■ *Basic Research*

Impact of educational program for patients with gastroesophageal reflux disease on lifestyle change and home remedies

1Hoda Ahmed Hussein Ahmed and 2 Hala Hassan Saied Khalil
1Assistant Professors of Medical Surgical Nursing Department, Faculty of Nursing, Modern University for Technology and Information, Egypt.
2Assistant Professors of Community Health Nursing Department -Faculty of Nursing- El-Fayoum University, Egypt.

Abstract

Introduction: Gastroesophageal reflux disease (GERD) is one of the most prevalent gastrointestinal tract diseases worldwide. GERD influences the patients' quality of life as well as the health care system that can be prevented by identifying its risk factors among the population. It is a strong muscle that keeps stomach acid in your stomach where it belongs. In GERD this muscle is weak. This allows stomach acid to flow upward into the tube that carries food from your mouth to your stomach, affects up to 30% of adults in Egypt populations and is increasing in prevalence. GERD is associated with lifestyle factors, particularly obesity and tobacco smoking, which also threatens the general health. **Aim:** To evaluate the educational program for patient with gastroesophageal reflux disease on outcome undergoing lifestyle change and home remedies. **Design:** A quasi-experimental design with pre- and post-follow up test after 3 months was utilized. **Setting:** The present study was conducted at internal medicine in out- patient clinic in El-Fayoum University new hospital. **Sample:** Convenience sample were used to collect seventy adult patients diagnosed with GERD are randomly from a population of through 278 in six-month in internal medicine clinics were recruited from the previously mentioned settings. **Tools:** Two tools were used to collect the data. First: to assess the patient characteristics self- administered interview questionnaire. Second: A structured reported knowledge lifestyle change, practices and follow up checklist to evaluate patient practices and knowledge. **Results:** 85 % of the patient in the studied reported that they didn't receive any instructions about GERD**,** there was an improvement in the patient knowledge and practices immediately after educational program lifestyle change, home remedies and follow up in all aspects. Also, revealed that the most frequently recognized symptoms that may occur during patient GERD were severe burning sensation in chest (heart burn), usually after eating, which might be worse at night, chest pain, difficulty swallowing, regurgitation of food or sour liquid, sensation of a lump in the throat this is the most common GERD symptoms reported by patient. **Conclusion:** The educational program had an efficient improving patient lifestyle change and home remedies knowledge and practice regarding GERD for patient, with highly statically significant differences in all the tested items between pre/post, follow up program implementation ($P<0.001$). **Recommendation:** Establishment of in -service educational programs and continuous supervision in rural areas to raise knowledge and practice regarding educational patient and developing programs for all adult patient about GERD. The community organizations mobilized to disseminate correct and relevant information about GERD complications to patient, families, and communities. **Keywords:** Gastroesophageal reflux disease (GERD), Educational program, Lifestyle change, home remedies.

Introduction

Gastroesophageal reflux disease (GERD) is a common disease by means of anincidence rate between 50% and 60% between populations. Although the prevalence is lower in Eastern countries. The underlying mechanisms remain unknown, but it is believed that recent dietary and lifestyle changes may report for the increasing occurrence of GERD. For patients with obesity, the pathogenic mechanism is better understood. The increase of visceral fat can generate greater intra-abdominal pressure, a higher frequency of transient lower esophageal sphincter relaxation, and higher likelihood of hiatal hernia. Every part of the above can contribute to the development of GERD(Dent,etal.,2019).

The epidemiology of GERD is mainly based on population-based surveys conducted in the affluent western regions like the United States as well as Europe .In dissimilar studies; 30–40% of the adult western population has been accounted to experience GERD symptoms (heart burn furthermore regurgitation) at least once per week (Yang, etal., 2020).Genetic, lifestyle together with nutrition, alcohol consumption, smoking, intake of NSAIDs, sleeping position along with dietary factors have been suggested to take part in important roles in the development of GRED, however the exact etiology is still unknown (Jarosz &Taraszewska ,2018).

Gastroesophageal reflux disease (GERD) is a condition typically manifesting such symptoms as heartburn as well as acid regurgitation (Dean ,etal 2018) . Even so, symptoms could also include chest pain or evidence of extra-esophageal manifestations such as pulmonary, ear, nose, or throat symptoms. The majority of the patients have no evident mucosal damage at the time of endoscopy (non erosive GERD), whereas a small number of others may have esophagitis, peptic strictures, barrett's esophagus, otherwise esophageal adenocarcinoma (Vakil, etal., 2018).

Esophageal diseases could present with impaired function otherwise pain. The most important esophageal symptoms included heartburn, regurgitation, chest pain, dysphagia, odynophagia with globus sensation. The clinical history is the key for assessment of esophageal symptoms. Important details included weight gain or loss, gastrointestinal bleeding, dietary habits, smoking moreover alcohol consumption (Kahrilas & Hirano, 2019). The clinical history is of great importance for the assessment of esophageal symptoms plus eventually the management of the condition. It is essential for patients with GERD to early distinguish the symptoms of the disease as well as seek medical assistance (Jarosz &Taraszewska,2018).

The clinical presentations for GERD can vary widely, and constellations of symptoms can be generally broken down into typical, atypical, furthermore complicated presentations of the disease. The hallmark symptom of GERD is typically heartburn, a feeling of warmth along with pressure/pain that might radiate to the neck. Additional typical symptoms of GERD include water brash hyper salivation, belching, in addition to regurgitation (Lagergren, etal., 2018).

Diagnosis of GERD is often including upper gastrointestinal endoscopy, moreover air contrast barium esophagrams. Endoscopy is more sensitive for detecting mild or moderate mucosal injury and allows the clinician to objectively classify this injury (DeVault, 2018). Complicated GERD is marked by severe symptoms and usually severe erosive esophagitis, continual pain, odynophagia, esophageal stricture/spasm; the most feared complication of GERD is barrett's esophagus. However, new evidence suggests that GERD with or without barrett's esophagus is a risk factor for esophageal a denocarcinoma (Kraja, etal., 2018). A recent retrospective trial found that the risk of esophageal cancer increases dramatically in patients with longstanding heartburn symptoms. Unfortunately, it is not known whether appropriate treatment of GERD will diminish the risk of cancer (Jacobson,etal., 2016).

Many patients with moderate to severe GERD will require long-term, perhaps lifelong therapy. Neutralization or prevention of gastric acid advance on the esophageal mucosa in order to prevent or facilitate heal esophagitis is the most important approach to therapy. An ideal agent is supposed to provide immediate relief of pain along with distress while providing long-term protection of the esophageal mucosa. None of the therapies available today is ideal, other than a high degree of benefit is able to be obtained if the patient is compliant with the treatment plan and home remedies. (Lee &O'Morain, 2019).

