- *Basic Research*

The Effect of Self-Care Support Program on Knowledge, Health Status and Sleep Disturbance Among Patients with Fibromyalgia

Rasha Fathy Mohamed[1], Safaa Mohamed Hamed[2], Watanya Kamal Atya[3]

[1,2]Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt.[3,] Lecturer of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt
*Corresponding author: e-mail: safa.mahmoud@fnur.bu.edu.eg, e-mail: rashafathy299@gmail.com

Abstract

Context: The second most common rheumatic disease is fibromyalgia, which is a non-articular type of rheumatism marked by persistent widespread musculoskeletal pain and numerous pressure sore spots. These symptoms have a significant negative influence on the patients' physical, mental, and social well-being. **Aim:** To evaluate the effect of self-care support program on knowledge, health status and sleep disturbance among patients with fibromyalgia. **Methods:** A quasi-experimental research (pre/post test) design was employed on a sample of 63 patients diagnosed with fibromyalgia, selected purposively recruited from the rheumatology outpatient clinic, at Benha University Hospital. The study utilized three research instruments: A structured patients' interviewing questionnaire (Tool I), the fibromyalgia impact questionnaire (Tool II), and the Pittsburgh sleep quality scale (Tool III). **Results**: Showed that the total knowledge mean score , increased with highly statistical significance post one month and follow up of self-care support program implementation at p = 0.000, also fibromyalgia impact questionnaire (FIQR) total mean score of 82.206 ± 10.986 before implementation, decreased significantly to 53.737 ± 8.363 post one month and 21.590 ± 1.712 follow up post three month of self-care support program implementation , which indicating an improvement in patient health status. Regarding quality of sleep, the total mean score for sleep quality decreased statistically significantly one month after implementation to32.841 ± 7.575 and at follow up post three months of program implementation to 27.079 ± 5.555 compared to 68.936 ± 7.99 pre implementation, which indicates better quality of sleep. **Conclusion:** Implementing self-care support program for patients with fibromyalgia improved knowledge, health status and reduce sleep disturbance.. **Recommendations:** Educational program for patients to raise their self-care strategy about fibromyalgia related factors should be a priority to ensure early diagnosis of the disease and improve patients' outcomes**.**

Keywords: Fibromyalgia, Health status, Self- care support program, Sleep disturbance,

Introduction:

Widespread musculoskeletal pain without external triggers characterizes the chronic condition known as fibromyalgia FM. Comorbidities include insomnia; chronic fatigue syndrome, anxiety, and depression are common among fibromyalgia patients. Patients are incapacitated by their pain symptoms and other related diseases [1]. Fibromyalgia affects 2.7% of people worldwide, with women over 50 experiencing higher rates of the condition. They experience joint stiffness, aches, and diffuse musculoskeletal pain that is related to fatigue, anxiety, restlessness, headaches, and irritable bowel syndrome. In addition, they could feel numbness and subjective swelling in periarticular and arthritic sites [2].

Functioning at home or at work can be hampered by the fibromyalgia-related complications of pain, exhaustion, and poor sleep. Depression and anxiety connected to one's health might also emerge from the frustration of coping with an often misdiagnosed ailment. The treatment aimed to improve the patient's life quality by lowering symptoms through medication, self-care techniques, and lifestyle modifications. Drugs can feel better and improve sleep. Anti-seizure medications, pain relievers, and antidepressants are frequently prescribed treatments for fibromyalgia. [3]

Exercise is a crucial part of FM's non-pharmacological therapy techniques and helps to reduce the symptoms of the illness. Aerobic exercise and, to a lesser extent, strengthening exercises have received general support from the evidence. Stretching is a type of therapeutic kinesthetic exercise that helps realign posture and alleviate stress by restoring range of motion, functional muscle length, and flexibility. Exercises for stretching muscles can be a simple measure of a self-care plan to reduce and stabilize fibromyalgia symptoms due to their simplicity of execution and tolerability. Regular exercise can boost mood, increase sleep, and reduce fatigue. [4]

Self-management refers to a person's capacity to monitor their well-being and influence the emotional, behavioral, and cognitive responses necessary to ensure an acceptable standard of living. The specifics of the self-management skills required vary among definitions. However, there is broad agreement that people who are self-managing actively develop, utilize, and maintain the necessary abilities in their daily lives. The Revised Fibromyalgia Impact Questionnaire (FIQR) can be used to assess the severity of FM symptoms and patients' functional capacity. Self-management is a complex process, as well. Thus, self-management support should encompass a variety of areas, giving people the best chance to learn what they need to know to properly manage the behavioral, cognitive, and emotional effects of chronic illness. [5]

Significance of the study:

Diffuse musculoskeletal pain is a hallmark of the complicated, multifactorial illness known as fibromyalgia. It is frequently linked to cognitive symptoms, weariness, psychiatric comorbidities, and sleep disturbances. The frequency of FM varies globally, ranging from 0.2% to 8%. 1.9% of chronic liver disease patient in Egypt had fibromyalgia, according to a study that examined the frequency of the condition in cohorts of patients with coexisting conditions. Patients with rheumatic disorders had a higher prevalence rate; among those with rheumatoid arthritis (RA), the frequency of FM was determined to be 21%. [6] According to [7], additional issues commonly observed include poor sleep quality among fibromyalgia patients, with reports indicating a range of 70% to 92.9%. These individuals typically perceive their sleep as light and non-renewing, as noted by [8]

