

 <p>INNOVATIVE JOURNAL ЮНКВТ</p>	<p>Contents lists available at www.innovativejournal.in</p> <p>INTERNATIONAL JOURNAL OF NURSING DIDACTICS</p> <p>homepage: http://innovativejournal.in/index.php/ijnd</p>	 <p>IJND ISSN: 2231-5454</p>
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Effect of lifestyle modification sessions on knowledge, self- management and physical symptoms of patient with Gastro-esophageal Reflux Disease

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DOI: <https://doi.org/10.15520/ijnd.v8i04.2180>

Abstract: Gastro-esophageal reflux disease (GERD) is a chronic disease defined as the ascent of the gastric content that causes symptoms or structural damage of the esophageal mucosa. In GERD, lifestyle modification plays a key role in prevention or treatment and appropriate modification is recommended as the first step in therapeutic system. **Aim** was to evaluate the effect of lifestyle modification sessions on knowledge, self- management and physical symptoms of patient with Gastro-esophageal Reflux Disease. **Research design** a quasi -experimental design was used. Setting was conducted in medical outpatient clinics of governmental hospital located in Port-Said City; Egypt. **Sample** A purpose sample consists of (64) adult new patients Random al location technique used to divide the sample into control (32) and study group (32). **Tools:** four tools were used for data collection 1) Patient's interview questionnaire; 2) The Gastro-esophageal Reflux Disease Questionnaire; 3) The Gastro-esophageal Reflux Disease Questionnaire: it adopted questionnaire and 4) lifestyle guidelines success indicators Sheet. **Results:** revealed that there was statistical significant improvement of knowledge, self- management and physical symptoms among study group who received life style modification sessions than in control group. **Conclusion & recommendation:** The results of the study showed the effectiveness of the lifestyle modification sessions in improving the self-management of GERD patients and the physical symptoms of the disease through improved patient knowledge of the disease according to their needs. Therefore the study recommends the guidelines addressed as part of the medical management approach.

Keywords: gastro-esophageal reflux disease- lifestyle modification – self-management

INTRODUCTION

Gastro-esophageal reflux disease (GERD) is a chronic disease defined as the ascent of the gastric content that causes symptoms or structural damage of the esophageal mucosa that is associated with a range of troublesome symptoms such as heartburn, food reflux, acid regurgitation, and dyspepsia; these symptoms have a direct negative effect on patients' productivity, quality of life and total health promotion. [1,2] GERD is a common relapsing condition that carries a risk of significant morbidity and potential mortality because it is risk factor for the development of esophageal adenocarcinoma, further increasing the importance of its diagnosis and treatment. [3,4]

Prevalence of GERD and incidence of its complications have increased remarkably over the last few decades; the American National Ambulatory Medical Care Survey (NAMCS) found that 38.53 million annual adult outpatient visits were related to GERD. Over-all prevalence of GERD is reported to be 10% to 20% in Western countries, but only 2.5% to 8.5% in Asian countries. However recent studies have shown increasing prevalence of GERD in Asia countries. In South Korea, the recent prevalence of GERD was 7.1%. [5]. unfortunately, in Egypt, there are no published statistics on the incidence of GERD, but it is noticeable increase the number of GERD patients, who are coming to endoscopy units at different hospitals.

Patient education has proved beneficial in several but not all chronic disease; although it is the second level of prevention that promotes health. In order to improve patient education programs it is necessary to understand what contents and

methods are most suitable with regard to patient learning and how this learning meets their needs' [6, 7].

In GERD a good lifestyle modification control is able to prevent or control its complication. This requires changes in patient's daily routine with many self-care activities concerning medication, nutrition pattern, sleep pattern and exercise. These patients need educational instructions to be able to self-management of their illness. [5]. Therefore, the GERD patients' education should be concerned with encouraging self-dependence and confidence among them to enable them to carry out their self-care tasks. [8].

