inflammation.
Fifth session	Nutrition: Omega-3-rich foods, antioxidant-rich foods, such as colorful vegetables and fruit, beans and extra-virgin olive oil, which has been shown to have anti-inflammatory benefits; also diet high in calcium and vitamin D is important.
Sixth session	Proper use of medication: Such as NSAIDs, Steroids, and Disease modifying drugs such as Methotrexate by illustrating action, route of administration, side effect for each one of them.
	General review on all information provided was performed

**Planning Phase:** Through which the study design, sample size, inclusion and exclusion criteria, tools for data collection were selected and developed. Face and content validity of the study tools were tested by a panel of experts in the field of medical surgical nursing and rheumatology. Developing a preliminary draft of the study intervention was done.

**Implementation Phase:** In which a pilot study, pre-intervention assessment of patients' baseline profile, perceived self-efficacy was done and implementing the self-care instructions were conducted. The pre-intervention assessment included assessment of the socio demographic variables of the study sample and medical data were done using the structured interview questionnaire. As well as the self-efficacy as perceived by the patients with rheumatoid arthritis were assessed through the ASES. This phase started from the beginning of March 2014 to the beginning of June 2014.

**Evaluation Phase:** Finally for evaluating the effect of self-care instructions on perceived self-efficacy among patients with RA, further assessment of subjects' outcomes was carried out after two months from the completion of the implemented self-care instructions and again after another two months from the first post assessment (4 month follow up). This assessment was done by using the arthritis self-efficacy tool during follow up at the outpatient clinic. Also, the subjects were encouraged to follow the self-care instructions properly and to take precautionary actions to avoid periods of increased activity, or flares. During these periods the patients were followed up by either scheduling a meeting with them or by telephone calls to ensure that compliance with self-care instruction and misconception were

clarified. This phase took 4 months from the beginning of May 2014 to the beginning of October 2014.

**Self-Care Instructions:** Pamphlets on how to live with arthritis were prepared by the researcher to increase the self-efficacy perceptions of the study subjects. Core content areas were divided into six sections, which were: (1) Mental preparation; (2) Pain management strategies; (3) Exercises (4) Hot and cold packs applications; (5) Nutrition and (6) Proper use of medication. At the end of the sessions, each subject was given a copy of self-care educational instruction pamphlet related to RA aiming at improving self-efficacy level through individualized teaching (Table 1).

Self-care instructions content was revised by the panel of experts. Study subjects were classified according to age, Gender and educational level. Education was provided in a room in the ward and patients were divided into groups of 2-4. Each subject received a total of 12 hours for 6 sessions, with open discussion at the end to discuss any problem or concern. Instructions were provided through oral presentation and the use of pamphlets, video films and demonstration/ re-demonstration for the exercises. Pamphlets were prepared by the researcher to present information for subjects in a simple way using simple pictures which help reminding subjects of important information during hospitalization and after discharge.

**Data Analysis:** The collected data were analyzed using SPSS version (20). Relevant statistical analysis was used to test the obtained data. Descriptive and inferential statistics were done such as frequency, percentage, mean, standard deviation and independent t- test. A p-value of equal to or less than 0.05 was considered statistically significant.

## RESULTS

Statistical findings of the current study were presented in the following order: The first section is devoted to description of the socio-demographic characteristics and medical back ground variables. The second section presents the result that answered the research hypothesis in relation to variables: arthritis self-efficacy pain scale, function scale and other symptoms scale.

### Section I:

#### Sociodemographic Characteristics of the Study Subjects:

The majority of patients were mainly females, married (80 and 93.3%) respectively with the age between 30 and 50 and a mean of  $39.7 \pm 6.5$  years. In addition almost half of the study subjects (53.3%) can read and write. Regarding occupation (46.7%) were housewives, while (43.3 %) were laborers, almost half of the sample were living in urban areas (53.3%) and (83.3%) were non-smokers. The majority of the study subjects (93.3%) reported that they were not practicing any exercises related to their arthritis.

**Medical Background Related Variables:** Arthralgia, continuous fatigue, stiffness, inability to perform activities of daily living (ADLS) and joint swelling were the most common complaints reported by the study subjects (97, 90, 83, 80 and 76%) respectively (Fig. 1).

The number of prescribed drugs for the study subjects ranged between 1 to 4 drugs with a mean of  $(2.5 \pm .47)$ . Cortisone was the most common drug prescribed for the majority of patients (76.6%) followed by DMARS (Arthifree), methotrexate and NSAIDs (70, 66.6 and 53.3%) respectively. Regarding the presence of comorbidities: diabetes, HCV and hypertension were the most common chronic illnesses encountered by the study subjects (10, 6 and 6%) respectively.