Aim of the study:

These studies aimed to evaluate the effect of Self-care support program on knowledge, health status and sleep disturbance of patients with fibromyalgia through:-

- Assessing patients ' knowledge, health status and sleep disturbance among patients with fibromyalgia.
- Designing and implementing fibromyalgia related Self-care support program
- Evaluating the effect of Self-care support program on knowledge, health status and sleep disturbance among patients with fibromyalgia.

Research Hypotheses

H1: Following the Self-care support program's implementation Fibromyalgia knowledge amongst the patients will increase.

H2: Following the implementation of the self-care support program, the health state will considerably improve.

H3: After implementing the self-care support program, the patients' sleep disturbance would be greatly reduced.

H4: Following one month and three months of the self-care support program, there will be a significant correlation between the knowledge, health state, and sleep disturbance among fibromyalgia patients.

Subjects and Method

Research design

Pre/posttest design was employed in this study as part of a quasi-experimental design. In quasi-experimental research, an independent variable is changed without randomly allocating individuals to different circumstances or sequences of conditions. According to (9), this kind of study may involve measurements for both the pretest and posttest, and it may involve one or more groups. Furthermore, as noted by [10], the quasi-experimental design includes a variety of nonrandomized or partially randomized pre-post intervention studies.

Setting

This research was accomplished at the rheumatology clinic situated within Benha University Hospital. The clinic, which operates two days a week, specifically on Mondays and Thursdays, serves as a single-room facility for monitoring and managing rheumatology patients. Benha University Hospital, a centralized medical facility affiliated to Benha University, serves many of rural and urban communities in Al Qalioubia Governorate, situated in North Cairo.

Sample

Type: Purposive sample of fibromyalgia patients from the previously stated settings was collected. The sample size for the study was determined based on the patient flow rate to the rheumatology outpatient clinic at Benha University Hospital from the previous year, as indicated in the census report.

Male and female adult patients between the ages of 20 and 60 who are able to communicate and collaborate with the researchers are included. Additionally, patients with metabolic syndrome and severe cognitive, physical, or communicative disability are excluded from the study.

Size: Using the Epi info (7) statistical tool, the sample size was calculated at a 95% confidence level and an acceptable margin of error of 5% based on the admissions data from the rheumatology outpatient clinic from the Benha University Hospital Census (2022). The sample size was 63 in total.

Tools for data collection
Structured Patients' Interview Questionnaire
The researchers constructed the questionnaire after conducting a thorough review of relevant literature. The questionnaire developed in Arabic and consisted of two parts:
Part I focused on evaluating patients' socio-demographic features, including age, gender, and other relevant factors. It also includes the assessment of patients' family history, medical history of smoking, duration of symptoms and onset of the diagnosis (pre).
Part II.
This part was adapted from **El-Badrawy, et al. (2023); [11]Abril and Bruce (2019)** [12]. Translated into Arabic and translated back into English language to ensure the accuracy of research instruments. This tool adapted to assess the patient's knowledge regarding fibromyalgia and its self-management. It included 29 MCQs distributed on two main sections. This part is assessed pre implementation of the self-care support program, after one month, and after three months of implementation.
First section included assessment of the patients' general knowledge about fibromyalgia. It included (11 questions) encompassing the definition of fibromyalgia (1 question), Fibromyalgia is considered a pain (1 question), causes (4 questions), clinical manifestations (1question), complications (1 question), diagnosis (1 question), method of treatments (2 questions).

Second section: - Knowledge related to self-care included three parts: **the first part** about nutrition it included (6 questions) the some foods contribute to alleviating the severity of the symptoms (1 questions), There are foods that can increase symptoms (1 questions), drink enough water (1 questions), it is advised to eat nuts (1 questions), food rich in protein and vitamins (2 questions).

Second part:- included patient information about healthy sleeping habits it included (7 questions) the definition of sleep, hours of sleep, sleeping during the day should be avoided, consuming caffeine to avoid, to overcome insomnia and improve sleep, healthy sleep habits, and take a warm bath before going to bed.

Third part: - included patient information about the exercise (5 questions) as the sport type, when starting to exercise, important precautions to do strenuous exercise, breathing exercise is one of the exercises and the best exercises.

Scoring system

The knowledge acquired from patients was assessed and quantified through a scoring system. Each correct response was awarded one point, while incorrect answers received a score of zero. The total achievable score of this questionnaire was 29 points (equivalent to 100%). The studied patients who scored 75% or higher were deemed to have satisfactory knowledge, while those scoring below 75% were categorized as having unsatisfactory knowledge.

Tool II: Fibromyalgia impact questionnaire (FIQR).

