Effect of Educational Program on Compliance of Patients With Chronic gastritis

Yasmeen Alaa Eldin Ahmed[1] Nehal Mahmoud Abo Al-fadl [2], Rehab Rashwan Mohammed[3],

1- Demonstrator *of Medical Surgical Nursing, Faculty of Nursing, Benha University, (2) Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, AL Ryada University for science and technology.*

(3) Lecturer of Medical Surgical Nursing, Faculty of Nursing, Benha University.

Abstract

Background: Chronic gastritis is a common gastrointestinal disorder characterized by persistent inflammation of the gastric mucosa, which can significantly affect patients' quality of life. Poor compliance with treatment regimens, including medication adherence, dietary modifications, and lifestyle changes, remains a major challenge in managing the disease and preventing complications. Educational programs play a vital role in improving patients' knowledge and promoting adherence to therapeutic recommendations, which may enhance health outcomes and reduce disease burden. **The aim of the study:** was to evaluate the effect of educational program on compliance of patients with chronic gastritis. **Study design:** Quasi-experimental research design **(pre/post)** will be utilized to achieve the aim of the study. **Setting:** The study was conducted in medical departments at Benha University Hospital, to be continued in medical outpatient clinic for follow up. **Subjects:** A Purposive sample of (112) patients with chronic gastritis. **Tools:** Two tools were used; tool (I): Patients' Knowledge assessment questionnaire, it involved the patients' personal data, medical history and patients' knowledge assessment. Tool (II): Patients' compliance scale, it involved three domains; diet, exercise, medication follow up compliance . **Results:** there was statistically significant differences in total knowledge levels between pre and post educational program implementation periods (p value= $<0.05^{*}$). Where, (79.1% & 53.7%, respectively) of studied patients had good level of total knowledge during immediate and six months periods compared to (0.0%) pre educational program implementation, a highly statistically significant differences in total compliance levels between pre and post educational program implementation periods. Where, (37.3% & s31.3%, respectively) of studied patients had good level of total compliance during three and six months periods compared to (16.4%) pre educational program implementation. **Conclusion:** There was a marked improvement in patients' knowledge and all subscales of quality of life about physical, psychological and social status post nursing guidelines implementation. **Recommendations:** Further studies should be conducted on larger sample size to assess quality of life among patients post knee replacement surgery.

Key words : Chronic gastritis patients, Educational intervention program

Introduction

Gastritis is an inflammatory condition that affects the inner lining of the stomach .This inflammation can occur in various areas, ranging from widespread patches to a single localized region. While most cases are limited to the surface layer, some forms can extend deeper into the stomach wall. Gastritis is further categorized as acute or chronic based on its duration **(Al-Hashemi et al., 2023).**

Acute gastritis is a rapid inflammatory condition of the stomach lining, typically characterized by sudden onset and short-term duration, with bacterial infections, particularly H. pylori, being a primary causative agent In contrast, chronic gastritis develops from prolonged irritation and inflammation of the gastric mucosa, often resulting from persistent underlying conditions. **(Kumar et al., 2020)**.

Chronic gastritis is a common gastrointestinal condition characterized by persistent inflammation of the stomach lining and persist for long period of time**(Fock& Katelaris., 2021)**. It can be caused by various factors, including bacterial infections (like H. pylori), excessive alcohol consumption, smoking and nonsteroidal anti-inflammatory drugs (NSAIDs). These factors can damage the protective mucus layer, allowing stomach acid to irritate the underlying tissues**(Shimoji et al., 2021).**

Symptoms of chronic gastritis often encompass a range of gastrointestinal manifestations that can significantly impact patient well-being, including abdominal pain, heartburn, a sensation of fullness, belching, bloating, nausea, and decreased appetite, these symptoms can potentially progress to more serious complications such as gastric mucosal bleeding, leading to anemia and vitamin B12 deficiency).**(Wang et al., 2020).**

Many patients with gastritis can find relief by reducing their intake of acidic foods or using medications that decrease stomach acid production. Pain relievers can help manage symptoms, while medications that protect the stomach lining can prevent further damage. Antibiotic treatment is commonly used to address bacterial infections **(Shimoji et al., 2021).**