### Section II:

**Self-Efficacy Scores:** Unpaired t-test revealed statistical significant differences within the study group regarding the mean self-efficacy scores including pain, function and other symptoms sub- scales, in the pre-intervention, 2 month post intervention and 4 month follow up ( $p = 0.00$ ).

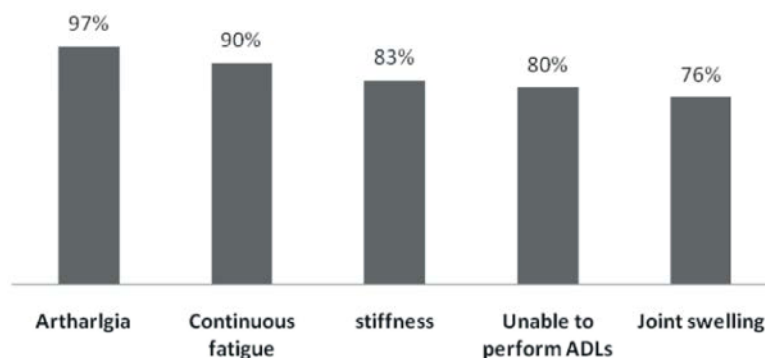


Fig. 1: Complaints with the disease

Table 2: Self-efficacy sub-scales mean scores among the study subjects (n=30)

Self-efficacy variables	Pre-intervention	2 month post-intervention	4 month follow up
Pain	$24 \pm 9.78$	$29.67 \pm 10.32$	$33.17 \pm 9.61$
t-test	$13.41(0.00)^*$	$16.0(0.00)^*$	$18.9(0.00)^*$
Function	$63.3 \pm 16.86$	$62.9 \pm 17.8$	$65.5 \pm 16.5$
t-test	$20.56(0.00)^*$	$18.41(0.00)^*$	$21.75(0.00)^*$
Other Symptoms	$38.06 \pm 11.89$	$37.36 \pm 12.6$	$38.4 \pm 8.211$
t-test	$17.53(0.00)^*$	$16.01(0.00)^*$	$25.62(0.00)^*$

\* Significant at the  $p = 0.05$  probability level, Ns not significant.

Table 3: Comparison of self- efficacy total mean scores at pre-intervention, 2 month post intervention and 4 month follow up among the study subjects (n=30)

Variable	X $\pm$ SD	r/p value
Pre-intervention	$125.37 \pm 29.93$	- Pre-intervention and 2 month post intervention: $.503(.005)^*$
2 month post-intervention	$130.23 \pm 32.45$	- Pre-intervention and 4 month follow up: $.602(.000)^*$
4 month follow up	$137.06 \pm 29.23$	- 2 month post intervention and 4 month follow up: $.753 (.000)^*$

\*Significant at the  $p = 0.05$  probability level.Ns= not significance.

Table 4: Comparaision between arthritis self-efficacy mean scores in the pre- intervention, 2 month post-intervention and 4 month follow up and the socio demographic characteristics (n=30):

Variables	X ± SD		
	Pre-intervention	2 month post-intervention	4 month follow up
Self-efficacy			
Age:			
30-39	127.06±32.32	136.52±33.24	145.41±31.33
40-50	123.51±27.74	122.0±30.68	126.15±22.9
t/f (p)	.571 (.573)	1.46 (.15)	2.05 (.05)*
Gender:			
Male	129.83±25.47	140.50±29.04	138.33 ± 33.25
Female	124.25±31.33	127.66±33.31	136.32 ± 82.91
t/f (p)	.403 (.365)	.863 (.396)	.527 (.61)
Level of education:			
Read and write	113.56 ± 29.38	123.12 ± 36.64	126.18 ± 30.89
Primary	152.0±30.34	141.0±22.51	151.0 ± 18.3
Preparatory	149.66±13.42	136.0 ± 26.6	138.0 ± 29.6
Secondary	110.5± 36.49	124.25±38.16	137.0±36.0
Bachelor	141.0±20.57	150.0 ± 19.57	164.25 ± 11.92
t/f (p)	2.43 (.074)	.649 (.633)	1.63 (1.96)
Exercise:			
Practice	106.5±17.76	106.5±17.76	145.0 ± 14.12
No practice	131.92±32.78	131.92±32.78	136.5 ± 30.09
t/f (p)	1.59 (.123)	.347 (.73)	.071 (.94)

\*Significant at the p = 0.05 probability, NS =Not significance

There is a significant statistical differences among the study subjects regarding the total self - efficacy mean scores at the pre-intervention and 2 month post intervention (.503 at p= .005), pre-intervention and 4 month follow up (.602 at p= .000) and 2 month post intervention and 4 month follow up (.753 at p= .000).

