INJNS (37)2 (2024) 10-17

Iraqi National Journal of Nursing Specialties

Journal homepage: https://injns.uobaghdad.edu.iq/index.php/INJNS

Effectiveness of Self-Care Management Program upon Knowledge of Patients with Asthma

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ARTICLE INFO

Article history:

Received: 11/6/2023
Accepted: 24/9/2023
Published: 30/12/2024

Keywords:

Asthma,

self-care management program,

patients' knowledge,

Nursing.

ABSTRACT

Objective(s): The current study aims to determine the effectiveness of the self-care program on asthma patients' knowledge and to find out the relationship between the patients' knowledge and their socio-demographic characteristics

Methods: A pre-experimental study at Allergy and Asthma Center in Al-Diwaniyah Teaching Hospital was conducted from 30th October 2022 to 2nd, May 2023. The study included 85 patients with asthma who were selected by using a non-probability purposive method. The researchers used a patients' knowledge of self-care questionnaire to measure patients' knowledge. The data were analyzed statistically using SPSS version 24.

Results: The study reveals that patients' knowledge in all domains concerning asthma self-care was at a poor level in the pre-test. A dramatic change in patients' knowledge occurred after conducting the self-care program, with highly significant statistical differences (p-value <0.001) recorded between the pre-test and the post-test. The post-test had been done after 3 weeks of the program with remarkable positive improvement in the self-care knowledge of patients with asthma.

Conclusion: The self-care management program was effective in enhancing knowledge of patients regarding self-care management.

Recommendation: Based on the study result, the researchers recommend applying self-care guidelines in allergy and asthma centers of the Ministry of Health in the governorates. Booklets should be designed and distributed to patients regarding self-care management

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فـاعلية برنامج إدارة الرعايـــة الذاتيـــة على معارف مرضى الربـــو

المستخلص

الهدف: تهدف الدراسة الحالية إلى تحديد فعالية برنامج الرعاية الذاتية على معرفة مرضى الربو ومعرفة العلاقة بين معرفة المرضى وخصائصهم الاجتماعية والديموغرافية

المنهجية: تم اجراء دراسة تمهيدية (قبل) التجريبية في مركز الحساسية والربو في مستشفى الديوانية التعليمي. من 30 تشرين الاول 2022 إلى 2 ايار 2023. شملت الدراسة 85 مريضًا مصابًا بالربو تم اختيارهم باستخدام عينة غير عشوائية – غرضية. استخدمت الباحثة استبانة معارف المرضى بالرعاية الذاتية للربو لقياس معارفهم. تم تحليل البيانات إحصائيا باستخدام برنامج SPSS الاصدار 24.

النتائج: كشفت الدراسة أن معارف المرضى في جميع المجالات المتعلقة بالرعاية الذاتية للربو كانت في مستوى ضعيف في الاختبار التمهيدي (القبلي). حدث تغيير جذري في معارف المرضى بعد تنفيذ برنامج الرعاية الذاتية، مع وجود فروق ذات دلالة إحصائية عالية ($p < 0.001$) مسجلة بين الاختبار القبلي والاختبار اللاحق (البعدي). تم إجراء الاختبار البعدي بعد 3 أسابيع من تنفيذ البرنامج مع تحسن إيجابي ملحوظ في معارف الرعاية الذاتية لمرضى الربو.

الاستنتاجات: برنامج ادارة الرعاية الذاتية كان فعالاً في تعزيز معارف مرضى الربو في ادارة الرعاية الذاتية.

التـوصيـات: بناء على نتيجة الدراسة يوصي الباحثون بتطبيق دليل للرعاية الذاتية في مراكز الحساسية والربو التابعة لوزارة الصحة بالمحافظات. يجب تصميم الكتيبات وتوزيعها على المرضى فيما يتعلق بالرعاية الذاتية.

الكلمات المفتاحية: الربو، برنامج ادارة الرعاية الذاتية، معارف المرضى.

Introduction

Prevention of asthma attacks and decrease deaths rates can be achieved by directing patients. There is an urgent need to strengthen the knowledge of the patients with asthma about self-care management so that they can manage their health condition towards this serious disease [1].

Asthma is a diverse disease, typically distinguished by chronic airway inflammation. Airway hyper-responsiveness, mucosal edema, and mucus production are all indications of this chronic inflammatory disease of the airways [2]. Asthma symptoms are characterized by shortness of breath, wheezing, chest pain, and coughing. The severity of symptoms varies from person to person and over time [3]. One of the most important non-communicable diseases (NCDs) is asthma, which is estimated to impact 339 million people worldwide and affects 1 to 18% of the population in various countries. It is a significant contributor to the burden of disease on individuals of all ages around the world, resulting in both premature death (which kills around 1000 people per day) and decreased quality of life [4].