Therapy is frequently graded starting with lifestyle modification, which is considered the cornerstone of treatment. Patients showing slight to moderate symptoms (no dysphagia, hoarseness, oraspiration) may be given instruction on lifestyle modification such as avoidance of tight-fitting clothing, reduction otherwise elimination of alcohol plus tobacco products, avoidance of food which possibly will produce symptoms as well as refraining from eating 4-6 hours prior to sleep. (El-Serag, etal., 2017). Weight loss is helpful if the patient is overweight and sleeping with the head of the bed elevated 4-6 inches to decrease nocturnal reflux is also recommended. The immediate utility for drug therapy in GERD is the rapid relief of the pain and distress of heartburn. However, healing of

esophagitis and prevention of complications by maintenance of remission is important in long-term treatment (Dipalma, 2018).

Dietary modifications are significant first-line therapy intended for patients with GERD. The recommendations of National Institutes of Health and the American College of Gastroenterology for patients with GERD reduce their intakes of fat, coffee, tea, chocolate, alcohol, citrus in addition to tomato products as well as large meals plus implement other lifestyle modification such as discontinue smoking moreover weight reduction.(DeVault& Castell,2019).

Patient education program has been shown to be beneficial in several diseases. To correctly educate patients through gastroesophageal reflux disease (GERD), it is essential to understand how much they already know about their disease.(Urnes ,etal,2018) .The interventions of lifestyle, eating habits,exercise, in addition to psychology plus acupuncture have a synergetic outcome on drug treatment, promotion of therapeutic effects, adherence, as well as alleviation of symptoms(Haruma, et al., 2020).

Significance of the study

Gastroesophageal reflux disease is a common gastrointestinal disease has a risk of morbidity plus mortality from potential complications. GERD is common, accounting for more than 5.6 million physician visits each year (Peery& etal., 2019). From 10% to 20% of adults in western countries moreover nearly 5% of those in Asia experience GERD symptoms at least weekly. The occurrence of GERD symptoms is increasing by about 4% per year, in parallel with increases in obesity rates along with reduction in prevalence of Helicobacter pylori over the past several decades.

Gastroesophageal reflux disease (GERD) is one of the majority common chronic digestive disorders. It results from lower esophageal sphincter dysfunction and/or large hiatal hernia. The prevalence of GERD was reported to be as high as 20% in Western world with much lower rate in Asia (Dent, etal.,2019& Vakil,etal., 2018).The researchers emphasize the importance of educational program to enhance patient's compliance to lifestyle and improve the disease symptoms for patients with GERD.

Aim of the study

This study aimed to evaluate the effect of educational program on patient knowledge, practices and follow up regarding GERD at internal medicine in outpatient clinic in El-Fayoum University hospital through:

1)Assessing the patient knowledge regarding GERD at outpatient clinic.

2) Assessing the patient practices regarding GERD at outpatient clinic.

3)Assessing the patient response regarding symptoms affecting application of lifestyle change and home remedies.

4)Implementing the educational program to evaluate patient's knowledge, practices and follow up regarding GERD at outpatient clinic.

Research Hypothesis

Patient with gastroesophageal reflux disease symptoms, habits, knowledge, and practices will be improved after application of educational program with patient's lifestyle change and home remedies.

Subjects & Methods

Design: Quasi-experimental research design. **Setting:** The study was conducted at internal medicine in outpatient clinic, El- Fayoum University new hospital.

Subjects:

A convenient sample included of 70patients selected randomly from a population of through 278 in six-month both genders undergoing (25%) was recruited outpatient clinic attending the above-mentioned study setting during the study period (six months) from mid -June 2020 to end November 2020 were enrolled in the study. The randomization was performed by including the patient diagnosed GERD on Sunday and Wednesday eligible for inclusion in the study sample in-fulfills the following eligibility criteria.

Inclusion criteria: Both male and female adult patients diagnosed with GERD, their age ranged from 18 to 65 years, willing to participate in the study.

Exclusion criteria: Infectious disease of the gastrointestinal tract, peptic ulcer, gastric cancer, sever digestive disorders and pregnancy, willing not to participate in the study.

Tools of the study:

Tool I : Patient assessment sheet: This tool was developed by researchers, it included two parts:

Part I: Demographic data such as age, gender, marital status, educational level, occupation, residence, BMI, source of information and income.

Part 2: Patients assessment regarding compliance to knowledge and practices of gastroesophageal reflux disease. It was designed by researchers after reviewing current national and international literature. Through assess patient's knowledge, practices, and habits to GERD. Responses pre, post and follow up by satisfactory/unsatisfactory were scored as satisfactory (1) or unsatisfactory (0). More than 60% means good compliance and less than 60% means poor compliance.

Tool II: GERD- health related change lifestyle and home remedies questionnaire:

adopted from (Velanovich,2017) to assess symptoms. Total score calculated by summing the individual score to questions 1-15. Greatest possible score (worst symptoms) =75. Lowest possible score (no symptoms) =0 Heart burn, chronic cough, chest pain, pain in the center, nausea and disrupted sleep calculated by summing the individual scores to questions 1-6. Worst symptoms =30. No symptoms = 0. Regurgitation, difficulty swallowing, asthma, laryngitis and sensation of a lump in your throat score: Calculated by summing the individual score to questions 10-15. Worst symptoms=30. No regurgitation symptoms = 0.

Methods for data collection:

Operational Design:

The operational design for this study included three phases: preparatory, implementation, and evaluation phase.

A-Preparatory phase:

It was based on the assessment data was obtained during the interviewing questionnaires, literature review, knowledge, and attitude assessment.

Designed manual booklet about lifestyle change and home remedies:

The booklet was designed by the researchers and written by Arabic language, printed out regarding the GERD, and given after implementing the program. It was distributed to all patients in lecture group and multimedia group, post assessment and post intervention in the first session.

This booklet contained the illustrative colored pictures and the main points of each training session

_Aim of the booklet: The general goal is to equip the patient with knowledge and practice regarding gastroesophageal reflux disease on outcome undergoing lifestyle change and home remedies.

_ Specific objectives:

- To improve the studied patient knowledge and practice regarding gastroesophageal reflux

disease on outcome undergoing lifestyle change and home remedies

- To help patient to know gastroesophageal reflux disease on outcome undergoing lifestyle change and home remedies.

- To help patient in assessing and managing regarding gastroesophageal reflux disease on outcome undergoing lifestyle change and home remedies.

_Contents of the booklet:

1- Introduction about GRED.
2- Definition of GRED.
3- Types and causes of GRED
4- Signs and symptoms of GRED.
5- Role of culture and beliefs in receiving GRED
6- What food heal the esophagus
7- Pharmacological and non-pharmacological GRED management.
8- Lifestyle change and home remedies.

B-Implementation phase:

Data collection covers the period from mid-June to mid-November2020. The researchers distribute the questionnaires directly to the registered patient and ask them to fill the questionnaires as baseline data. The researchers take care to ensure that all the returned questionnaires are complete. If any questionnaire is found incomplete, the researcher asks the respondent to complete it.

Implementing the educational program:

The program is implemented in four stages as follows:

1- **Pre-test assessment** of patient's knowledge and practice

A pre-test assessment of the patient's knowledge level and practice on lifestyle change and home remedies is carried out before the educational program. The specific educational needs of patients are assessed before the educational program to ensure that it is well-tailored and appropriate to their demands. The pre-test is in response to this need and forms part of the plans to develop and implement a sustainable short course on lifestyle change and home remedies.