It was adopted from **Jones et al. (2002)** [13]to measure health status before and after self-care support program implementation. The FIQR includes three dimension of health status. They are the function domain, overall impact and symptoms. These domains are graded on a 0-10

numeric scale ranging from no difficulty to very difficult. The first dimension includes ten questions asking the patients how difficult to perform activities during the last seven days. The activities included brushing/combing hair, walking constantly for 20 minutes, cooking a meal, vacuum cleaning/sweeping, lifting a groceries bag, climbing one flight stairs, changing his/her bed sheets, sitting for 45 minutes in a chair, and shopping for groceries.

The second dimension involves evaluating the overall impact of fibromyalgia on the patient over the past seven days. This dimension consists of two questions aimed at assessing the extent to which fibromyalgia hindered the patient from achieving their weekly goals and the degree to which the patient was overwhelmed by FM symptoms.

The third domain focuses on assessing the severity of FM symptoms. This subscale comprises ten FM symptoms; including pain level, energy level, stiffness level, sleep quality, depression, memory problems, anxiety, and tenderness to touch, balance issues, and sensitivity to loud noises, bright lights, odors, and cold temperatures. The scale ranges from no symptoms to extreme symptoms and is administered three times: before self-care support program, after one month, and after three months of implementation.

Scoring system

Each item in the scale is scored from 0 to 10. Each subscale was summed, and a subtotal score was calculated. Total score is assigned a score of 100 when the patient is physically independent and does not require much assistance or supervision during performance; minimal dependency had a score of 99–91; mild disability is indicated for a score of 90–75; moderate disability is indicated for a score of 74–50; severely disabled is indicated for a score of 49–25; and very severely disabled is indicated for a score of 0–24.

Tool III: Pittsburgh sleeps' quality scale SQS: - It was developed by **A. Shahid et al. 2012[14]** and used by the researcher to evaluate the sleep quality among patients with FM. The 28-item Sleep Quality Scale (SQS) assesses six dimensions of sleep quality: waking up with difficulty, challenges starting and staying asleep, restoration after sleep, and sleep satisfaction three times before the self-care supportive program, one month later, and three months later.

Scoring system

Participants rate the frequency of specific sleep patterns using a four-point Likert-type scale (0 = "few," 1 = "sometimes," 2 = "often," and 3 = "almost always"). Scores for questions related to criteria 2 and 5 (recovery after sleep and satisfaction with sleep) are reversed before being combined. A higher total score indicates more pronounced sleep issues, with possible scores ranging from 0 to 84.

Procedures

Approval for data collection was obtained from the Dean of the Faculty of Nursing at Benha University, alongside hospital directors and the head of the rheumatology clinic at Benha University Hospital. Clear explanations regarding the study's objectives and nature facilitated the approval process and minimized any potential resistance.

The validity of the tools was evaluated by a panel of five experts from the medical-surgical nursing department at the Faculty of Nursing, Benha University. Modifications were made based on their feedback regarding sentence clarity, relevance, and content coverage. The agreement of experts regarding the structured interview questionnaire was 95%, while for the Fibromyalgia Impact Questionnaire, it was 92%. Reliability testing using Cronbach's alpha

yielded coefficients of 0.845 for the structured interview questionnaire, 0.713 for the Fibromyalgia Impact Questionnaire, and 0.887 for the Pittsburgh Sleep Quality Scale (SQS).

Six patients (10%) of the total investigated subjects, participated in a pilot trial. They were included in the main study sample. The purpose of the pilot testing was to verify the feasibility of the study procedure as well as the clarity, applicability, and time required for filling out each survey item.

All ethical considerations were made at every level of the research. Prior to the execution of the self-care program for fibromyalgia (FM) patients, the Faculty of Nursing at Benha University's Scientific Ethical Research Committee approved the study. A description of the objectives and aim of the study was given to each participant. The ability to leave the study at any time was made clear to the participants. Furthermore, the patients who took part in the study gave their verbal consent. The subjects' privacy and confidentiality were protected by the researcher.

The preparatory phase involved reviewing relevant literature and studies relevant to the research problem, utilizing textbooks, evidence-based articles, online journals, and periodicals. Based on this literature analysis, along with the researchers' experience, expert opinions, and assessment of patients' needs, a self-care program for fibromyalgia (FM) patients was developed. The researchers also created an illustrated Arabic instruction booklet to accompany the program.

Field of work: From March 2023 to October 2023, a period of seven months, was used for the data collection process. Using the above research instruments, the researchers collected data three days a week (morning and afternoon) at the Benha University Hospital's rheumatology outpatient clinic. The questionnaires took, on average, 15 to 25 minutes to complete.

Implementation phase: Patients who underwent FM were enrolled in the fibromyalgia self-care support program. An orientation regarding FM was held in the outpatient room following admission. There were individual or small-group sessions. Four sessions were dedicated to teaching about fibromyalgia. Every session lasted between twenty and thirty minutes. Four sessions were held to administer this self-care support program:

The first session: The orientation and justification for the purpose and significance of the educational program, which included knowledge on fibromyalgia, were covered in the first session (the introductory session). it included (the definition of fibromyalgia , Fibromyalgia is considered a pain, causes, signs and symptoms , complications, diagnosis , method of treatments .