Self-care is defined as studied moves to care for mental, physical, and emotional health. Self-care includes areas as diverse as food, medication, exercise, sleep, and emotion [5]. Asthma self-care includes adherence to medications, use of correct inhalers, avoidance of triggers, monitoring peak flow, and using an appropriate asthma plan. Poor patients' outcomes have been associated with lower adherence to self-care, where less than half of adult patients with asthma have adherence to self-care behaviors [6].

The current study aims to determine the effectiveness of self-care program on patients' knowledge and to find out the relationship between the patients' knowledge about self-care and their socio-demographic characteristics (age, sex, educational level).

Methods

Study Design and Setting

A pre-experimental (one group pretest-posttest) design was used. The study was

carried out from 30th October 2022 to 2nd May 2023. The study was conducted at Asthma and Allergy Center in Diwaniyah Teaching Hospital.

Study Sample and Sampling

A non-probability (purposive) sample was used to select the study sample which consisted of 85 patients who participated in the study. The inclusion criteria were; asthma patients who come to the Allergy and Asthma Center in Al-Diwaniyah Teaching Hospital, patients from the age of ≥18 males and females. While patients who were newly diagnosed and patients with any disability physically or mentally were excluded.

Study Instrumentation

Part I: Socio-Demographic Data form:

This part includes (5) items relative to socio-demographic data: age, gender, marital status, educational level, and occupation.

Part II: Patients' Knowledge of asthma self-care

Developed by Elsaka [7] and aimed to assess the program on the knowledge of patients towards self-care. It contains 48 items divided into 6 domains: medication, coping with asthma, action during an attack, control of environmental factors, preventing recurrent attacks, and diet. The rating score of answers was (1) for the correct and (0) for incorrect answers for positive questions and (0) for the correct and (1) for incorrect answers for negative questions. Knowledge levels were classified into three levels: Poor (<0.5), Fair (0.5-0.75), Good (>0.75).

The Pilot Study

The pilot study was conducted to determine the validity of the study tools on 10 asthma patients who met the criteria of the original study sample before starting with data collection.

Validity and Reliability

The validity of the content of the program and the questionnaire was evaluated by a committee of 12 experts with more than 10 years of experience. Changes and modifications were made according to the experts' suggestions and recommendations; some elements were excluded and others were added. Alpha Cronbach was used as to determine the stability of the questionnaire the results showed an excellent level of stability and internal consistency (0.88).

Study Implementation

The study was implemented at three levels as follows

1. **Preliminary Assessment**: According to the results of the preliminary assessment of asthma patients' needs, their knowledge about asthma self-care, and the review of relevant literature, the counseling program was conducted.
2. **Implementing phase**: The program consists of 3 lectures that were carried out over 3 weeks. Each session was designed for approximately 1 hour, three days a week. Teaching tools were used (lectures, computer, data display screen).
3. **Post-evaluate:** After three weeks of the program presentation asthma outcomes were evaluated by using a self-care knowledge questionnaire.

Ethical Considerations

Approval of the Council of the Nursing College / University of Baghdad and the Committee of Ethics and Sobriety of Scientific Research, and the Diwaniyah Health Directorate were approved their official permission to conduct the study at Diwaniyah Teaching Hospital / Allergy and Asthma Center. In addition to the official consent of the participants.

Data Analysis

The collected data were analyzed and tabulated statistically by using the statistical package application (SPSS) version 24.

Results

Table 1. Socio-Demographic Characteristics for Patients. (N= 85)

Demographic Characteristics		F
Age	18-27	18.8 %
	28-37	23.52%
	38-47	21.17%
	48-57	22.35%
	58-67	10.588%
	68-77	3.52%
	Mean + SD: 41 + 14.33	
Sex	Male	43.50%
	Female	56.50%
Marital Status	Single	24%
	Married	69%
	Divorces	3%
	Widowed	4%
Level of Education	Read And write	4%
	Primary	14%
	Intermediate	23%
	Secondary	15%
	Diploma	19%
	Bachelor's	25%
Occupation	student	4.7%
	Housewife	28.2%
	Employee	48.2%
	Retired	11.8%
	Free Work	7.1%

Table (1) shows that the demographic characteristics of the patients indicated that the majority (23.52 %) of the age group (28 – 37 years) with mean age (41 + 14.33), (56.5%) of the study subject were females, (69%) were married. In relation to the educational level; the figure demonstrates that (25%) of the patients have Bachelor's degree and most of them (48.2%) been employees.