Self-management is a set of daily behaviors that reflect an individual's ability to deal with the physical and psychological symptoms and complications of GERD. [9,10]. It is a complex process of translating the knowledge, skills and abilities required into effective self-management behaviors of the patient through lifestyle change. [11]. This process is intended to involve the patient in effective decision-making and to collaborate with caregivers to promote behavioral change, which helps the patient, can monitor their conditions and finally achieve a satisfactory quality of life by changing cognitive-behavioral and emotional patterns. So it should focus on patient-centered care based on an analysis of the patient's needs and abilities with respect to his experience and knowledge. [12].

The Nurses and patients identify key problems and information and then address these problems through management skills. In GERD, the main issues that concerned patients the most related to symptoms disturbed and relapse after treatment were summarized and integrated with the daily self-management method through change and

improve patient lifestyle, which eventually the main role for the nurse.

In GERD, lifestyle modification plays a key role in prevention or treatment and appropriate modification is recommended as the first step in Therapeutic System. [13]. Recommendations for lifestyle modifications are based on the presumption that types foods, pattern of sleep, smoking and obesity contribute to a dysfunction in the body's anti-reflux defense system. [14,15]. The American College of Gastroenterology and [16] recommends the use of lifestyle changes as the part of medical management which including elevates head of the bed; decrease fatty meals & spicy food; decrease coffee drinking; prevent smoking and avoiding recumbence at least 3 hours postprandial.

However, there is a discrepancy about the effect of lifestyle modification on patients with gastro esophageal reflux. many reports has been suggested that many of these lifestyle changes would not be of benefit in alleviating the symptoms GERD, although they would be appropriate for promoting general health. A more recent review has identified lifestyle recommendations which are likely to be effective and those with little supporting evidence. This controversy has increased with lack of Arabic studies in this field, So the aim of the our study was to evaluate the effect of lifestyle modification sessions on the knowledge, self- management and physical symptoms of patient with Gastro-esophageal Reflux Disease Hoping to apply an evidence-based approach to determine which lifestyle modification are effective in patient with GERD.

Aim: to evaluate the effect of lifestyle modification sessions on knowledge, self- management and physical symptoms of patient with Gastro-esophageal Reflux Disease.

Research hypotheses:

1. The level of studied patient knowledge among GERD who received life style modification sessions will be higher than in control group.
2. The level of studied patient self-management among GERD who received life style modification sessions will be higher than in control group.
3. The severity and frequency symptoms of GERD will be decrease among studied patient who received life style modification sessions than control group.

SUBJECTS AND METHODS

Study design: A quasi experimental design was utilized to achieve the aim of the current study.

Setting: This study was conducted in medical outpatient clinics of governmental hospital located in Port-Said City, Egypt.

Participants: A purpose sample consists of (64) adult newly diagnosed patients with the following criteria: (i) a confirmed diagnosis of GERD by endoscopy and positive result on 24-hour monitoring of esophageal pH. (ii) At least one symptoms of GERD (heartburn, acid regurgitation, food reflux and sub-sternal chest pain) over 4 weeks, and willing to participant in the study.

The exclusion criteria were as follows: (i) a history of upper GI hemorrhage & peptic ulcer; (ii) a history of mental

disease or consciousness disorders and chronic disease. Random al location technique used to divide the sample into control (32) and study group (32).

Tools of data collection: four tools were used for data collection.

Tool I- Patient's interview questionnaire, it was adapted by the researchers based on relevant literatures [17, 18] **it includes three parts;** (a) It patient demographic data as (age, gender, education level) (b) medical characteristic as duration of illness and body mass index. (c) GERD knowledge assessment sheets it: consisted of 27 multiple choice and open questions to assess patient's knowledge regarding GERD general information as (definition, signs & symptoms, risk factors, complications, laboratory investigation, peptide inhibitors (PPI) therapy, diet measures, and abdominal exercises. The total score were calculated by simple summation, and then converted into percentages of total. Patients' knowledge was arbitrarily considered satisfactory at a cutoff point 65% or higher.