The second session involved (Knowledge related to self-care included three part **the first part** about nutrition it included the some foods contribute to alleviating the severity of the symptoms, There are foods that can increase symptoms, drink enough water, It is advised to eat nuts, protein and vitamins rich food. This was a 20-minute session.

The **third session** included patient information about healthy sleeping habits it included the definition of sleep, hours of sleep, sleeping during the day should be avoided, consuming caffeine to avoid, to overcome insomnia and improve sleep, healthy sleep habits. This was a 30-minute session.

The fourth session involved demonstration of appropriate type of sport, when starting to exercise, important precautions to do strenuous exercise, breathing exercise. The patient requested to perform each exercise ten times, and it took one minute to complete. This was a 30-minute session. There were three training sessions every week.

All patients received the same program, with the exception of its simplicity. At the conclusion of each session, the booklet was given to the patients under study. Individual instruction, group discussions, demonstration, and re-demonstration were among the

instructional strategies used. A handout in color print, a Microsoft PowerPoint presentation, animated images, and videos were used as visual aids.

Evaluation phase: The researcher assesses the program's influence on patient knowledge using the Fibromyalgia influence Questionnaire (FIQR) as soon as the self-care support program is implemented. (State of health), Pittsburgh sleep quality index. The researcher employed SQS with the same research instruments. Additionally, these instruments were employed to assess the program's effects one month and three months after it was implemented.

Limitation of the study

A small sample size was one of the study limitations, which reduces the generalizability of the results.

Statistical analysis of the data:

The data collection, coding, computerization, tabulation, and analysis were conducted using the Statistical Package for the Social Sciences (SPSS), version 21 (SPSS Inc., Chicago, IL). Descriptive statistics, such as mean, standard deviation, frequency, and percentages, were employed. Statistical tests included the Paired (t) test to compare mean scores within the same sample across different study phases, the Chi-square test for analyzing number and percentage distributions, and the Spearman correlation test (r) to assess correlations between socio-demographic characteristics and the study sample across different study phases. Statistical significance was determined as follows: $p \leq 0.001$ was considered highly significant, $p \leq 0.05$ was deemed significant, and $p > 0.05$ was considered insignificant.

Results

Table1 demonstrates the frequency and percentage distribution of the FM patients' socio demographic features. This table demonstrate a mean age of 43.5 ± 6.300, 79.3% of the patients were in the age category ≥ 40 years, also the majority (92.1%) were females , most of them (88. 9%) were married , Regarding residence more than half (57.1%) was from an rural areas .Also(52.4%) was secondary education , (55.6% , 54%) of them employee, although, have family history with fibromyalgia As well (84.1%) were not smoking, (52.4%) had duration of symptom less than two years (47.6%.) onset of diagnosis <2years .

Table 2: illustrated studied patients 'knowledge score about fibromyalgia and self-care management before self-care support program implementation, immediately after one month and at three months follow up of program implementation. The table shows a statistically significant increase in total knowledge mean score immediately after the self-care support program implementation, with highly statistical significance difference between the total knowledge score post one month and follow up of self-care support program at p = 0.000.

Figure 1: illustrates that prior to the commencement of the program, the majority of the patients under study (92%) had poor knowledge. But after a month, the majority of them (87.30%) had good knowledge, and after three months (follow-up), half of them (50.80%) still had good knowledge. A statistically significant differences was revealed between knowledge preprogram, post one month of implementation and three months follow-up (P < 0.000).

Table 3 compares the impact of fibromyalgia on the studied patients throughout the three program implementation phases. It shows a decrease in the mean score of each domain (function, overall and symptoms). Additionally, fibromyalgia impact questionnaire (FIQR) total mean score of 82.206 ± 10.986 before implementation, decreased significantly to 53.737 ± 8.363 post one month and 21.590 ± 1.712 follow up post three month of self-care

support program implementation that indicate an improvement in patient health status (p<0.001).

Table 4 compares of patients' sleep quality before, after one month and after three months of program implementation. The table shows a total mean score for sleep quality decreased statistically significantly one month after implementation to32.841±7.575 and at follow up post three months of program implementation to 27.079±5.555 compared to 68.936±7.99 pre implementation, which indicates better quality of sleep at p value =0.000

Table 5: demonstrates the correlation between total FIQR and total sleep quality with total knowledge about fibromyalgia and self- care among patients post one month and follow up post three months. The table demonstrates a negative statistically significant correlation between patients' their total FIQR and total sleep quality with total knowledge and with P-value ≤ 0.05.

Table (1): Frequency and percentage distribution of the studied patients' socio - demographic and medical characteristics (no=63).