Compliance with treatment in patients with chronic gastritis is crucial for managing symptoms and preventing complications. Patients often face challenges such as dietary restrictions, medication adherence and lifestyle modifications. Effective communication between healthcare providers and patients can enhance understanding and motivation, leading to better adherence. Educational interventions and regular follow-up can also play a significant role in improving compliance, ultimately leading to better health outcomes**(Harris& Jones ., 2020).**

Nurses play a crucial role in managing chronic gastritis by providing comprehensive patient education, monitoring treatment adherence, and implementing personalized care strategies. They assess patients' understanding of dietary modifications, medication regimens, and lifestyle changes essential for effective management. By conducting regular follow-ups, offering emotional support, and utilizing patient-centered communication techniques, nurses significantly improve treatment compliance and patient outcomes in chronic gastritis management**(Martínez-González et al., 2021).**

Significance of the study:

Chronic gastritis represents a significant global health challenge, with prevalence rates escalating worldwide and particularly in developing countries like Egypt. Recent epidemiological studies highlight its substantial impact on population health, linking the condition to increased risks of gastric complications, reduced quality of life, and potential malignancy. Notably, Egypt experiences high prevalence rates influenced by dietary habits, Helicobacter pylori infection, and socioeconomic factors **(Hassan et al., 2021).** Gastritis is more prevalent in developing countries compared to developed nations, affecting a larger percentage of the population. Men are generally more susceptible to gastritis than women with rate 60-40% **(Feyisa & Woldeamanue., 2021)**. Adults in Egypt have a high prevalence of H. pylori infection, with rates as high as 50% **(Fady & Amr., 2022).**

According to reports of Benha University Hospital, it was found that the number of cases with chronic gastritis was (112) cases annualy **(Statistical Department of Benha University Hospital., 2023).**

Aim of the study:

This study aimed to is to evaluate the effect of educational program on compliance of patients with chronic gastritis.

Research Hypothesis:

H1- Knowledge score of chronic gastritis patients who are exposed to educational program could be higher than before.

H2- Compliance of chronic gastritis patients could be improved after applying educational program.

H3- There could be a correlation between patients' knowledge and compliance after applying educational program

II. Subjects and Method

Design: Quasi-experimental research design will be utilized to achieve the aim of the study.

Settings: The study was conducted in the medical departments as well as the medical outpatient clinics at Benha University Hospital, Qualyubia Governorate, Egypt. The department located at 5th floor of medical building and has three rooms including 14 beds (eight for men and six for women), nursing station and a physician office.

Subjects:A Purposive sample of (67) adult patients male and female have chronic gastritis from the previously mention setting during the period of data collection (6 months) and agree to

participate in this study. According to reports of Benha University Hospital, it was found that the number of cases with chronic gastritis was (112) cases annualy **(Benha University Hospital Statistical Office, 2024).** So, the following sample size formula was utilized to estimate the sample size:

$$n=\frac{N\times p\,(1-p)}{\left(\left(N-1\times\left(d^2\div z^2\right)\right)+p\,(1-p)\right)}=67$$

.**Tools for data collection:**

Tool I: Patients' Knowledge assessment questionnaire: (Appendix I)

It aimed to assess patients' knowledge regarding chronic gastritis., it consisted of **three parts**: **It consisted of three parts:-**

Part I: Patients' personal data :it included patients' age, gender, marital status, level of education, occupation, residence and income

Part II: Patients' Health History: It included past medical history , family history and current medical history (diagnosis ,type of gastritis , medications and associated medical disease).

Part III: Patients' knowledge assessment: This part consisted of 39 closed-ended questions used to assess patients' knowledge regarding chronic gastritis. It included five parts :

part I :concerned with questions related to anatomy and physiology of the stomach consisted of 8 closed-ended questions

part II: concerned with questions related to gastritis.consisted of 9 closed-ended questions

part III: concerned with questions related to treatment methods and complications consisted of 8 closed-ended questions

part IV: concerned with questions related to healthy eating habits consisted of 6 closed-ended questions.

part V: concerned with questions related to healthy lifestyle consisted of 8 closed-ended questions

These questions covered various aspects such as definition, causes, signs and symptoms, complications, and management of the disease

Patients' knowledge Scoring system:

knowledge -related items were assessed using a two -point scale , The score was distributed as: one grade for the correct answer and zero for incorrect and no answer, the total possible score ranged from 0 to 39 .