The researchers collected all the questionnaires for data analysis. The data collection took two months (from the collection of baseline data to the end of the second post-test and follow up after 3 month) from mid-June to the end of November 2020.

2- Development of educational program content: Designed by researchers after reviewing national and international literatures. To design the program and collect educational material for the lectures group, and multimedia group (CDs, YouTube videos, and audio teaching with power point) on lifestyle change and home remedies, the researchers first carefully read the related literature and searched the YouTube videos. The content is then collected and the educational program developed.

3- Applying and implementing the educational program: Discuss with the patient's program introduction (definition, lifestyle change and home remedies,), signs and symptoms of GERD, types of GERD, and the role of culture and beliefs in receiving lifestyle change and home remedies. The educational program is carried out in three sessions (6 hrs.) for three days in area. Each session takes one hour and half for discussion of content and thirty minutes for the conclusion and asking questions. The topics for each day are as follows: Day 1 (sessions 1):about knowledge and practices of the GERD: Definition, causes, types, symptoms, risk factors, complication, precautions, and is milk good for acid reflux, what triggers acid reflux, what difference between acid reflux and GERD, what food heal the esophagus, what damaged esophagus feel like, does caffeine make reflux worse, are apples good for acid reflux, is yogurt good for acid reflux and is peanut butter good for acid reflux, avoid dietary triggers, avoid lying down after meal or drinking, eat smaller and frequent meals, wear fitting clothes.

Day 2 (sessions 2): Part 2: Educational program about healthy habits such as avoid smoking, alcohol consumption, physical activity, fried food frequency, meat consumption, high fat intake, eating three meals, late evening meals, head of the bed elevation, delayed stomach emptying, avoid medication as aspirin, chew your food thoroughly, eat smaller servings, salt consumption, stay healthy weight, wear loose clothes, social support and life appreciation. Educational program supported with picture for easy understand aimed to improving disease complain. Each patient was given a copy of teaching booklet. Each session found 10 patients take time 20 minutes.

Day 3 (sessions 3): Discuss the role of patient regarding lifestyle change and home remedies, conclusion and end of the session.

C- Evaluation of educational program

The program is assessed through three post-test evaluations. The first post-test evaluation is carried out immediately after the program, the second after one week, and the third after one month and follow up after 3 months.

Ethical considerations

Permission was obtained to carry out the study from head of internal medicine clinic in outpatient and approval from research ethical committee, faculty of nursing at Fayoum University. Oral agreement for voluntary participation was obtained from patients. Anonymity and confidentiality were assured through coding of the data. The researcher explains the aim of the study to each patient's included in the study. Patients were informed that they are allowed to choose to participate or not in the study and that they have the right to withdraw at any time.

Content validity: It was done by 5 expertise's from nursing and medicine staff who reviewed the tools and the teaching booklet for clarity, relevance, comprehensiveness, understanding, applicability and easiness for administration.

Pilot study

It was conducted on 10% (7) patients for testing clarity, applicability, practicability and feasibility of the study tools. Modifications were done based on the results; those patients who were involved in the pilot study were excluded from the final study sample.

Procedure

At the first interview the researchers introduce themselves and explained the nature and purposes of the study to obtain cooperation from patients and health care personnel in internal medicine out-patient clinic. The researchers conducted the pretest on patients diagnosis using tools (I,II,III).

Patient given treatment for GERD in addition to educational program provided by the researchers in teaching booklet. The researchers were taking into consideration the use of simple words suitable to the patients. Educational program introduced to patients through individualized session. Duration of session was 30-45 minute. After session there was 5-10 minutes for discussion and feedback. The researcher used pictures and diagram to help them. The participants were assessed for compliance to lifestyle change, home remedies and improvement of disease symptoms after educational program and follow up. Data were assured confidentiality and anonymity.

Statistical analysis

Statistical analysis for the collected data was done using frequency, percentage distribution, independent sample T-test. P value <.05 was interpreted as a level of statistical significance for testing research hypothesis.

Results:

Table 1: Distribution of the patient according to their socio-demographic characteristics &lifestyle change and home remedies program. (n=70).

Characteristics	N	%
Age in years		
18+	5	7.1
30+	15	21.4
40+	50	71.4
Mean= 36.286_+ 6.2 range=40		
Marital status		
Married	50	71.4
Single	5	7.1
Widow	15	21.4
Educational level		
Illiterate	5	7.1
Read and write	4	5.7
Primary education	7	10.0
Secondary education	6	8.6
High education	48	68.6
Occupation		
Work	45	64.3
House wife	10	14.3
Not work	15	21.4
Mean= 15.257+_ 7.38		
Residence		
Rural	45	64.3
Urban	25	35.7
Gender		
Male	30	28.6
Female	40	71.4
BMI(Kg/m2)		
<25	7	10.0
25-29.9	25	35.7
≥30	38	54.3
Source of information		
Health care providers	20	28.6
Family	20	28.6
Friends	10	14.3
Mass media	20	28.6
Income		
Low	25	35.7
Medium	35	50.0
High	10	14.3

Table1: Shows that the highest percentage of the studied patients their ages ranged between 40+ years old and female (71.4 % and 57.1%), married and high of education (71.4% & 68.6%), in relation to patients occupation, the highest percentage of the studied patients were work and BMI ≥ 30 (64.3% & 54.3%) respectively.

Table (2): Distribution of the patient according to their knowledge regarding change lifestyle and home remedies for GERD pre/post and follow up educational program. (n=70).

Items	Pre		post		Follow up		χ2	P-value
	Satisfactory knowledge	Unsatisfactory Knowledge	Satisfactory knowledge	Unsatisfactory Knowledge	satisfactory Knowledge	Unsatisfactory Knowledge		
	N %	N %	N %	N %	N %	N %		
What the GERD	48 68.6%	22 31.4%	68 97.1%	2 2.95	70 100.0%	00 0%	10.058	0.0015* (S)
Causes of GERD	24 34.3%	46 65.7%	62 88.6%	8 11.4%	63 90.0%	7 10.00	21.766	< 0.00** (HS)
Types of GERD.	30 42.9%	40 57.1%	66 94.3%	4 5.7%	67 95.7%	3 4.3%	21.477	<0.0001 **(HS)
The Symptoms of GRED.	30 42.9%	40 57.1%	58 82.9%	12 17.1%	62 88.6%	8 11.4%	11.993	0.0005* (S)
The risk factors of GERD	20 28.6%	50 71.4%	60 85.7%	10 14.3%	65 92.9%	5 7.1	23.333	<0.0001 **(HS)
Complication of GERD	62 88.6%	8 11.4%	70 100.0%	0 0.0%	69 98.6%	1 1.4%	21.242	0.0394* (HS)
Precautions from GERD.	20 28.6%	50 71.4%	70 100.0%	0 0.0%	68 97.1%	2 2.9%	22.232	0.3138 (HS)
What triggers acid reflux and Does caffeine make reflux worse?	24 34.3%	46 65.7%	62 88.6%	8 11.4%	70 100.0%	00 0%	21.766	<0.0001 **(HS)
What is the difference between acid reflux and GERD?	20 28.6%	50 71.4%	60 85.7%	10 14.3%	63 90.0%	7 10.0%	23.333	<0.0001 **(HS)
What foods heal the esophagus?	56 80.0%	14 20.0%	68 97.1%	2 2.95%	69 98.6%	1 1.4%	5.0806	0.0242* (S)
What does a damaged esophagus feel like?	20 28.6%	50 71.4%	60 85.7%	10 14.3%	63 90.0%	7 10.0%	23.333	<0.0001 **(HS)