Demographic characteristics	No.	%
Age		
18≤30	2	3.2
31≤40	11	17.5
41≤60	50	79.3
Mean±SD	**43.55 ± 6.300**	
Gender		
Male	5	7.9
Female	58	92.1
Marital status		
Single	3	4.8
Married	56	88.9
Divorced	2	3.2
Widower	2	3.2
Residence		
Rural	27	42.9
Urban	36	57.1
Level of Education		
Illiterate	4	6.3
Read&write	22	34.9
Secondary	33	52.4
University	4	6.3
Occupation		
Worker(manual)	26	31.7
Employee	35	55.6
Student & Not working	8	12.6
Family history		
-Yes	34	54
-No	29	46
Smoking		
-Yes	10	15.9
-No	53	84.1
Duration of symptom		
<2years	33	52.4
2-5 years	12	19
>5 years	18	28.6
Onset of diagnosis		
<2years	30	47.6
2-5 years	15	23.8
>5 years	18	28.6

Table (2) means score of the studied patients 'knowledge about fibromyalgia and self-care pre, post and follow up self-care support program implementation

Items	Pre	Post one month	Follow up (post 3months)	T 1 (P 1)	T 2 (P 2)
	X ± SD	X ± SD	X ± SD		
General Knowledge about fibromyalgia	1.254± 1.413	9.825 ± 1.397	8.523 ± 1.543	T: -34.223 P =0.000**	T: -27.567 P =0.000**
Knowledge related to self-care(nutrition)	0.984 ± 1.211	5.444 ±0.713	4.698 ± 0.994	T: -25.182 P=0.000**	T: -18.813 P=0.000**
Knowledge related to self-care (healthy habits and sleep)	1.539±1.776	6.333±0.695	5.396±0.959	T: -19.944 P=0.000**	T: -15.164 P=0.000**
Knowledge related to self-care (physical activity and exercise)	1.460±1.255	4.603±0.524	3.888±0.9000	T: -18.338 P=0.000**	T: -12.482 P=0.000**
Total knowledge score	**5.238 ± 3.109**	**26.206 ± 2.103**	**22.507± 2.442**	**T:-44.333 P=0.000****	**T: -34.670 P=0.000****

T 1(P 1) between pre and post one month
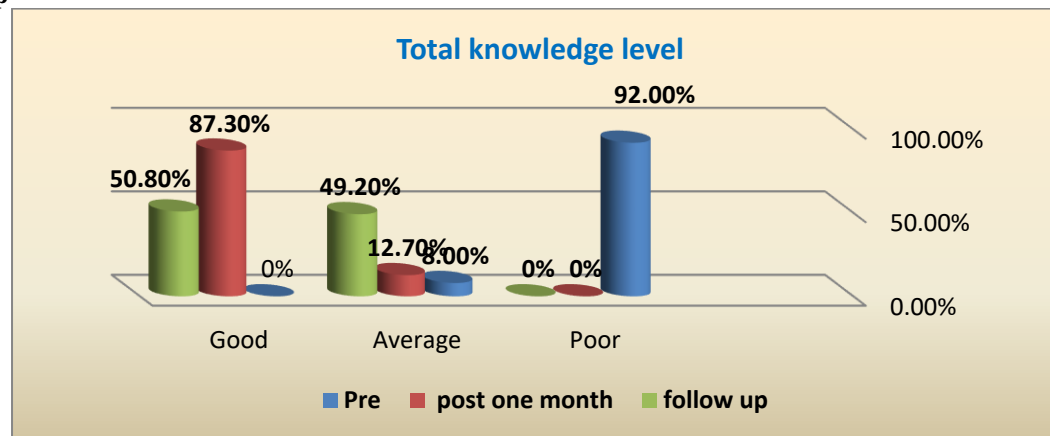**T 2(P 2) between pre and follow up**

Figure (1) comparison of studied patients regarding their total knowledge level about fibromyalgia and self-care pre, post and follow up

Table 3) Mean score of revised fibromyalgia impact questionnaire (FIQR) for the studied patients pre, post and follow up self-care support program implementation (no=63)

FIQR	Pre program	Post one month	Follow up (Post 3 months)	T 1 (P 1)	T 2 (P 2)
	X ± SD	X ± SD	X ± SD		
Domain 1: Function Subtotal score	26.287±11.045	17.851±8.583	6.550±0.4906	T:4.789 P<0.001**	T:19.735 P=0.000**
Domain 2: Overall Subtotal score	15.825±1.040	10.269±0.745	4.222±0.812	T:34.465 P=0.000**	T:69.790 P=0.000**
Domain 3: Symptoms Subtotal score	40.095±1.046	25.615±0.993	10.817±1.059	T:79.652 P=0.000**	T:156.001 P=0.000**
Total FIQR score	**82.206±10.986**	**53.737±8.363**	**21.590±1.712**	**T:16.366 P<0.001****	**T:43.272 P=0.000****

T 1(P 1) between pre and post one month
T 2(P 2) between pre and follow up

Table 4) Comparison of Mean and standard deviation of sleep quality scale for the studied patients pre , post and follow up self-care support program implementation(no=63)

Item	Pre program	Post one month	Follow up	T 1(P 1)	T² 2(P 2)
	X ± SD	X ± SD	X ± SD		
Total score of Sleep quality scale (SQS)	**68.936±7.99**	**32.841±7.575**	**27.079±5.555**	T:27.413 P=0.000**	T:37.765 P=0.000**

T 1(P 1) between pre and post one month
T 2(P 2) between pre and follow up

Table (5) Correlation between total knowledge of fibromyalgia, total FIQR, and total sleep quality among patients post one month and follow up of self -care support program implementation. (no =63).