- The total score converted into percentage and graded as the following:
  - <80% was considered good level of knowledge (>31 scores).
  - 60% - 80 % was considered average level of knowledge (23 -31 scores).
  - >60% was considered poor level of knowledge (23 scores or less).

Tool II - Patients' compliance scale: (Appendix II)

This tool used to assess patients' compliance regarding to chronic gastritis management .It was adapted from **(Malfertheiner et al., 2022), (Talley et al., 2022)**. And modified by the researchers after reviewing the related and recent literature **(Zhang et al., 2023).**It was include: Dietary compliance, Exercise and Lifestyle Behavior) stress management and sleep) , Medication adherence and follow up .

Scoring system of compliance:

It is measured on 3 points a likert type scale of always (2), sometimes (1) and never (0) .

The total score was converted into percentage and graded as the following:

- ≥90% was considered excellent level of compliance (117 scores or more).
- 75% - <90% was considered good level of compliance (97 - <117 scores).
- 50-<75% was considered fair level of compliance (65 -< 97 scores).
- < 50% was considered poor level of compliance (< 65 scores).

Theoretical part; It included: information about definition , types, causes ,risk factors , signs &symptoms , diagnostic methods , complications ,treatment methods of chronic gastritis and its relieving measures as well as preventive measures . **Practical part;** It included instructions about dietary modifications , exercise and lifestyle behavior(stress management and sleep) , medication adherence and regular follow-up.

Ethical considerations:

The research approval was obtained from the ethical committee in the faculty of nursing before starting the study and from administrator in study setting. The researcher was clarified the objective and aim of the study to patients included in the study assuring maintaining anonymity and

confidentiality of subjects. Patients was informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time without giving any reason. Then, written consent was obtained from each patient enrolled in the study.

II. Preparatory phase: This phase included reviewing recent literature related to chronic gastritis, patient education, and compliance using textbooks and electronic databases. This review supported the development of the study tools and the educational program content. Additionally, simple Arabic educational materials, including an illustrated booklet and handouts, were prepared to enhance patients' understanding.

Tools validity:

The face and content validity were ascertained for comprehensiveness, relevance, simplicity, clarity and ambiguity through a panel of five experts from Medical Surgical Nursing Department, Faculty of Nursing, Benha University, consisted of two professor and three assistant professor. Also, the developed guidelines which covered all items related to chronic gastritis based on recent current literature was revised by the same experts and all recommended modifications were done. Their opinions elicited regarding the format ,layout ,consistency ,accuracy and relevancy of the tools ..

Tools reliability:

The reliability of knowledge questionnaire was determined using Cronbach's alpha coefficient which was 0.706 and the compliance was 0.971 . This only proves that this tool is an instrument with good reliability.

Pilot study:

It was conducted on 10% (7 patients) in medical department at benha university hospital to test the clarity and applicability of the tools. According to the result of the pilot study, no change was required. So, the patients participated in the pilot study were excluded from study sample. It was done two weeks prior to data collection.sample. It was done two weeks prior to data collection.

III. Field of work:

Once permission was obtained to collect the data. Patients were met individually to ensure privacy, encourage free expression, and obtain accurate information. Data collection was conducted during the morning shift, according to the patients' availability and clinic schedule.

Each patient was interviewed individually in a quiet and comfortable place. The duration of each interview 10 to 15 minutes. researcher explained the purpose of the study, obtained oral consent, and clarified any unclear points before data collection. Throughout the field work period, the researcher maintained ethical considerations and ensured confidentiality of all collected data.

Data collection of the current study was started at the beginning of July 2025 to the end of December 2025.