Tool II- The Gastro-esophageal Reflux Disease Questionnaire.it was adopted from [19].It is composed of 6 items, 4 of which assess severity of symptoms and situations considered positive predictors for GERD diagnosis: heartburn, regurgitations, disorders related to sleep and use of over the counter products. Other 2 items assess 2 symptoms considered negative predictors for reflux, such as nausea and epigastric pain. Patient answers each question about symptoms frequency during last week using a Likert like scale from 0 to 3 for positive predictors and from 3 to 0 for negative predictors. The maximum score that can be obtained is 18 divided as follows mild (0- 6), moderate (7- 12) and sever (13-18). Internal consistency reliability levels were high, with alpha coefficients ranging from (0.80 to 0.85).

Tool III- Self-Management behavior: assessed self-reported self-management concerning self-care management based on and [20, 21] and it's adapted by researchers. Consisted of 26 items covering 6 domains of self-management (i) diet regimen, (ii) weight control, (iii) abdominal exercise, (iv) treatment adherence; (v) laboratory tests and (vi) follow-up. The item reported the following: done given (1) point and not done given (0). The total score were calculated by simple summation, and then converted into percentages of total. Patient were satisfactory adequate at a cutoff point 65% or higher.

Tool IV - Lifestyle Guidelines Success Indicators Sheet: (pre & follow-up) to assess number of patient' visits to health care, medical expenses, tack over dose of PPI and duration of physical symptoms.

Administration and ethical considerations:

The necessary official approvals were obtained from the administrators of the endoscopy unit and medicine outpatient clinic. At the initial encounter with each patient, the researchers explained the aim and process of the work and its benefits to obtain an informed oral consent. Each patient was informed about the rights to refuse or withdraw at any time. The confidentiality and anonymity of any obtained information was ensuring through coding of all data. Participants were assured that there was no harm in

participating in the application of the educational guideline; on the contrary, it had potentially beneficial effects.

Pilot study:

A pilot study carried out including six patients selected from the same study settings to check and ensure the clarity, applicability and relevance of the study tools in addition to estimate the time needed for completion of study tool. Modification was done according to pilot results reach the finalized form. Subjects who shared in the pilot study were not included in the main study sample.

Field work: were enrolled in this study (from April 2016 to December 2017) the researchers available two/days weekly.

Assessment phase; the study groups were selected by researchers based on previous inclusion criteria and their agreement to participate in the study. Then the researchers divided the participants into two groups; (control and study).and asked them to fill the previous data collection forms. The researchers determined different days to meet each group (two days/ week /each group). The information obtained served as baseline data as pretest and guided the researchers in preparation of guidelines.

Planning phase: the researchers used the assessment data and recent related literature in developing lifestyle modification illustrated booklet in simple Arabic language to help patients assimilate and refresh the information provided. Based on the aim of the study, the knowledge part covered the general information concerning the GERD (definition, signs & symptoms, risk factors, complications, investigation and drug therapy) while the lifestyle modification covered the items related to diet measures; weight control; dealing with physical signs & symptoms; abdominal exercise; habits management; sleep pattern and

follow-up. Also it contained self-management training part related to 1) weight control; 2) exercise; and 3) sleep positions.

Implementation phase: The researchers interviewed the study sample individually and carried out the intervention program in 10 sessions (30-40 minutes/ session). The first three sessions covers the previous general disease information and discussion with patients to provide motivation and enthusiasm for self-management. The second four sessions; covers the items of lifestyle modifications guidelines. The last three sessions concerned the self-management training of the patient with respect to weight control, abdominal exercise, sleep positioning and self-assessment of physical symptoms. Participants are instructed to develop weekly action plan and interchange experiences to help each other in this. The researcher use simple language to suit different levels of patient. At the end of the sessions was offered a copy of guidelines for each patient in study group to use as reference in the future. Also gave the patients in control group at end of the program.

Evaluation phase: each group in the study was evaluated three times (pre, immediately post and three month later) by clinic appointment, telephone and Social media such as Watts App. The follow-up time was determined based on the course of treatment which lasts from 8 to 12 weeks by using the same data collection except tool four (pre and follow-up).