Items	Total knowledge			
	Post one month		Follow up (post 3 months)	
	R	P	r	p
Total FIQR	**- .255**	**.044***	**-.262**	**.038***
Total SQS	**-.322**	**.010***	**-.214**	**.093***

Discussion

Fibromyalgia (FM) is a chronic, multifaceted illness characterized by pain, exhaustion, and difficulty focusing **(Pearson et al. 2020)** [15]. Fibromyalgia syndrome (FMS) is associated with decreased social functioning, diminished mental health, and lower quality of life (QOL). Engaging in exercise and achieving higher physical functioning can result in improved mental, social, and overall health, along with reduced levels of anxiety and depression **(Croucamp & Smith, 2023)** [16]

The present study presents the socio-demographic profile of Fibromyalgia patients, indicating that more than half of the sampled individuals were aged 40 years or older, with an average age of 43.5 ± 6.300. Moreover, the majority of participants were females, married; residing in rural areas, and over half of them had completed secondary education and were employed. Although, have family history with fibromyalgia As well were not smoking, with half of them had duration of symptom less than two years onset of diagnosis <2years. This finding suggests a connection between advancing age in the study sample and the accumulation of diverse risk factors and physiological changes related to aging, including cartilage thinning, reduced muscle strength, and oxidative stress. Furthermore, the findings indicate a higher likelihood of osteoarthritis development among women, which may be attributed to the hormonal shifts associated with menopause.

These findings are consistent with those of **Chang et al. (2020)** [1] , who conducted a study "validating the Revised Fibromyalgia Impact Questionnaire" finding that the majority of participants were females with a mean age of 51.4 ± 11.7 years. Similarly, **Perea et al. (2022)** [17], who investigated "the impact of online nursing consultation on the quality of life of patients with fibromyalgia" reported a predominantly female participant (98.6%) compared to male participants (2.5%).

Furthermore in the same line with **Omar et al. (2014)** [18] who use "different scales in assessing the FM symptom severity in Egyptian fibromyalgia patients" it was discovered that 79.2% of the patients in the study were married.

The study agreed with **Javed , et al., (2021)** [19] who conducted a study to assess the "frequency of FM among patients with chronic pain ". The study illustrated that females constituted around nearly three quarters of the participants.

These results disagreed with **El-Badrawy, Abd El-Aziz & Sarhan., (2023)** [11] .Who conducted study about " Awareness of Benha University Employees Regarding Fibromyalgia " and The findings indicated that slightly over forty percent of the employees examined were between the ages of 30 and less than 40 years, with a mean age of 36.24 ± 7.89. Moreover, the majority, accounting for 55.0%, were males.

Also the study was incongruent with **Alzabibi , et al., (2022)** [20] study "the epidemiology and risk factors of fibromyalgia" and revealed that above half of the studied sample aged between 18-29 years old (58%) and nearly half of them were males (44.3%). Conversely, with **Whei-Mei , et al., (2018)** [21] who studied " The Lived Experiences of Fibromyalgia in Taiwanese " and revealed a mean age of 47.3 years (range from 22 to 62 years) for the study participants.

Regarding patients' knowledge about fibromyalgia and self-care, the present study observed a significant increase in mean score of total knowledge after one month and follow up showing a statistically significant rise at p = 0.000 subsequent to implementing the self-care support program.

This finding supports the hypothesis that addressing patients' informational requirements regarding fibromyalgia and self-care would be beneficial for maintaining their current state of health. Patients benefit from educational programs that assist them in identifying their

medical condition and changing their behavior to achieve long-term outcomes. Individualized patient education is a supplemental strategy to boost the efficiency of standardized care. By lowering the use of prescription drugs and medical visits, training programs help lower the financial burden on the healthcare system. Programs for education aid in the management and dissemination of precise knowledge regarding the illness and potential scenarios.

Patients' educational activity assists them in identifying their sickness and changing their behavior to produce lasting effects. Educational initiatives aid in preventing the spread of the disease and disseminating precise details about it and potential complications.

This was consistent with **El-Badrawy, Abd El-Aziz, & Sarhan, (2023)** [11]. They reported that while slightly over two fifths of them had average total knowledge about fibromyalgia, over one third had inadequate total knowledge and required educational programs to improve. Also matched with study by **Koca et al., (2019)** [22] studies the fibromyalgia awareness among women and founded the number of correct answer for FM patient increased linearly with the education level.

Similarly, **Zeid and Ibrahim. , (2021)** [6] conducted a study on Egyptian Family Physicians' Knowledge about Fibromyalgia (n=108), which found that over thirsty three percent of the participants exhibited a low knowledge level regarding FM clinical manifestations and various treatment methods. Additionally, approximately one-third had a moderate knowledge level regarding fibromyalgia.