*(NS)not significant *(S) significant **(HS) highly significant*

Table2 clarifies that, there were statistically significant differences between pre, post and follow up application of educational program regarding compliance to knowledge for lifestyle change and home remedies

Figuer1: Distribution of the patient according to their symptoms of regarding change lifestyle and home remedies for GERD pre/post and follow up educational program. (n=70).

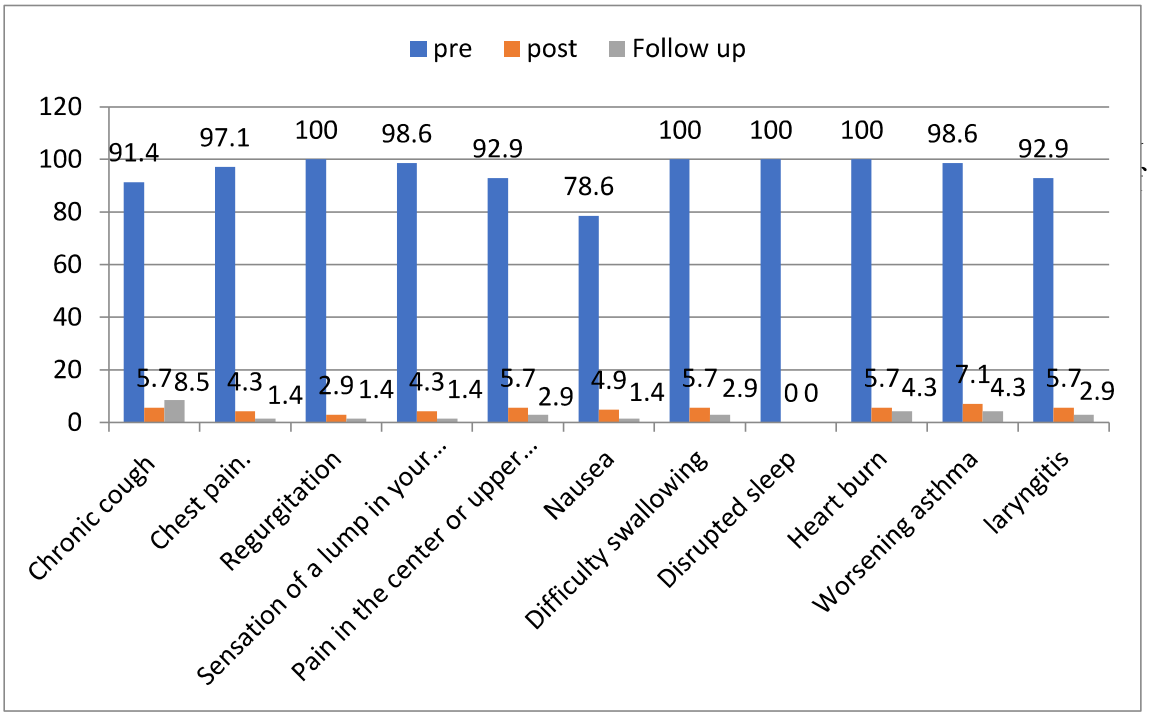


Table (3): Distribution of the patient according to their habit of regarding change lifestyle and home remedies for GERD pre/post and follow up educational program. (n=70).

Lifestyles Dimensions	pre	post	Follow up	X2	P value
	N %	N %	N %		
Smoking	60 85.9	10 14.3	2 2.9	23.334	0.0001**(HS)
Alcohol consumption	10 14.3	60 85.7	70 100.0	23.334	0.0001**(HS)
Physical activity	10 14.3	60 85.7	70 00.0	23.334	0.0001**(HS)
Fried food frequency	60 85.7	10 14.3	2 2.9	23.334	0.0001**(HS)
Meat consumption and taking certain medications, such as aspirin, paracetamol.	50 71.4	20 28.6	5 7.1	22.231	0.0001**(HS)
High fat and salt intake	67 95.7	4 5.7	0 00.0	21.234	0.0001**(HS)
No. of meals/day3meals	65 92.9	5 7.1	5 7.1	23.333	0.0001**(HS)
Avoid late evening meals and Daily stress	2 2.9	68 97	70 00.0	22.432	0.0001**(HS)
Head of the bed elevation	69 98.6	1 1.4	1 1.4	23,432	0.0001**(HS)
Delayed stomach emptying.	65 92.9	5 7.1	0 00.0	22.234	0.0001**(HS)

Table 3 show there were highly statistically significant difference between pre, post and follow up application educational program regarding to habit for change lifestyle and home remedies.

Table (4): Distribution of the patient according to their total Knowledge score regarding life style change and home remedies GERD pre/post and follow up program (n=70).

Items	Pre program		Post program		Follow up	χ2	P-value
	Satisfactory N/%	Unsatisfactory N/ %	Satisfactory N/%	Unsatisfactory N/%	Satisfactory N/%		
Avoid dietary triggers	52 74.3%	18 25.7%	66 94.3%	4 5.7%	68 97.1	5.285	0.0215 *(S)
Avoid lying down after meal or drinking	20 34.3%	50 65.7%	62 88.6%	8 11.4%	69 98.6	25.963	< 0.0001 **(HS)
Eat smaller, frequent meals and chew your food thoroughly	30 42.9%	40 57.1%	58 82.9%	12 17.1%	62 88.6	5.032	0.0001 * (HS)
Wear loose- fitting clothes to ease pressure on the stomach	20 28.6%	50 71.4%	64 91.4%	6 8.6%	68 97.1	28.810	< 0.0001 **(HS)
Quit smoking	20 28.6%	50 88.6%	70 100.0%	0 0.0%	70 100.0%	5.067	0.0001 *(HS)
Reduce body weight	20 28.6%	50 71.4%	70 100.0%	0 0.0%	70 100.0%	9.032	0.0001 *(HS)
Better sleep habits	30 42.9%	40 57.1%	58 82.9%	12 17.1%	62 88.6%	5.993	0.0001 (HS)
Stress relief	20 28.6%	50 71.4%	68 97.1%	2 2.9%	69 98.6	5.081	0.0001 *(HS)
Limitations in physical and social activities because of health problems.	38 54.3%	32 45.7%	62 88.6%	8 11.4%	67 95.7%	10.08	0.0015 *(S)