Statistical analysis:

Data management was done on SPSS Version 20.0 statistical soft-ware package, mean; SD, X² and t-test were used to analyze the data collection. Statistical significant was set at $P < . 0.05$

RESULT

Table (1) Socio-demographic characteristics of patients' in both study and control groups (n = 64)

Characteristics	study group		control group		X ²	p value
	No	%	No	%		
Age :						
- <30	6	18.8	5	15.6	0.8	>0.5
- 30-<60	21	65.6	23	71.9		
- 60+	5	15.6	4	12.5		
Mean ±S.D	42±6.7					
Gender:					0.25	>0.5
- Male	13	40.6	11	34.4		
- Female	19	59.4	21	65.6		
Educational level:					0.11	>0.5
- Illiterate	8	25	7	21.9		
- Read/write	6	18.8	9	28.1		
- Intermediate	12	37.5	11	34.4		
- University	6	18.8	5	15.6		
Marital status:					0.4	>0.5
- Married	29	90.6	26	81.3		
- Single	3	9.4	6	18.8		

Table [1]: revealed that no statistical significant differences between both groups as regards studied patient's Socio-demographic characteristics preprogram implemented ($P > 0.5$). The mean ages in study and control groups were 42±6.7 years, and (59.4%) in study & (65.6%) in control

group were male. In addition; 37.5% & 34.4% of the study and control groups were having Intermediate education; most of them in two groups study and control were married 90.6% & 81.3% respectively.

Table (2) Medical characteristics of patients' in both study and control groups (n = 64)

Characteristics	Study group		Control group		X ²	p value
	No	%	No	%		
Disease duration :						
- <6 month	14	43.8	16	50	0.4	>0.5
- 6- 12 month	18	56.2	16	50		
Frequency and follow-up:						
- Continuously	15	46.9	13	40.6	0.23	>0.5
- Had attack (sever symptoms)	17	53.1	19	59.4		
Body mass index (BMI)						
- Normal (<25)	8	25	6	18.8	0.7	>0.5
- Overweight (25-30)	10	31.2	11	34.4		
- Obese(>30)	14	43.8	15	46.9		
Lifestyle habitus:						
- Eating spicy foot	24	75	26	81.3	0.12	>0.5
- Eating until fill	21	65.6	22	68.8		
- Drinking coffee	30	93.8	29	90.6		
- Smoking	17	53.1	18	56.3		
- line after eat	29	90.6	25	78.1		
- Sleep with head elevated	27	84.3	23	71.9		
- NSAID drugs	28	87.5	25	78.1		
Diaphragm exercise:						
- Yes	10	31.2	12	37.5	0.11	>0.5
- No	22	68.8	20	62.5		

Table [2]: illustrated that no statistical significant differences between both groups as regards patient's medical characteristics preprogram implemented (P >0.5). Regarding disease duration of study and control groups were more than 6 month (56.2% & 50%) respectively; and 53.1%

& 59.4% of them follow-up with attack. Less than half of the study and control groups were obese (43.8% & 46.9%) respectively; while 68.8% & 62.6 among the study and control groups respectively were not done Diaphragm exercise.

Table (3) Percentage Distribution of knowledge scores level pre, post and follow-up lifestyle modification regarding studied groups (n= 64)