•The data collection was done through the following phases :

The study conducted through four phases:

1-Assessment phase (pre-test):

Once the researcher explained the aim of the study to all patients an interview questionnaire was started which is concerned by personal data ,medical history and patient knowledge about chronic gastritis and assessed patients about their compliance using **(tool I &tool II)**as a baseline data assessment . This phase was conducted by the researcher during the first day of patients' admission to the hospital.

2-Planning phase:

-Once the initial assessment was finished, the guidelines was designed based on individual needs. The researcher set up a teaching plan covering general and specific objectives.

-Teaching materials were prepared e.g. booklet, printed material and power point was help in covering theoretical and practical information.

- During this phase, the researcher established the objectives of the educational program in alignment with the study aim. The program content was designed based on recent scientific literature and evidence-based guidelines related to chronic gastritis. It focused on improving patients' understanding of the disease and promoting appropriate self-care behaviors, including adherence to dietary modifications ,lifestyle adjustments ,prescribed medications and regular medical follow-up.

.3- Implementation phase (The guidelines intervention):

-The process of data collection was carried out three days per week (Saturday, Monday and Wednesday) from 9 am to 1 pm to collect data from patients with chronic gastritis. Patients with chronic gastritis was divided into small groups of 3 patients to enhance interaction and individualized attention. The educational program

was delivered over four consecutive weeks, two sessions per week, each lasting 30–45 minutes.

The practical sessions was focused on enhancing self-care and compliance skills, including dietary modification and selection of gastritis-friendly foods, proper medication adherence and timing, management of medication side effects, stress reduction techniques, and the importance of regular follow-up. Demonstration, re-demonstration, and real-life examples will be used to ensure understanding and skill acquisition. Patients will be encouraged to ask questions and discuss any difficulties related to adherence at the end of the program.

The content of the sessions was divided as the following steps:

Session one (Theoretical session): This session focused on providing patients with basic and essential information about chronic gastritis. The content included an overview of the anatomy and physiological function of the stomach, followed by the definition of chronic gastritis and its different types. Causes and risk factors of chronic gastritis were explained, with emphasis on Helicobacter pylori infection, prolonged use of non-steroidal anti-inflammatory drugs and lifestyle-related factors. The session also addressed common signs and symptoms of chronic gastritis, methods of diagnosis, possible complications and treatment methods aiming to enhance patients' understanding of the disease and its clinical implications. lasting for (40-45 minutes)

The explanation was delivered using simple Arabic language, supported by an illustrated booklet and verbal clarification. To ensure patients' understanding, the researcher encouraged discussion, asked open-ended questions, and requested patients to restate the information in their own words. Immediate feedback was provided and any misunderstanding was corrected.

Session two (Practical session): It included dietary management and recommended nutritional practices, with clarification of foods that should be encouraged or avoided. Lifestyle modifications were discussed, including stress management, sleep regulation, physical activity, and smoking cessation. In addition, the session covered medication adherence, proper timing and administration of prescribed drugs, and the importance of regular medical follow-up to prevent disease exacerbation and complications. The session aimed to promote positive self-care behaviors and improve patients' compliance with the therapeutic regimen, lasting for (30-45 .minutes)

Different teaching and learning methods were used during the sessions which included; discussion, demonstration and re-demonstration, instructional which was presented in clear and concise form. The program colored booklet was given to each studied patient in order to help them for reviewing and support teaching throughout interview sessions & at home .as well

The patients' questions were answered and discussed to correct any misunderstanding to provide clarifications. Also, the researcher received notes from the patients' feedback and thanked them for their cooperation and asked them about their opinion on the guidelines and the benefits that gained from the subject, then distributed the questionnaire for post - test

4-Evaluation phase

Evaluation of the effect of educational program on compliance of patients' with chronic gastritis by using the same data collection tools through the following phases

Phase 1: Immediately post-test evaluation was performed after implementing educational program (following the teaching session) to evaluate the effectiveness of the educational program on compliance of patients' with chronic gastritis **(utilizing tool 1 part III)** in order to compare the changes in the studied .patients' knowledge

Phase 2: The effectiveness of the educational program was evaluated as

follows:

Tool 1: after 6 months post-program implementation.