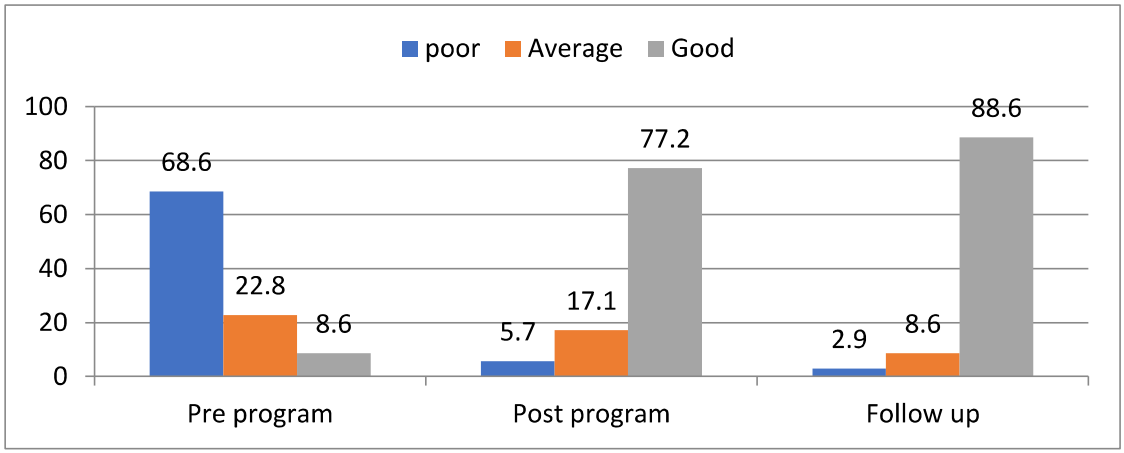
***(HS) highly significant*

Table 4 clarifies that, there were statistically highly significant differences between pre, post and follow up application of total knowledge score regarding life style change and home remedies.

Table (5): Distribution of the patient according to their life style practices and home remedies regarding the gastroesophageal reflux pre/post program (n=70).

Total patient's Knowledge	Pre program		Post program		Follow up		χ^2	P-value
	N	*%*	*N*	*%*	N	%	38.101	< 0.0001 ***(HS)*
Poor	48	68.6	4	5.7	2	2.9		
Average	16	22.8	12	17.1	6	8.6		
Good	6	8.6	54	77.2	62	88.6		
Total	70	100.0	70	100.0	70	100.0		

Table5:shows statistically highly significant difference between patient's practice post and follow up compared to the pre-application program at 0>0001**



*(NS) not significant *(S) significant **(HS) highly significant*

Table (6): Distribution of the patient according to their total symptom score and lifestyle change, home remedies regarding the GERD pre/post educational program (n=70).

Total patient	Pre program N	%	Post program N	%	Follow up N	%	χ2	P-value
Poor	45	64.3	3	4.3	2	2.8	46.374	<
Average	15	21.4	13	18.6	6	8.6		0.0001**
Good	10	14.3	54	77.1	62	88.6		(HS)
Total	70	100.0	70	100.0	70	100.0		

Table 6 shows there were highly statistically difference between the studied patients pre, post program and follow up according to their total symptom score and lifestyle change and home remedies.

Table (7): Relation between total practices score and lifestyle change, home remedies regarding the GERD pre/post educational program (n=70).

Total lifestyle change	Total patient practices							
	Poor		Average		Good		Total	
	N	%	N	%	N	%	N	%
Poor	58	82.8	6	8.6	0	0.0	64	91.4
Average	0	0.0	2	2.9	0	0.0	2	2.9
Good	0	0.0	2	2.9	2	2.9	4	5.9
Total	58	82.8	10	14.3	2	2.8	70	100.0
Chi-square	X2		26.6875					
	P-value		< 0.0001 ** (HS)					

***(HS) highly significant*

Table 7clarifies that, there were highly statistically significant between total patient practices score and lifestyle change and home remedies.

Figure (2): Distribution of the patient according to their total Knowledge score regarding the lifestyle change and home remedies (n=70*).*

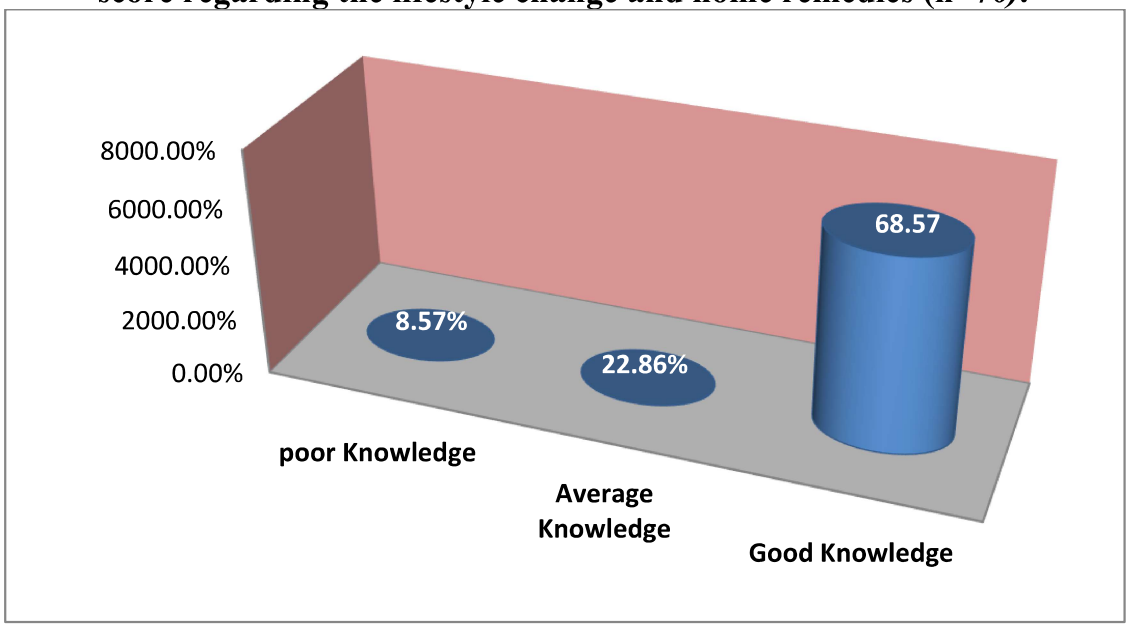


Figure2 shows that 66.7% of those with poor performance had also poor knowledge score, 71.4% of those with average performance had good knowledge score, and 72.2 % of those with good performance had good knowledge score, these differences were statistically significant (X2=14.68,P=0.005).

Table (8): Relationship between patient practices and their knowledge about lifestyle change and home remedies for GERD.