Items	Pre				Post				Follow-up			
	study(32)		control(32)		study(32)		control(32)		study(32)		control(32)	
	No	%	No	%	No	%	No	%	No	%	No	%
1-Disease information	7	21.9	8	25	29	90.6	11	34.4	28	87.5	15	46.9
X2 (P-value)	3.2 (> 0.05)				25.5 (<0.01)				23.9 (<0.01)			
2- True symptoms& signs	12	37.5	10	31.3	28	87.5	16	50	26	81.3	17	53.1
X2 (P-value)	1.1 (> 0.05)				32.2 (<0.01)				29.8 (<0.01)			
3-Risk factors	11	34.4	8	25	27	84.8	12	37.5	26	81.3	10	31.1
X2 (P-value)	0.9 (> 0.05)				20.5 (<0.01)				22.6 (<0.01)			
4- Complication	4	12.5	7	21.9	30	93.8	11	34.4	29	90.6	16	50
X2 (P-value)	2.1 (> 0.05)				14.6 (<0.01)				15.9 (<0.01)			
5-Treatment regimen:	5	15.6	6	18.8	32	100	16	50	30	93.8	22	68.8
X2 (P-value)	1.4 (> 0.05)				28.3 (<0.01)				24.5 (<0.01)			
6-Diet regimen:	8	25	10	31.1	31	96.9	21	65.7	30	93.8	23	71.9
X2 (P-value)	2.7 (> 0.05)				34.1 (<0.01)				33.7 (<0.01)			
7-Diaphragm exercise:	2	6.3	1	3.1	27	84.4	3	9.4	25	78.1	3	9.4
X2 (P-value)	0.9 (> 0.05)				25.4 (<0.01)				23.0 (<0.01)			
8-Laboratory tests	7	21.9	9	28.1	24	75	15	46.9	26	81.3	18	56.3
X2 (P-value)	0.8 (> 0.05)				27.2 (<0.01)				23.6 (<0.01)			
Total:												
Satisfactory	11	34.4	9	28.1	30	93.8	15	46.5	28	87.5	12	37.5
Unsatisfactory	21	65.6	23	71.9	2	6.3	17	53.1	4	12.5	20	62.5
X2 (P-value)	3.3 (> 0.05)				29.7 (<0.01)				24.6 (<0.01)			

Table [3]: indicates that no statistical significant differences between both groups as regards patient's knowledge concerning GERD in all aspects pre lifestyle modification sessions implemented. Meanwhile in posttests program there showed highly significant differences between both groups in all aspects of patient knowledge (p <0.01). Regarding the study group the table discovered that the posttest showed significant improvement in all aspects reaching 100% at

treatment regimen and more than (90%) at the disease information, diet regimen and complications. This persists at the follow-up test with minimal non-significant declines in some aspects. In total around two third of patient in study and control groups had un-satisfactory knowledge at the pretest, compared to (93.4% & 46.9%) at the posttest and (87.5% & 37.5%) follow-up test respectively (P <0.01).

Table (4) Percentage Distribution of self-management level pre, post and follow-up lifestyle modifications regarding studied groups (n= 64)

Items	Pre				Post				Follow-up			
	Study(32)		Control(32)		Study(32)		Control(32)		Study(32)		Control(32)	
	No	%	No	%	No	%	No	%	No	%	No	%
1-Diet regimen	2	6.3	3	9.4	30	3.8	10	31.3	29	90.1	11	34.4
<i>X2 (P-value)</i>	1.1 (> 0.05)				33.5 (<0.01)				32.6 (<0.01)			
2- weight control	6	18.8	8	25.0	29	90.6	9	28.2	25	78.1	10	31.3
<i>X2 (P-value)</i>	0.7 (> 0.05)				27.5 (<0.01)				22.6 (<0.01)			
3-Exercise	1	3.1	2	6.3	26	81.3	6	18.8	23	71.9	9	28.1
<i>X2 (P-value)</i>	0.9 (> 0.05)				25.9 (<0.01)				31.2 (<0.01)			
4- Dealing with signs	4	12.5	4	12.5	23	71.9	10	31.3	22	68.8	8	25
<i>X2 (P-value)</i>	1.4 (> 0.05)				18.6 (<0.01)				19.9 (<0.01)			
5-Sleep pattern	6	18.8	5	15.6	28	87.5	16	50	25	78.1	13	40.6
<i>X2 (P-value)</i>	0.7 (> 0.05)				28.1 (<0.01)				24.9 (<0.01)			
6-Personal habits	11	34.4	13	40.6	28	87.5	22	68.8	24	75	21	65.6
<i>X2 (P-value)</i>	0.9 (> 0.05)				16.7 (<0.01)				22.3 (<0.01)			
7-Follow-up	13	40.6	12	37.5	25	78.1	16	50	23	71.9	15	46.9
<i>X2 (P-value)</i>	0.8 (> 0.05)				17.6 (<0.01)				20.1 (<0.01)			
Total:												
- Satisfactory	6	18.8	9	28.1	27	84.4	13	40.6	25	78.1	16	50
- Unsatisfactory	26	81.2	23	71.9	5	15.6	19	59.4	7	21.9	16	50
<i>X2 (P-value)</i>	0.6 (> 0.05)				33.1 (<0.01)				37.4 (<0.01)			