According to table (4) there are no significant differences between self-efficacy total mean scores and socio- demographic characteristics except for the variable of age and 4 month follow up.

## DISCUSSION

In line with rapid changes in the society, health care changes too. In RA shows that involving the patient as an individual has a relevant impact on treatment outcomes with regard to safety, effectiveness and costs. This approach empowers patients to take an active role in treatment strategies. To stimulate this active role, different activities can be distinguished such as patient education, empowerment self-care activities and self-efficacy. Reviews on the effectiveness of self- care compared with more traditional health care show that the degree to which patients are more involved in the care has a significant impact on improvement of health outcomes [31]. So, RA education is cornerstone but it must be transferred to action or self-care activities to fully benefit the

patient. Healthcare providers especially nurses' educators should emphasize the importance of patients becoming active and knowledgeable participants in the care.

Therefore, the aim of this study was to evaluate the effect of self-care instruction on self-efficacy among patients with RA at a university hospital in Cairo. To fulfill the aim of this study, it was hypothesized that patients with rheumatoid arthritis who will receive self-care instructions will demonstrate higher levels of self-efficacy. A total number of 30 patients were identified as eligible candidates for the study. Discussion of results obtained from the studied subjects was spresented in two main parts as follows: (a) Socio-demographic characteristics and medical background data and (d) Data related to arthritis self-efficacy.

**Socio-Demo Graphic Characteristics and Medical Background Data:** According to socio-demographic characteristics: more than three quarters of the study subjects were female, their age ranged from 30 years to 50 years, married, approximately more than half reported living in urban area, around half of them were housewives and more than half of them were hardly able to read and write. In relation to smoking, the majority of the study subjects were nonsmokers. In Egypt, smoking among females is much less prevalent than men. Cigarette smoking is one of the major environmental factors

suggested to play a crucial role in the development of several diseases. More recently, it has been reported that smoking is involved in the pathogenesis of certain autoimmune diseases such as RA [32, 33].

Regarding exercise; the majority of the study subjects were not regularly practicing exercise. This may be due to the presence of many factors that may be contributing to less practicing of exercise such as low educational level, lack of health awareness about importance and benefits of exercise or the majority are busy in the home duties and having no time for practicing it. Also, it might be due to the fact that the patients in the present study hesitate to do exercises because many complaints act as obstacles for practicing exercise such as pain, swelling, stiffness and continuous fatigue. Many researchers concluded that low physical activity is an important and reversible characteristic of RA. It has been demonstrated that RA patients do less exercise than the healthy counter parts; more than 80% of RA patients are physically inactive in some countries. The extreme physical inactivity of RA patients' becomes a vicious circle in terms of health and disease progression. Thus, it has become apparent that encouraging physical activity is an important and essential part of the overall treatment of RA [34].

In relation to signs and symptoms of RA, almost all the study subjects had the classical signs and symptoms that are mostly characteristic of RA such as arthralgia, continuous fatigue and stiffness, unable to perform ADLs and joint swelling. Many authors stated that arthralgia, fatigue and tiredness were found in approximately all of the studied subjects, while joint stiffness was present in a lesser percentage. Proliferation of the synovial membrane produce edema and eventually pannus formation which destroys cartilage and the bone is eroded. This result in joint stiffness, arthralgia and arthritis which leads to continuous fatigue that reflects on performing daily activities, resulting disability significantly contributes to the burden of disease. Due to the multiple effect of the signs and symptoms of RA, other aspects of the individual life may be negatively affected including the psychological and social functions [8, 21, 35, 36].

The main drug group for RA is NSAIDs, Steroids, DMARDs and biological therapies, the difference of treatment plan may reflect variations in severity of the disease in patients and the treatment protocols. The majority of drug groups prescribed for study subject were corticosteroids; DMARDs and NSAIDs. These medications were prescribed because they act on the immune system to slow the progression of RA thus resulting in suppression of signs and symptoms of the disease [37].

**Data Related to Self-Efficacy:** This part presents the arthritis self-efficacy in relation to variables such as: pain, function and other symptoms. Self-efficacy is defined as people's beliefs about their capabilities to produce levels of performance that influence events that affect the patient's lives [30]. Thus, Self-care educational instruction are important as a part of RA management, these techniques includes mental preparation, pain management strategies, exercise, cold and heat applications, nutrition and proper use of medications, to decrease inflammation, reduce pain intensity, minimize joint damage and increase physical fitness and consequently may highly impact patients self-efficacy.