This could be related to false believe and no attendance of any educational program about fibromyalgia. This meant education is crucial for those who have fibromyalgia since it helps them adjust to the disease's consequences and deal with its treatments. In addition, addressing the patient's educational needs may increase their motivation to learn more about their clinical situation by addressing their concerns and questions. Additionally, the implementation of self-care support program and follow-up helps patients retain their knowledge. These findings are supporting the first research hypothesis.

This finding is consistent with the study by **Mendoza-Muñoz et al. (2021)** [2], which examined "the relationship between fibromyalgia knowledge, health-related quality of life (HRQoL), and physical activity" . They found that participants had an overall medium (49%) to high (41%) level of FM knowledge, with the majority having low knowledge in areas related to medicine and energy. Similarly, **Kianmehr et al. (2017)** [23] assessed "the awareness of general practitioners regarding fibromyalgia" and found that more than half of them had low or very low levels of knowledge about FM. The present study aligns with **Pearson, et al. (2020)** [24]who mapped the behavior modification strategies employed in a practice-based program for fibromyalgia self-management and highlighted the need of ongoing support in self managing FM symptoms and treatment.

Concerning to fibromyalgia impact questionnaire (**health status**). It shows a decrease in the mean score of each domain (function, overall and symptoms). Additionally fibromyalgia impact questionnaire (FIQR) total mean score of 82.206 ± 10.986 before implementation, decreased significantly to 53.737 ± 8.363 post one month and 21.590 ± 1.712 follow up post three month of self-care support program implementation , which indicating an improvement in patient health status. ($p<0.001$). It also reflects the necessity to consider the patient's preferences and capabilities Furthermore, it's important to support patients in becoming self-sufficient, learning healthy coping mechanisms, and leading as normal a life as they can.

This finding aligns with the study by **Fonseca et al. (2021)**[25] which conducted "a randomized controlled trial to assess the impact of health education and aquatic physiotherapy on women with fibromyalgia (FM)". Their results indicated that patient education-based strategies can empower individuals with FM to manage their health and lifestyle effectively. Furthermore, they observed significant enhancements in patients' clinical status, pain management, sense of control over their lives, and the overall impact of FM.

This result is agreed with that of **Suélem et al. (2022)** [4], who conducted a randomized controlled trial to evaluate the impact of a physical self-care program on the health status of fibromyalgia patients. Their study demonstrated the positive effects of physical exercise in managing fibromyalgia. Following three months of the program, participants in the study group showed significant improvements in their Fibromyalgia Impact Questionnaire (FIQ) scores and flexibility, while experiencing reductions in feelings of depression and anxiety.

Furthermore, **Galvez-Sánchez and Montoro., (2023)** [26] conducted a systematic review on the impact of psycho education on the clinical, emotional, and functional outcomes of fibromyalgia patients. Their findings revealed that individuals with fibromyalgia and persistent diffused pain exhibited better responses to a combined exercise and education intervention compared to education alone. In comparison to education alone, the exercise-education program significantly enhanced the health status of patients with fibromyalgia and chronic diffused pain. These findings are supporting the second research hypothesis.

Regarding of patients' sleep quality, the current study demonstrates that, compared to 68.936±7.99 prior to program implementation, the overall mean score for sleep quality decreased statistically significantly one month after implementation to 32.841±7.575 and at follow-up three months later to 27.079±5.555, indicating improved sleep quality at p value = 0.000. The results of additional studies **(Andrade et al., 2017**[26]**; Bircan et al., 2008**[28]**; Ericsson et al., 2016;** [29]) are in line with this outcome. In their **2002 study, Jones et al.** [13], looked at the effects of sleep-related self-care assistance for FM patients and discovered that it significantly increases subjective sleep quality, sleep efficiency, and total sleep quality while also lowering daytime dysfunctions and sleep disruptions. This outcome was consistent with a research by **Wang & Boros, (2021)** [30] who conducted a systematic review to study the effect of physical activities on sleep quality and reported significant improvements in sleep quality after intervention.

This result corroborated the findings of **Fonseca et al. (2021)** [25] which demonstrated that over the research period, there were significant changes in both functional capacity and sleep quality. The third research hypothesis is supported by these results.

About the relationship between overall FIQR, overall sleep quality, and overall fibromyalgia and self-care knowledge. The current study demonstrates a statistically significant negative correlation at a P-value ≤ 0.05 between the patients' total FIQR and total sleep quality with respect to their total knowledge. These findings suggest that the patient's health state (FIQR) and sleep score declined as their level of knowledge and ability to carry out daily tasks increased. The fourth research hypothesis is being supported by it.

This outcome was consistent with research done in **2023 by Smith and Croucamp** [16] to study the life quality and physical functioning of patients with fibromyalgia and noted that there is a weak association between role constraints brought on by emotional health and the FIQR, and a significant negative correlation between the two.

Additionally, **Mendoza-Muñoz et al. (2021)** [2] found that patients in Extremadura had a medium-high level of FM knowledge and that there was a direct correlation between FM patients' HRQoL (health-related quality of life) and their knowledge of physical activity. Furthermore, a study presented by **Fonseca et al. (2021)** [25] showed that patients undergoing cognitive-behavioral therapy had improved FM impact as determined by FIQ.