Table[4]: discovered that no statistical significant differences between both groups as regards patient’s self-management pre lifestyle modification program implementation, while highly significant differences between both groups in all aspects in posttests as well as follow-up sessions implemented ($p < 0.01$). The same table illustrated that study group improvement was highest

concerning the management of diet regimen& sleep pattern as well as personal habits (93.8% and 87.5%) respectively at posttest with some declines at follow-up (90.1and 78.1%). Total satisfactory self-management in study group (18.8%) and in control group (28.1%) at pre intervention; while in post was (84.4% & 40.6%) as well as follow-up (78.1% & 50%) in study and control groups respectively.

Table (5)) Percentage Distribution of severity physical symptoms pre, post and follow-up lifestyle modifications regarding studied groups (n= 64)

Symptoms assessment	Pre				Post				Follow-up			
	Study(32)		Control(32)		Study(32)		Control(32)		Study(32)		Control(32)	
	No	%	No	%	No	%	No	%	No	%	No	%
1- Heart burn:												
- Mild	7	21.9	8	25.46.9	16	50	8	25	20	62.5	13	40.6
- Moderate	18	56.3	15	28.1	14	43.8	16	50	9	28.1	12	37.5
- Sever		21.9	9			6.3	8	25	3	9.4	7	21.9
<i>X2 (P-value)</i>	0.5 (>0.05)				11.4 (<0.05)				13.7 (<0.05)			
2-Regurgitation :												
- Mild	6	18.8	5	15.6	18	56.3	10	31.3	25	78.1	11	34.4
- Moderate	15	46.9	14	43.8	11	34.4	9	40.6	2	15.6	18	56.3
- Sever	11	34.4		40.6		9.4		28.1		6.3		18.8
<i>X2 (P-value)</i>	0.2 (>0.05)				13.9 (<0.05)				16.1 (<0.05)			
3-Pain in center upper stomach (dyspepsia												
- Mild	5	15.6	7	21.9	15	46.9	8	25.34.4	22	68.8	9	28.1 50
- Moderate	9	28.1	10	31.3	12	37.5	11	40.6	8	25	16	21.9
- Sever		56.3	15	46.9	5	15.6	13	40.6	2	6.3	7	21.9
<i>X2 (P-value)</i>	0.6 (>0.05)				22.3 (<0.05)				1.4 (>0.05)			
4-Nausea :												
- Mild	5	15.6	4	12.5	25	78.1	18	56.2	27	84.4	10	31.3
- Moderate	17	53.1	19	59.4	6	18.8	7	21.9	5	15.6	12	37.5
- Sever	10	31.3	9	28.1	1	3.1	7	21.9	0	0.0	10	31.3
<i>X2 (P-value)</i>	0.8 (>0.05)				0.9 (>0.05)				21.7 (<0.05)			
5-Difficulty getting good night sleep: -												
- Mild (0-2day)	1	3.1	3	9.4	21	65.6	9	28.1	26	81.3	11	34.4
-Moderate (3-4day)	19	59.4	12	37.5	9	28.1	13	40.6	6	18.8	14	43.8
- Sever (5-7day)			17	53.1	2	6.3	10	31.3	0	0.0	7	21.9
<i>X2 (P-value)</i>	0.9 (>0.05)				15.8 (<0.01)*				24.7 (<0.01)*			
6-Take additional dose of treatment:												
- Mild (0-2day)	3	9.4	2	6.3	22	68.8	9	28.1	23	71.9	10	31.3
- Moderate (3-4day)	15	46.9	17	53.1	2	6.3	13	40.6	7	21.9	15	46.9
- Sever (5-7day)			13	40.6			10	31.3	2	6.3	7	21.9
<i>X2 (P-value)</i>	1.0 (>0.05)				27.2 (<0.01)*				26.1 (<0.01)*			

- Mild 0-6

- Moderate 7-12

-Sever 13-18

Table [5]: discovered that no statistical significant differences between both groups as regards Symptoms assessment at pre lifestyle modification sessions implemented, while it was shown statistical significant

improved between both groups except at nausea in posttests program implementation also at dyspepsia aspect in follow-up test ($p > 0.05$).