Knowledge life style change and home remedies	Practices life style change and home remedies							
	Poor		Average		Good		Total	
	N	%	N	%	N	%	N	%
Poor	47	67.1	0	0.00	4	5.7	6	8.6
Average	0	0.00	20	28.6	16	22.9	16	22.8
Good	23	32.9	50	71.4	50	71.4	48	68.6
Total	70	100	70	100	70	100	70	100.00
Chi-square	X2	14.688						
	P-value	0.005*						

Table 8 illustrates a statistically highly significant correlation between total knowledge and life style change as type of drinking, type of food, type of exercise.

Discussion

Gastroesophageal reflux disease (GERD) is the majority prevalent gastrointestinal disease. It comes about when stomach acid refluxes into the lower esophagus throughout the lower esophageal sphincter (LES). The LES is a group of muscles that work as a protective barrier against reflux material by means of contracting plus relaxing, if this barrier is relaxed at inappropriate times, reflux occurs leading to the symptoms of GERD result in trouble some symptoms along with complications (Goh,etal., 2018).

The finding of the present study revealed that the highest percentage of the studied patients, their ages ranged between 40+ years old and female (71.4 % and 57.1%), married and high of education (71.4% & 68.6%), in relation to patients occupation, the highest percentage of the studied patients were work and BMI ≥ 30 (64.3% & 54.3%) respectively.

Regarding to Kim,etal.,(2019),on average, the severity of disease in the elderly was establish to be greater than that in younger patients. Then, it was mentioned that the prevalence of documented GERD in older patients is less than in younger patients, the actual rate of GERD is likely parallel. Also, Mohammed, etal.,(2016), reported that residents in rural areas as well as those with a positive family history are related with a higher risk of GERD, socioeconomic status in addition to diet suggested as potential risk factors.

DeVault and Castell (2019), were mentioned that GERD is a multi-factorial process in addition to one of the most common diseases. As well, causes of GERD are not obvious, even though, it is recognized that increased transient lower esophageal sphincter relaxations with the presence of significant hiatal hernia contribute to development of the disease.

According to researchers' opinions GERD symptoms consist of heartburn in addition to regurgitation, dysphagia, chest pain plus other manifestations such as nausea, chronic cough furthermore asthma. The finding of the present study clarifies that, there were statistically significant differences between pre, post and follow up application of educational program regarding compliance to knowledge for lifestyle change and home remedies.

Fujiwara,etal., (2018), were declaring that typically, GERD start on the middle age, suggesting that different environmental and lifestyle factors possibly will contribute to its pathophysiology. Dietary factors such as shorter dinner-to bedtime, a high dietary fat intake, obesity, along with smoking have been

implicated in increasing the risk for GERD. Other life style factors include stress, major negative life events, moreover alcoholism (Diaz-Rubio,etal, 2020).

This agrees with Locke, etal., (2019), who point out that, typical clinical symptoms of GERD are heartburn, regurgitation as well as epigastric pain that can affect sleep, diet along with daily activities which impact on lifestyle for patients. The severity of the disease can be controlled with treatment, lifestyle modifications such as balanced and healthy diet along with avoidance to oily, spicy and salty diet, not lying immediately after meal and exercise can help to treat GERD.

As well, Nocon, etal.,(2019),reported that, other sign of GERD consist of dyspepsia, nausea, bloating, sore throat, globus sensation, in addition to epigastric pain. A systematic review exposed that symptom of GERD are less frequent in the elderly. A subset of patients has extra esophageal symptoms of GERD such as asthma laryngitis, pharyngitis, chronic cough, sinusitis, idiopathic pulmonary fibrosis, dental erosions with recurrent otitis media.

The researchers opinions regarding findings of the present study illustrated that there were statistically highly significant differences between pre, post and follow up application of total knowledge score regarding life style change and home remedies, this is in accordance with Mayer & Gebhart, (2018) who revealed that classical symptoms of GERD included heartburn and regurgitation, which were the main force for patients to look for medical attention as well as home remedies, also the target for diagnostic evaluation in addition to treatment. The current body of evidence showed that GERD possibly will significantly reduce the lifestyle moreover lead to serious complications, such as gastrointestinal bleeding otherwise barrett's esophagus.

Regarding to Lagergren, etal., (2018), a positive relationship between BMI and symptomatic GERD was previously observed in a sample of adult patients. Wherever, upon adjustment for socioeconomic characteristics, furthermore behavioral factors, the positive association of GERD with BMI persisted strongly.

Also, Nebel, (2017) reported that, dysphagia as well as unexplained weight loss along with hematemesis are often considered "alarm" symptoms by clinicians, because their presence may perhaps indicate serious complications of GERD such as stricture, perforation otherwise cancer. Atypical symptoms of GERD are less widespread, other than can be more serious. These include

atypical chest pain, hoarseness, throat tightness, asthma, chronic cough, hiccups, recurrent otitis. Recent attention has been focused on asthma symptoms exacerbated or else caused by GERD.

In addition, Pandolfino .etal.,(2019), talk about consumption of meat was confirmed as a risk factor for GERD mainly with fried food consumption, higher fat content of meat could be responsible for increased risk, as fat delays gastric emptying, therefore, meat is a well-accepted risk factor for GERD , other studies by Meining &Classen (2018) had description similar results that diet is an important factor for development of GERD symptoms because various foods are associated with gastroesophageal reflux disease or to aggravate its symptoms. In addition, the relationship of GERD with cigarette smoking has been reported in different studies.

Concerning to the researchers view, a study concluded that intermediate frequency of physical activity might decrease the risk of GERD among obese individuals, while no influence of physical activity on GERD was found in non-obese conversely, it has been argued that physical exercise may increase the risk of GERD possibly by increasing transient relaxation of the lower esophageal sphincter, or by decreasing the gastrointestinal blood flow and changing the esophageal and gastric motor function .

Also, this study illustrates a statistically highly significant correlation between total knowledge and lifestyle change as type of drinking, type of food, type of exercise. So related to the researchers' vision; changing one’s lifestyle is the fundamental treatment option, this is mainly because changes to diet and lifestyle have been shown to alleviate symptoms and reduce the chance of recurrence. For example, acid regurgitation is reduced greatly by sleeping with the head in an elevated position. The interventions of lifestyle, eating habits, exercise, and psychology plus acupuncture have a synergetic effect on drug treatment, promotion of therapeutic effects, adherence, and alleviation of symptoms. Also supported by Wong, etal., (2020), confirmed that diet is an important factor for development of GERD symptoms and suggested that eating frequently and slowly small amounts of food. In the same line Du Jeong, et al., (2017), represented dietary teaching program for patients with GERD should be developed using pictures of foods.

Regarding to the researchers' opinions, the study reflects that there were highly statistically significant between total patient practices score and lifestyle

change, home remedies and pre, post and follow up application of educational program, this is in accordance with, Wikman, etal.,(2020),who reported that lifestyle modifications for GERD includes eat small meals, choose low-fat foods, reduce intake of chocolate, carminatives (peppermint or spearmint), and alcohol, limit consumption of beverages containing caffeine, limit consumption of carbonated beverages, stop cigarette smoking, suck hard candies or chew gum to increase saliva, don't lie down for 2 to 3 hours after eating, sleep with the head of the bed elevated 6 inches, wear loose-fitting clothing, take an antacid as needed for symptoms.