Tool 2: used to evaluate patient regarding compliance to gastric management after 3 months post implementing of program and 6 months for follow up .

Most patients interviewed face to face and evaluated in medical department, while the remaining patients were contacted via telephone for follow-up evaluation.

Comparing between pre and post data * collected was performed to attain the aim of the current study.

Results:

Table (1): shows frequency distribution of the studied patients according to their health history, it demonstrated that , 37.3% of studied patients had been diagnosed for > 1 year, and 56.7% were hospitalized due to chronic gastritis, 57.9% were hospitalized for more than one time, moreover 29.9% had a previous surgery especially appendectomy, among 55.0%. as for family history 56.7% reported that they had a family history of first degree relatives among 63.2% , with a currently experienced loss of appetite and nausea among 26.9%, while 31.3% were currently diagnosed as having reactive gastritis and 43.3% were receiving antibiotics as a prescribed medications, moreover 58.2% had a chronic diseases, especially diabetes mellites among 48.7%.

Table (2): shows distribution and significance difference of patients' knowledge regarding anatomy and physiology of the stomach between pre & post educational program implementation periods..It clarified that , there was a statistical significance difference between pre and post implementing of educational program (post immediate ,six months) with (p value = <0.05). As well as (28.4%, 28.4%, 31.3%, 35.8%)of studied patients had poor knowledge pre implementiong of educational program regarding definition of the stomach, location of the stomach, the part connecting the stomach to the small intestine, and the organ where digestion begins respectively while the most (86.6%, 85.1%, 83.6%,88.1%)

Figure (1): illustrates that there was statistically significant differences in total knowledge levels between pre and post educational program implementation periods (p value= $<0.05^{*}$). Where, (79.1% & 53.7%, respectively) of studied patients had good level of total knowledge during immediate and six months periods compared to (0.0%) pre educational program implementation.

Figure (2): illustrates that there was a highly statistically significant differences in total compliance levels between pre and post educational program implementation periods. Where, (37.3% & s31.3%, respectively) of studied patients had good level of total compliance during three and six months periods compared to (16.4%) pre educational program implementation.

Table (19): shows a correlation between total patients' knowledge, and compliance pre and post 6 months of educational program implementation periods. It revealed that , a statistical significance between total knowledge and total compliance before the program implementation ($r = 0.379$, $p = 0.002$) and highly statistical significance between total knowledge and total compliance (post six months)($r = 0.411$, $p < 0.001$) .

Table (1): Frequency distribution of the studied patients according to their personal characteristics (n = 67).