**Regarding First Subscale:** Self-efficacy pain scale, there was statistically significant differences between the total mean score of pre-intervention, 2 month post intervention and 4 month follow up in arthritis self-efficacy tool. The decreased pain intensity, indicating higher self-efficacy regarding to pain and its clinically relevant effect which may be due to the self-care educational instruction that the patient received that help in reducing pain, fatigue and help patient to perform activities of daily livings in a better way. So, the patient's education for RA should become an integral part of the total patient's care. These results were supported by many authors who found that among study subjects slight increase in self-efficacy for pain in response to instructional guidelines. Also, showing effectiveness of the educational program on decreasing pain intensity on the study group rather control group [28, 35, 38, 39].

**As Regards to Second Subscale:** self-efficacy function scale, the total mean score increased in the 4 month follow up which indicates improvement in functional ability after implementing self-care instruction. The Royal Australian College of General Practitioners (2009) mentioned that the self-management techniques, helps patients with RA to cope with pain, disability to maintain workability and general functionality [40-42]. Therefore, it is important that the abilities of RA patients to perform their tasks is enhanced through strengthening their function and pain self-efficacy by self-care instruction regarding medical treatment, special exercises and other pain relieving strategies. In the same context, many authors reported that the patients may improve their levels of self-efficacy by participating in the intended behavior or task, this leads to experiences of success which considered the most effective way to develop a strong sense of self efficacy [43, 44]. Another author reported that self-efficacy regarding function were increased through 1<sup>st</sup> assessment, 2<sup>nd</sup> assessment and 3<sup>rd</sup> assessment of the study subjects

which indicate improvement in ASE for the study group. The study subjects revealed satisfaction with improved functional ability which was motivating them for further practice, they also became able to organize the daily work activity and scheduled fixed periods of rest that helped them to control the capability to achieve and accomplish household activities [23, 35].

**Third Subscale:** In terms of self-efficacy of other symptoms including fatigue and psychological status, the total mean scores of pre intervention, 2 month post intervention and 4 month follow up revealed increase in self-efficacy. In this study, it was evident that at the first assessment, the study subjects verbalized words denoting frustration and worry because of the impact of RA on the entire lives, they were motivated throughout the sequential sessions to overcome these condition by performing self-care instruction and receiving the prescribed medication to decrease the symptoms of RA which helped them to socialize with their friends and family members and achieve better ways of meeting their life challenges. This finding coincides with a study performed to investigate the impact of self-management techniques. The study revealed that ASES for other symptoms showed statistically significant differences between control group and study group after receiving and implementing self-management techniques [35,40, 41].

Overall of results of this current study, there is highly significant improvement in study subjects in self-efficacy after self-care instruction implementation as evident by ASE scores. So, the result of this study supported the hypothesis which expected that the patients who will receive self-care instruction will show higher levels of self-efficacy. Therefore, the result of the present study shows that the suggested self-care instruction is effective in the management of RA patients in comparison with pre intervention.

### CONCLUSIONS

The unpredictable course and varying disease activity of RA may cause patients to view the disease as uncontrollable, leading to lower self-efficacy expectations about the “self-care” of the consequences of the disease. Scientific opinions agreed that drugs are not the only primary method in treatment of RA as many believe. This, in turn, can lead to increased perceptions of pain and reduced efforts to cope with the consequences of the disease or to engage in daily activities. As a result, health status will further deteriorate. Therefore, there are self-care activities if followed by the patient, the pain,

fatigues will be reduced. So, Patient education becomes very important in order for the patient to manage self-care. Educational interventions aimed at strengthening self-efficacy expectations about managing pain and other physical or psychosocial consequences of the disease may lead to better self-care and, eventually, better health status. Intensive, systematic, tailored and planned education and support by nurse results in an increase in patients' self-care behavior. The nurse is probably the most important component of the health team, because nurses are the patient's primary advocate for pain reduction or relief and improved functional status of the patients. In other words, it seems that if self-care education is added to the routine cares provided to these patients by nurses, it can improve health outcomes.

### RECOMMENDATIONS

Based on the findings of the present study, the following recommendations are suggested:

**Recommendations Related to Patients:** Establish a center for the patient education with RA provided with teaching aids and facilities to teach patients and their families' ways to live with RA. Self-care educational program should become an integrated part of the total management of RA patient.

**Recommendations for Further Medical Team and Hospital Administrators:** (1) A written policy on self-care instruction describing basic standards is recommended to be established. (2) Nursing curricula should integrate the concept of self-care and patient education. (3) Nurses and doctors must coordinate their efforts in educating the patients.

**Recommendations for Further Researches:** Study of long-term effects of self-care educational instruction need to be further studied. Replication of the study on a larger probability sample selected from different geographical areas in Egypt is recommended to obtain more generalizable data.

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