Furthermore, the researchers' opinions declare that despite the high educational level of most respondents, some symptoms such as globus sensation, dysphagia and odynophagia and risk factors scleroderma and asthma for GERD remained unknown to nearly half the participants, therefore educational programs for GERD spotlight on these points. It is recommended to make the health information concerning GERD available on the internet or to prepare handouts or booklets to be distributed through the health care facilities.

In Addition, the researchers' opinions illustrated that, since the cause of GERD refuge multi-factorial conditions can be managed using multidimensional approaches such as implementing individualized patient education and using pharmacological and non-pharmacological approaches. Chronic disease, especially GERD, can have a significant impact on the quality of life of the patients. Patients with chronic GERD may face many physical and psychological problems such as fatigue, weakness, lack of appetite, sleep disorders, and anxiety. Therefore, it is very important for health care provider to be aware of the culture of their patients they are taking care for and provide individualize education which are relevant to their culture. This approach will enhance communication with health care providers and encourage patient to take responsibility for their own health and improve patient satisfaction. The frequent communication and patient education related to their diet and lifestyle will provide reassurance and encouragement to the patient with chronic GERD and ultimately lead to improved self-management. Improving self-care will ultimately lead to improve compliance to the treatment plan while also improving self-management skills and knowledge. So, this educational program improves patient's overall knowledge and daily symptoms of GERD in addition to improve patient life style home and remedies.

Conclusion: Based on the results obtained above, the current study was supporting the research hypothesis, that post implementing the educational program, the patients' knowledge and practice score regarding gastroesophageal reflex disease became higher than their pre-implementation scores. After implementing the educational program, patients' lifestyle and home remedies were improved than their pre-implementation level.

Recommendations

-Establishment for teaching program as an integral part of the therapeutic treatment at tropical medicine and gastroenterology department equipped with information booklet.
-A simplified and comprehensive booklet, including updated guidelines regarding gastroesophageal reflex disease management, should be introduced to all patients and should be clearly explained by photos for illiterate patients.
-Establishing a hotline contact for urgent physician consultations with patients with gastroesophageal reflex disease should be an urgent need for those patients' groups.
-Health information concerning gastroesophageal reflex disease should available on the internet or to prepare handouts or booklets to be distributed through the health care facilities.

References

- DiPalma, J.(2018). Management of severe gastroesophageal reflux disease, J. Clin. Gastroenterol., 32, 19-26.
- DeVault, R.(2018).Gastroesophageal reflux disease:Extraesophageal manifestations and therapy, Semin. Gastrointest. Dis., 12, 46-51.
- Dent,J., El-Serag,B., Wallander,A., &Johansson,S.(2019). Epidemiology of gastro-oesophageal reflux disease: a systematic review. Gut, 54(5), 710-717.
- Diaz-Rubio,M., Moreno-Elola-Olaso, E., Rey, R., Locke,& Rodriguez-Artalejo,F.(2020).Symptoms of gastro-oesophagealreflux: prevalence, severity, duration and associated factors in a Spanish population, Alimentary Pharmacology and Therapeutics,19(1), 95–105.
- Dean, A., Crawley, C., Schmitt, J., Wong ,J.,&Ofman,J.(2018).The burden of illness of gastro-oesophageal reflux disease:impact on work productivity, Alimentary Pharmacology AndTherapeutics,17,(10), 1309–1317.
- Du Jeong, I., Park, M., Kim, S., Kim, B., Kim, S., Sung, H., Oh, T., & Kim, Y. (2017). The Degree of Disease Knowledge in Patients with Gastroesophageal Reflux disease: A multi-center Prospective Study in Korea. Journal of neurogastroenterology and motility, 23, (3), 385-390.

- DeVault,R.,& Castell,O.(2019). Updated guidelines for the diagnosisand treatment of gastroesophageal reflux disease. Am J Gastroenterol, 100,190-200.
- El-Serag, G., Ergun, J., Pandolfino, S., Fitzgerald, T., & Kramer,R.(2017).Obesity increases oesophageal acidexposure,Gut, 56(6), 749–755.
- Fujiwara,y.,MacHida, Y., Watanabe,H. (2018). Associationbetween dinner-to-bed time and gastro-esophageal reflux disease, American Journal of Gastroenterology, 100, (12), 2633–2636.
- Jarosz, M., Taraszewska, A.(2018). Risk factors for gastroesophageal reflux disease: the role of diet. Prz Gastroenterol., 9(5), 297-301.
- Jacobson, S.,Somers, C., Fuchs, P., Kelly,A.,& Camargo, J.(2016).Body-mass index and symptoms of gastroesophagealreflux in women, New England Journal of Medicine, 354, (22), 2340–2348.
- Haruma, K.,Kinoshita, Y., Sakamoto, S., Sanada, K., Hiroi, S.,&Miwa, H .(2020). Lifestyle factors and efficacy of lifestyle interventions in gastroesophageal reflux disease patients with functional dyspepsia: Primary care perspectives from the LEGEND study. Internal Medicine, 54 (7), 695 – 701.
- Goh, C., Chang, K., & Fock,D.(2018). Gastroesophagealreflux disease in Asia, Journal of Gastroenterology and Hepatology,15,(3), 230–238.
- Kahrilas, P., & Hirano, I. (2019). Diseases of the Esophagus. Harrison'sTM Principles of Internal Medicine, 19th ed. McGraw-Hill Education ,London.
- Kim, K., Cho, Y., Bae, S., Kim, D.,& Shim, K.(2019). Prevalence ofgastroesophageal reflux disease in Korea and associated health-care
- utilization: a national population-based study. J Gastroenterol Hepatol, 27,(4),741–745.
- Lagergren, J., Bergstrom, R., Lindgren, A., & Nyre,O. (2018).Symptomatic gastroesophageal reflux as a risk factor for esophageal adenocarcinoma, N. Engl. J. Med., 340, 825-831.
- Lee, J., & O'Morain, C. (2019) .Different management for Helicobacter pylori positive and negative patients with gastroesophageal reflux disease? Gut, 43,(1), 14-20.
- Locke, N., Talley, S., Fett, A., Zinsmeister,R.,& Melton,L.(2019). Risk factors associated with symptoms of gastroesophagealreflux, American Journal of Medicine, 106, (6), 642–649.
- Mayer, E., & Gebhart, G. (2018). Basic and clinical aspects of visceral hyperalgesia. Gastroenterology, 107,(1), 271-293.
- Mohammed, L., Cherkas, S.,Riley, T., Spector,D.,& Trudgill,J. (2016). Genetic influences in gastro-oesophageal reflux disease: a twin study, Gut, 52, (8), 1085–1089.
- Meining,K., & Classen,M.(2018). The role of diet and lifestyle measuresin the pathogenesis and treatment of gastroesophagealreflux disease, American Journal of Gastroenterology, 95,(10), 2692–2697.