Table (6) Indicators of successful in both study and control group throughout pre & follow-up lifestyle modification sessions

lifestyle intervention indicators success	Pre				Follow-up			
	Study (32)		Study (32)		Study (32)		Study (32)	
	No	%	No	%	No	%	No	%
1- Decrease number of visits to clinic	22	68.6	25	78.1	13	40.6	20	62.5
2- Tack over dose of PPI.	26	81.3	23	71.9	3	9.4	24	75.0
3- Decrease medical expense	8	25.0	5	15.6	21	65.6	7	21.9
4- Duration between physical symptoms Decreased	7	21.9	9	28.1	29	90.6	23	71.9
X²(P- value)	0.2 (>0.05)				13.4 (<0.05)			

Table [6]: As regards distribution between both groups related to lifestyle intervention indicators success; table 6 shows that there was no statistically significant differences between study and control groups at pre intervention $P > 0.5$, while there was a statistical significant differences between the two groups in all indicators at follow-up intervention ($P < 0.05$).

DISCUSSION

GERD is a chronic disease ascent of gastric content that causes symptoms or structural damage of the esophageal mucosa. Lifestyle modifications are the first-line therapy for patient with GERD through promotion of both self-management and adherences to complex treatment regimens. [1,13]. Because of symptoms diversity and the ease of relapse, patient with GERD need frequent visits to the clinic, Therefore, the importance of this study to improve patient lifestyle to cope with the his chronic condition.

In the present study, the studied samples involved 64 adult patients who represented the population of patient with GERD in terms of age and gender. The age in both groups ranged between 28 and 64 years, with mean age 42 ± 6.7 Which is the age with highest prevalence of GERD as reported by [5]. In the same way, the current study showed that more around half of samples were female obese in both groups, this result may be confirmed positive relationship between GERD and obesity, which is most common among women especially in Egypt where the prevalence of unhealthy nutritional patterns help increase the overweight, This finding is consistent with many relevant studies [5,22-23], that confirm the firm relationship between obesity and GERD while, unfortunately there is a scarcity of Egyptian studies that dealt with this relationship.

According the present study, more than two third of the patient's in both studied groups total knowledge were unsatisfactory at the pretest, the deficiency were most evident concerning exercise, disease complication and treatment regimen. The finding is indicators regarding lack of information which affect negatively on patient outcomes this result agreement with [6]. At the posttests intervention of the present study revealed the study group achieved a statistically significant improved in posttests at all items than control group. This improvement could be indicator of the success of the educational program to meet the cognitive

needs of patients and also increase patient's awareness that he became a partner in the treatment plan, which contributed to a positive behavioral change. In addition to confirm the Giving information routinely without relying on the actual needs of them during follow-up.

This result was in congruence with many studies [5] [24-25], are emphasized on the patient's education and appropriate guidelines is very important to base on each patient actual needs tailored to his/her level of understanding at routine visits. Also, [26] in a similar study was conducted on increase patient information contribute to improve of health promotion through lifestyle behavior changes. This finding confirms the first hypothesis of the study.

The first step in the management of GERD is daily self-lifestyle modification, so the present study also aimed at improving GERD patients' lifestyle self-management. The findings discovered that the both groups were markedly low levels of lifestyle self-management at pre intervention. This deficiency may be attributed to the lack of patient's knowledge concerning GERD management and the nature of the Egyptian dietary culture which contribute to increase body max index which is a one of the highest risk in GERD. This interpretation constant with [27], who mentioned that weight gain among Egyptians, is one of the main causes of chronic diseases as diabetes.