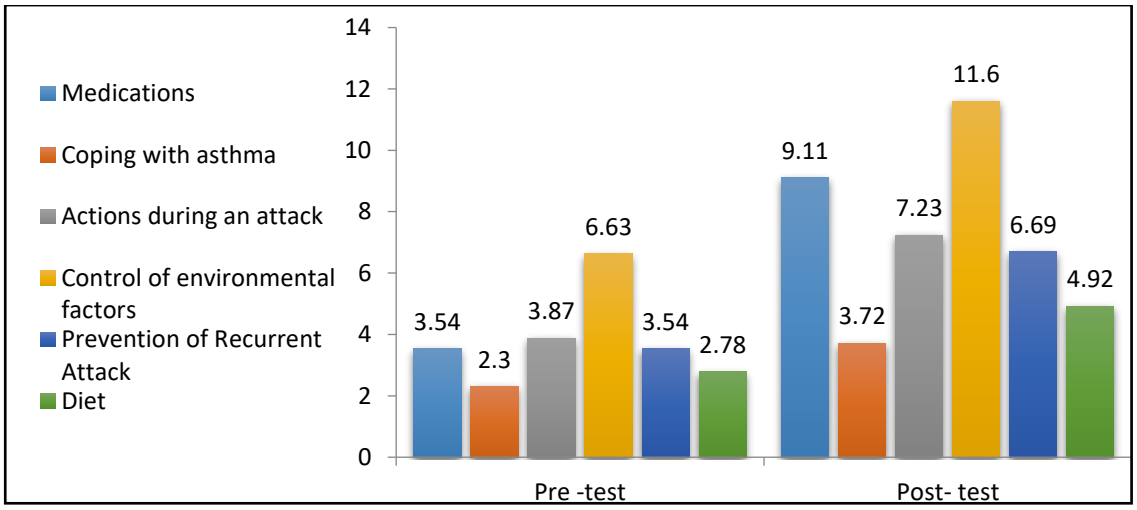

Figure 1. Total Domains of Patients' Knowledge Concerning Asthma Self-Care

This figure demonstrates the mean differences between pre-test and post-test toward patients' knowledge of Asthma self-care domains. Dramatic change in patients' knowledge, all the domains record improvement in self-care knowledge.

Table 2. Patients' Knowledge Differences Between Pretest – Posttest Concerning Asthma Self-Care

Paired t Test					
Items	**Mean**	**Std. Deviation**	**t**	**df**	**Sig. (2-tailed)**
Pre-test	22.68	6.87	33.45	84	0.001
Post-test	43.30	3.63			

T= paired t test**, sig=** significance**, df=** degree of freedom**.**

This table demonstrate highly statistical differences (p-value > 0.001) were recorded between the pre-test and post-test concerning patients' knowledge about self-care management of patients with asthma.

Table 3. Correlation Between Patients' Knowledge with Socio-Demographic Information

Variables		Age	Gender	Marital status	Educational level	Occupation	Total Knowledge
Age	**Correlation Coefficient**	1.000	-.053	.659**	-.119	.152	-.165
	Sig. (2-tailed)	-	.629	.000	.276	.166	.130
	N	85	85	85	85	85	85
Gender	**Correlation Coefficient**	-.053	1.000	.116	-.296**	-.653**	-.211
	Sig. (2-tailed)	.629	-	.292	.006	.000	**.053**
	N	85	85	85	85	85	85
Marital Status	**Correlation Coefficient**	.659**	.116	1.000	-.130	.029	-.233*
	Sig. (2-tailed)	.000	.292	-	.237	.789	**.032**
	N	85	85	85	85	85	85
Educational Level	**Correlation Coefficient**	-.119	-.296**	-.130	1.000	.229*	.663**
	Sig. (2-tailed)	.276	.006	.237	-	.035	**.000**
	N	85	85	85	85	85	85
Occupation	**Correlation Coefficient**	.152	-.653**	.029	.229*	1.000	.184
	Sig. (2-tailed)	.166	.000	.789	.035	-	.091
	N	85	85	85	85	85	85
Total Knowledge	**Correlation Coefficient**	-.165	-.211	-.233*	.663**	.184	1.000
	Sig. (2-tailed)	.130	.053	.032	.000	.091	-
	N	85	85	85	85	85	85

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table (3) showed a significant correlation between patients' knowledge with sex, marital status, and educational level.

Discussion

Regarding the demographic of the patients' data Table (1), showed that the majority of the age group ranged from 28-37, with a mean age of 41±14.33 This result is consistent with a study conducted in Pakistan to determine knowledge and misconceptions about asthma where the mean age was 41.2±14.2 years [8].