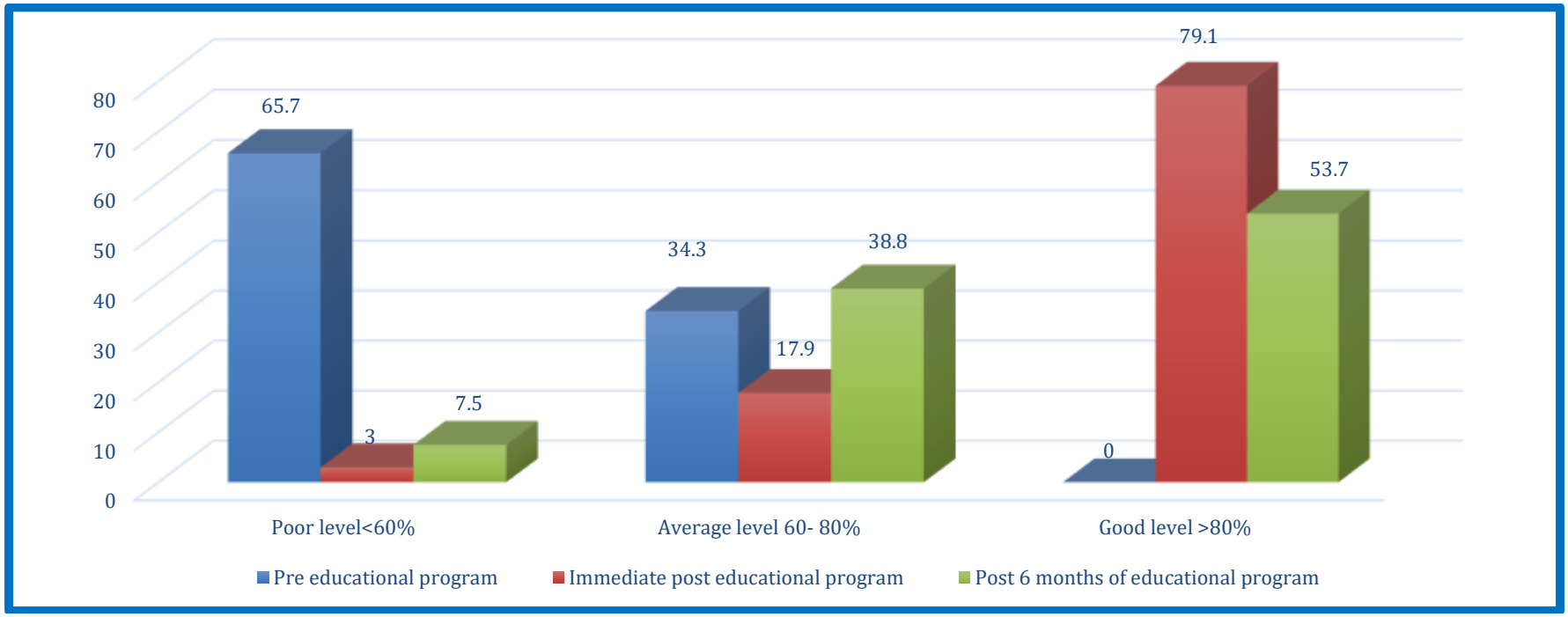
Patients' personal data	(No.)	%
Age (in years)		
20-<30	15	22.4
30-<40	21	31.3
40-<50	13	19.4
50-60	18	26.9
$\bar{\chi}$ ± SD	39.51 ± 1.12	
Gender		
Male	32	47.8
Female	35	52.2
Marital status		
Married	47	70.1
Not married	20	29.9
Educational Level		
Can't read and write	14	20.9
Read and write	18	26.8
Intermediate qualification	20	29.9
High qualification	15	22.4
Occupation		
Working	41	61.2
Not working / Housewife	26	38.8
Residence		
Rural	31	46.3
Urban	36	53.7
Monthly income (reported by patient)		
Sufficient	33	49.3
Insufficient	34	50.7

Table (2):Frequency distribution of the studied patients according to their health history (n = 67).

Patients' health history	(No.)	%
Past medical and surgical history		
Time since diagnosis		
<6 months	22	32.8
6 months- 1 year	20	29.9
> 1 year	25	37.3
Hospitalization due to chronic gastritis		
Yes	38	56.7
No	29	43.3
Times of hospitalization due to chronic gastritis(n=38)		
One time	16	42.1
More than one time	22	57.9
Had any previous surgery		
Yes	20	29.9
No	47	70.1
If yes, the type of surgery (n=20)		
Cholecystectomy	7	35.0
Esophagectomy	2	10.0
Appendectomy	11	55.0
Family history		
Have any family members suffering from chronic gastritis		
Yes	38	56.7
No	29	43.3
If yes, the degree of kinship is (n= 38)		
First degree	24	63.2
Second degree	10	26.3
Third degree	4	10.5
Present medical history		
Symptoms that you are currently experiencing		
Upper abdominal pain	16	23.9
Loss of appetite	18	26.9
Nausea	18	26.9
Vomiting	15	22.3