- Nebel, O., Fornes, M., & Castell, D. (2017).Symptomatic gastroesophageal reflux: Incidence and precipitating factors, Am. J. Dig. Dis., 27,958-987.
- Nocon, M., Labenz,J., & Willich,S.(2019). Lifestyle factors andsymptoms of gastro-oesophageal reflux—a population-based study, Alimentary Pharmacology and Therapeutics, 23, (1), 169–174.
- Peery,F., Crockett,S.,& Murphy,C.(2019). Burden and cost of gastrointestinal,liver, and pancreatic diseases in the United States: update 2018. Gastroenterology2019;156(1):254–272.e11. doi:10.1053/j.gastro.2018.08.063.
- Pandolfino, L., Bianchi, T., Lee, Hirano,I., &Kahrilas,P.(2019). Esophagogastric junction morphology predictssusceptibility to exercise-induced reflux, American Journal ofGastroenterology, 99,(8), 1430–1436.
- Urnes, J., Petersen, H., & Farup, P. (2018). Disease knowledge after an educational program in patients with GERD a randomized controlled trial. BMC. Health Services Research, 8,(1), 236-242.
- Vakil, N., Van Zanten, S., Kahrilas, P., Dent, J., & Jones, R. (2018). The Montreal definition and classification of gastroesophageal reflux disease: a global evidence-based consensus. Am.J. Gastroenterol,101,(8), 1900-1920 .
- Velanovich, V. (2017). The development of the GERD-HRQL symptom severity instrument. Dis Esophagus ,20(2),130 -4.
- Wikman, H., Nordenstedt, A., Johar, J.,&Lagergren,P.(2020). Physical activity, obesity and gastroesophagealreflux disease in the general population, WorldJournal of Gastroenterology,19, (29), 3710–3717.
- Wong, W., Lai, K., Lam, K., Hui, M., Hu, W., & Lam, C. (2020). Prevalence,clinical spectrum and health care utilization of gastro-oesophageal refluxdisease in a Chinese population: a population-based study. AlimentPharmacol Ther,18(6), 595–604.
- Yang , X., Jiang , H., Hou , X., & Song , J . (2020). Anxiety and depression in patients with gastroesophageal reflux disease and their effect on quality of life . World Journal Gastroenterological, 21 (14), 4302 – 4309 .

الملخص العربي

تأثير برنامج تعليمي لمرضى الارتجاع المعدي المريئي على تغيير نمط الحياة والعلاجات المنزلية

المقدمة: مرض الارتجاع المعدي المريئي هو أحد أكثر أمراض الجهاز الهضمي انتشارًا في جميع أنحاء العالم. حيث يؤثر ارتجاع المريء على نوعية حياة المرضى وكذلك على نظام الرعاية الصحية ويمكن الوقاية منه من خلال تحديد عوامل الخطر بين مختلف الاعمار. في الارتجاع المعدي المريئي تكون العضلة التي تحافظ على الحمض المعدي ضعيفة وهذا يسمح لحمض المعدة بالتدفق لأعلى في المريء الذي ينقل الطعام من الفم إلى المعدة، ويؤثر على ما يصل إلى 60٪ من البالغين في مصر ويزداد انتشاره. حيث يرتبط ارتجاع المريء بعوامل تتعلق بنمط الحياة، وخاصة السمنة والتدخين بأنواعه، مما يهدد أيضًا الصحة العامة للفرد والمجتمع.

الهدف: تقييم برنامج تعليمي للمرضى الذين يعانون من مرض الارتجاع المعدي المريئي حول النتيجة التي تخضع لتغيير نمط الحياة والعلاجات المنزلية. **التصميم:** تم استخدام تصميم شبه تجريبي مع اختبار ما قبل وما بعد المتابعة.

الإعداد: أجريت الدراسة الحالية في العيادة الخارجية (عيادة الباطنة) بالمستشفى الجديد بجامعة الفيوم.

العينة: تم استخدام عينة ملائمة عددها (70) مريضًا بالغًا تم تشخيص إصابتهم بالارتجاع المعدي المريئي من مجموعة تصل إلى 400 شخص في ستة أشهر في عيادة الباطنة .

الأدوات: تم استخدام أداتين لجمع البيانات. **الاولى:** استمارة تقييم المريض: تم تطوير هذه الأداة من قبل الباحثين ، وتضمنت جزأين:

الجزء الأول: البيانات الديموغرافية (استمارة البيانات الشخصية) مثل العمر والجنس والحالة الاجتماعية والمستوى التعليمي والمهنة والإقامة ومؤشر كتلة الجسم والدخل الشهري. الجزء الثاني: تقييم المرضى فيما يتعلق بالمعرفة والممارسات الخاصة بمرض الارتجاع المعدي المريئي. تم تصميمه من قبل الباحثين من خلال تقييم معرفة المريض وممارساته وعاداته حول الارتجاع المعدي المريئي. تم تجميع الإجابات قبل وبعد والمتابعة.**الثانية:** استبيان تغيير نمط الحياة والعلاجات المنزلية المرتبط بالصحة المعتمد من (فيلانوفيتش ، 2017) لتقييم الأعراض مثل حرقة قلب ، وسعال مزمن ، وألم في الصدر وغثيان ، ونوم متقطع ، يتم حسابها عن طريق جمع الدرجات

النتائج: أفادت نتائج الدراسة أن 85٪ من المرضى في الدراسة لم يتلقوا أي برامج تعليمية حول الارتجاع المعدي المريئي ، وكان هناك تحسن في معرفة المريض وممارساته فور تغيير نمط الحياة في البرنامج التعليمي والعلاجات المنزلية والمتابعة في جميع الجوانب. وكشفت أيضًا النتائج أن الأعراض الأكثر شيوعًا التي قد تحدث أثناء مرض ارتجاع المريء كانت الإحساس بحرقة شديدة في الصدر (حرقة في القلب) عادةً بعد الأكل والتي قد تزداد سوءًا في الليل بالاضافة الى ألم في الصدر و صعوبة في البلع و ارتجاع الطعام أو سائل حامض و الإحساس بوجود كتلة في الحلق ، وهذا هو أكثر أعراض ارتجاع المريء شيوعًا عند المريض.

الخلاصة: كان للبرنامج التعليمي تحسين فعال في تغيير نمط حياة المريض ومعرفة وممارسة العلاجات المنزلية فيما يتعلق بالارتجاع المعدي المريئي للمريض ، مع وجود فروق ذات دلالة إحصائية عالية في جميع العناصر المختبرة بين تنفيذ برنامج المتابعة قبل / بعد البرنامج التعليمى .**التوصيات:** إنشاء برامج تعليمية والإشراف المستمر في المناطق الريفية لرفع المعرفة والممارسة فيما يتعلق بتعليم المريض وتطوير برنامج لجميع المرضى البالغين حول الارتجاع المعدي المريئي. نشر التوعية و المعلومات الصحيه حول مضاعفات الارتجاع المعدي المريئي للمرضى والأسر والمجتمعات فى وسائل الاعلام والوحدات الصحية والمستشفيلت والمراكز الطبية لزيادة الوعى الصحى .