Therefore, there is strong evidence to support self-management therapies for long-term diseases, including increases in mood, participant engagement, self-efficacy, and physical symptoms and function, as well as lower health service costs. Additionally, compared to another group with sleep hygiene, there were significant improvements in several outcomes,

including daily functioning, pain intensity, overall fatigue, and sleep quality. Exercise is advised because it can improve slow-wave sleep, which improves thermoregulation, modifies the circadian rhythm, and changes the amounts of neuropeptides and neurotransmitters in the brain that are crucial for controlling sleep. Additionally, studies show that exercise enhances general health, sickness symptoms, and physical function.

Conclusion: The present study's conclusions reveal the following: Patients with fibromyalgia showed improved knowledge, improved health status, and less sleep disturbance after implementing a self-care support program.

Recommendations:

- Encourage further research to explore the long-term effects of self -care support program on overall patient well-being.
- Provide an educational brochure to patients to raise awareness of treatment regarding fibromyalgia and self-management
o Perform health education program for patients regarding fibromyalgia
o Conduct further studies to investigate associated risk factors of patients with fibromyalgia and adequate intervention
- Replication of the study on a larger sample

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الملخص العربى

تأثير برنامج دعم الرعاية الذاتية على المعرفة والحالة الصحية واضطراب النوم لدى مرضي الالتهاب العضلي الليفي

المقدمة: الألم العضلي الليفي هو ثاني أكثر الحالات شيوعًا بين الأمراض الروماتيزمية، ويمكن اعتباره شكلاً من أشكال الروماتيزم غير المفصلي الذي يتميز بألم عضلي هيكلي منتشر مزمن، إلى جانب وجود بقع متعددة من التهابات الضغط، مما يعني تأثيرًا كبيرًا على الحالة الجسدية والنفسية والجسديةو الاجتماعية للمرضى.

الهدف من البحث: هدفت هذه الدراسة إلى تقييم تأثير برنامج دعم الرعاية الذاتية على المعرفة والحالة الصحية واضطراب النوم لدى مرضي الالتهاب العضلي الليفي.

نوع بحث: تم استخدام تصميم شبه تجريبي

مكان البحث: أجريت هذه الدراسة في العيادة الخارجية للروماتيزم بمستشفى بنها الجامعي.

العينة: عينة هادفة من المرضى الذين تم تشخيصهم بالتهاب العضلى الليفى (عددهم 63 مرضى).

الأدوات: استبيان الرعاية الذاتية وشمل جزأين:الجزء الأول: يختص بتقييم البيانات الاجتماعية والديموغرافية للمرضى ، والثاني: تقييم معرفة المرضى فيما يتعلق بالرعايةالذاتية لدى مرضى الالتهاب العضلي الليفى ، وثانيا: تقييم الحالة الصحية لدى مرضى الالتهاب العضلى الليفى. وثالثا: تقييم اضطرابات النوم لدى مرضى الالتهاب العضلى الليفى

النتائج: أوضحت أن إجمالي متوسط درجة المعرفة، زاد بأهمية إحصائية عالية بعد شهر واحد ومتابعة تنفيذ برنامج دعم الرعاية الذاتية عند **p = 0.000**، وكذلك متوسط مجموع نقاط استبيان تأثير الفيبروميالجيا (**FIQR**) البالغ 82.206 ± 10.986 قبل التنفيذ، انخفض بشكل ملحوظ إلى 53.737 ± 8.363 بعد شهر واحد و21.590 ± 1.712 متابعة بعد ثلاثة أشهر من تنفيذ برنامج دعم الرعاية الذاتية، مما يشير إلى تحسن في الحالة الصحية للمريض. فيما يتعلق بجودة النوم، انخفض متوسط النتيجة الإجمالية لجودة النوم بشكل ملحوظ إحصائيًا بعد شهر واحد من التنفيذ إلى 32.841±7.575 وعند المتابعة بعد ثلاثة أشهر من تنفيذ البرنامج إلى 27.079±5.555 مقارنة بـ 68.936±7.99 قبل التنفيذ، مما يشير إلى جودة أفضل من النوم

التوصيات: التشجيع على إجراء المزيد من الأبحاث لاستكشاف الآثار طويلة المدى لبرنامج دعم الرعاية الذاتية على نتائج مرضى الالتهاب العضلى الليفى بشكل عام.
- تقديم كتيب تثقيفي للمرضى للتوعية بالعلاج فيما يتعلق الالتهاب العضلى الليفى وإدارة الذات
• تنفيذ برنامج التثقيف الصحي للمرضى فيما يتعلق الالتهاب العضلى الليفى
• إجراء المزيد من الدراسات للتحقيق في عوامل الخطر المرتبطة للمرضى الذين يعانون من الالتهاب العضلى الليفى والتدخل المناسب
- يجب تكرار دراسة مماثلة على عينة كبيرة وأماكن أخرى لتعميم النتائج.