According to the patient's gender, more than half of the patients were female, and most of the patients were married (69 This result is consistent with a quasi-experimental a study conducted In Egypt to implement and evaluate the effect of a self-management program on knowledge, practices, and self-efficacy The results of the study showed that the majority of patients were females (53%).

were married (62%) [9]. As for the level of education, the majority of patients have a bachelor's degree (25%), and about half of the patients were employed (48.2%). This result is agreed with study conducted in Ethiopia to assess knowledge, practices, and attitudes related to asthma, where the majority of patients hold a university degree 30% and the majority of them are employees 28% [10].

Patient's Knowledge concerning Asthma Self-Care

The results in Figure (1) showed that the participants in this study, in general, had insufficient knowledge about self-care for all domains in the pre-test, and the post-test showed a positive improvement in the patient's knowledge after the program. This This result is consistent with quasi-experimental study conducted on one group (pre-test and post-test), in Egypt. The results showed a significant improvement in patients' knowledge about self-care after the program in the post-test [11].

In regard to patient's knowledge about the medications, the results showed an improvement in knowledge between the pre-test, and the post-test. This result agrees with a study conducted in Belgrade to assess pharmacist counseling on asthma patients' knowledge of medications, adherence, and asthma, which revealed showed an improvement in the patient's knowledge about preventive treatment, and control treatment, as the patient's answers were less than 50%, but after education, more than 80% correct answers were obtained [12].

In relation to coping with asthma study results showed a lack of knowledge about coping with asthma in the pre-test and positive improvement in the post-test. This study is consistent with a study conducted to assess the quality of life for pulmonary rehabilitation program on adult asthmatic patients The results showed a significant improvement after the rehabilitation program in knowing patients and dealing with asthma [13].

In relation to knowledge toward actions during an asthma attack, the results showed an improvement in the pre-test. This result agrees with a quasi-experimental study conducted in Egypt to evaluate the effectiveness of implementing respiratory guidelines on adult asthmatics the study found low knowledge before the implementation but an improvement in patients' knowledge about dealing with asthma exacerbations after implementing the guidelines [14].

Concerning preventing recurrent asthma attacks study results demonstrate that lack of knowledge in the pre-test and improvement in the post-test. This result is consistent with an experimental study conducted to evaluate the effectiveness of an organized educational intervention on self-care management in asthmatic patients. The results of the study showed an improvement in the knowledge of the intervention group about preventing an asthma attack in the post-test after two weeks of education about asthma [15].

Concerning the control of environmental factors, the results showed a lack of knowledge for this domain in the pre-test, and an improvement in patient’s knowledge after applying for the instructional program in the post-test. This agrees with a study conducted in Egypt the study found that there was a statistically significantly improvement in environmental control between pre-program and post-implementing the program [7].

In relation to asthma patients' knowledge about diet, the results showed an improvement in knowledge degree from (2.78) in the pre-test to (4.92) in the post-test after applying for the program. These results are consistent with a study conducted in India to evaluate the effect of educating asthmatic patients on self-care results of the study showed an improvement in levels of knowledge regarding diet from 12.5% in the pre-test to 72.5% in the pre-test after the educational program about asthma [16]. Generally, the results of the study concerning the total knowledge in all domains were improved after implementing the instructional program. This result is agreed with quasi-experimental (one group pre- and post-test) study conducted in Egypt within this field, where it dealt with measuring patients' knowledge about managing asthma, treatment, preventing asthma attacks, managing when an attack occurs, and diet. The study found a highly significant

difference in the improvement of the knowledge of the majority of patients towards all knowledge domains between the pre-test and the post-test after applying the program [17].

Patient's knowledge differences between the Pretest – Posttest concerning asthma self-care

The current study showed that there were highly statistically significant differences (p-value > 0.001) between the pre and post-test regarding patients' knowledge about self-care management as in Tables (3). It also agrees with a quasi-experimental study conducted in Egypt the results of the study showed that there were significant statistical differences between the pre and post-test after the training intervention (p-value 0.000) [18].

The correlation between patients' knowledge with socio-demographic characteristics:

The results showed significant correlations between patients' knowledge of gender, marital status, and educational level (Table 3). This result agrees with a study in Sri Lanka to evaluate the knowledge, attitudes, and practices of patients and their association with socio-demographic. where the study found a statistically significant correlation between knowledge with age, gender, and educational level of patients [19]. In addition, the results agree with a quasi-experimental a study conducted In Egypt which found a correlation between knowledge, gender, and marital status [10].

Conclusion

The nurse-led self-care management program an important intervention that aims to provide important information that not only informs patients about their health but also helps them to take an effective role in the self-care management of their condition. The application of the instructional program on asthmatic patients has a positive effect in improving their knowledge about self-care management of asthma.

Recommendation

Based on the study result, the researchers recommend applying self-care management guidelines in allergy and asthma centers of the Ministry of Health in the governorates. Booklets should be designed and distributed to patients regarding self-care.

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