At the posttests-intervention phases, statistically significant improvements were shown in study group than control group at all areas management. But one of the most important areas where improvement was observed areas related diet regimen and weight control. This funding agreement with many reports of studies (Arabic and non-Arabic) [1], [23-24],[28] examining the effect of weight loss and dietary components on the severity of GERD which reports the dietary lifestyle modification is effective in reducing GERD symptoms. As well line the present study discovered that most of the study group achieved to lifestyle self-management related sleep pattern and personal habits. [3,29] confirmed in a similar study that the elevation of the head of patient's bed by 20 cm and avoiding of lying for 3 hours or more after a large meal may reduce the exposure of distal esophageal acid.

From another point of view, the results showed that more than three-quarters of patients in the current study sample

were able to improve abdominal breathing exercise management. Both [30,26] have emphasized the role of this type of exercise as a lifestyle modification in reducing exposure of the esophagus to acids and dependence on antacids.

Finally, these results together prove that increasing patient's knowledge and awareness about the illness contributes to increase their ability to lifestyle self-management and this proves the positive impact of the intervention program. This is confirmed by [31], when he recommended that lifestyle modification program should focus on patient's compliance regarding weight control, diet regimen, sleep pattern and exercise. Through this previous finding, the second hypothesis of the study is confirmed Gastro-esophageal reflux disease is a chronic disease that is associated with a range of troublesome symptoms. [32]. In the present study, the finding analysis showed that physical symptoms improved significantly in both groups at posttests compared with pre test scores; where all of the symptoms turned from severe to moderate or mild. But when compared to the results demonstrated that the study group had significantly more physical symptoms improvement than that observed in the control group especially in decrease feeling of nausea; good night sleep and decrease additional dose of treatment that appears in switching the degree of severity of symptoms from severe for mild after session's interventions.

This result is probably for two reasons; first the improvement in two groups may be due the physical symptoms is usually associated with pharmacotherapy. Second, the highest improvement in the study group than control group also confirms the positive impact of the intervention program to increase the patient's strategies to deal with physical symptoms through to pay attention to changing their lifestyle, which gave added value to the lifestyle modification program. This is consistent with the results of a similar studies conducted by [26,33], who confirmed that their patients in the study groups realized the importance of lifestyle change in improving symptoms, which improved their self-management of the disease through their ideas and actions thereby, achieve the goals of health promotion.

But there are those who do not been consistent with this result as [15] who mentioned in his report, there was no clear evidence that improvement in GERD was associated with lifestyle changes.

Improve patient's knowledge and perception concerning their nature of his illness and the factors influencing it contribute to improving their health promotion and quality of life. This confirms the indicators of the success of the program where the results of the current study revealed that no statistically significant differences were present between the both groups at pre lifestyle intervention indicators success. While, at follow-up there was significantly improvement in the study group compared with control group at all indicators items which was observed in decrease number of clinic visits, lack of taking the over dose of PPI and increase the duration between physical symptoms. Also a similar success of a nursing intervention in enhancing GERD patient's lifestyle modification was reported in a

study in Australia [13] which mentioned that earlier lifestyle modifications have been shown to be effective in the treatment management of GERD and promoting physical symptoms.

Based on the results of the previous study it can be said that the entire study hypothesis has been achieved since the goal of the study was to evaluate the effect of lifestyle intervention on the knowledge, physical symptoms and self-management of patient with Gastro-esophageal Reflux Disease.

CONCLUSIONS & RECOMMENDATIONS

The results of the study showed the effectiveness of the lifestyle modification sessions in improving the self-management of GERD patients and the physical symptoms of the disease through improved patient knowledge of the disease according to their needs. Therefore the study recommends the guidelines addressed as part of the medical management approach, generalization of such lifestyle modification guidelines in all health care setting providing services to GERD patients. Further studied are proposed to evaluate the long-term effect of such intervention especially psychological effect that this study has not addressed.

Limitations Despite the positive outcomes of the current study, there are recognized limitations. The sample size of the intervention was small and time for follow-up time was rather limited and this was a constraint in assessing the psychological effect of the session's intervention.

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