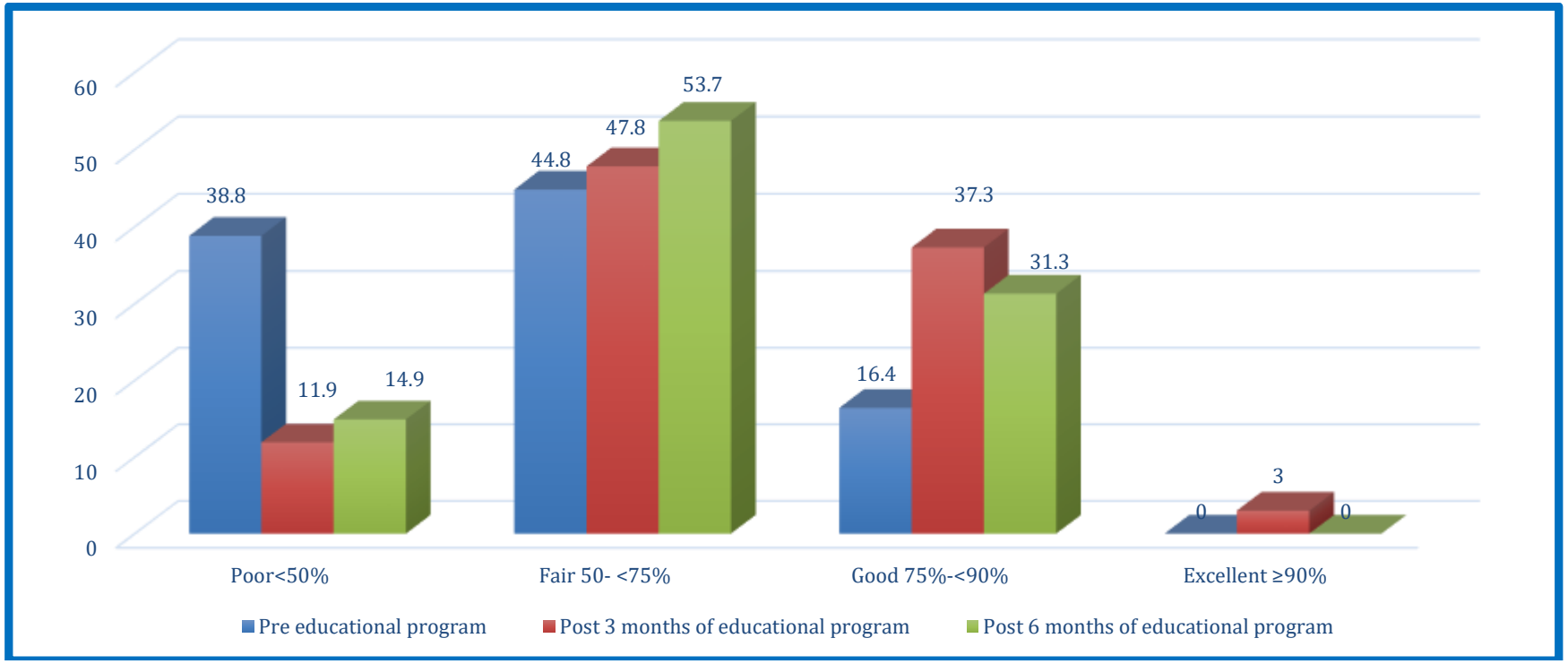
Type of gastritis you are currently diagnosed with		
Erosive gastritis	20	29.9
Reactive gastritis	21	31.3
Atrophic gastritis	17	25.4
Autoimmune gastritis	9	13.4
Medications you are currently taking for this condition		
Non-steroidal anti-inflammatory drugs (NSAIDs)	15	22.4
Antibiotics	29	43.3
Antacids	23	34.3
Suffer from any other chronic diseases		
Yes	39	58.2
No	28	41.8
If yes, the disease is (n=39) #		
Diabetes mellitus	19	48.7
Hypertension (high blood pressure)	16	41.0
Cardiovascular diseases	8	20.5
Inflammatory colon diseases	4	10.2

Figure (1). Difference between the studied patients about their total knowledge level for chronic gastritis throughout different study periods (n=67).



**** Highly Significant at p ≤0.001. * Significant at p ≤0.05.**
(1) Difference between knowledge pre and immediately post educational program
(2) Difference between knowledge pre and 6 months post educational program

Figure (2). Difference between the studied patients regarding their total compliance level pre and post educational program implementation periods (n=67).



**** Highly Significant at p ≤0.001 .**
(1) Difference between total compliance pre and 3 months post educational program
(2) Difference between total compliance pre and 6 months post educational program

PartV: Correlation between total knowledge and compliance.

Table (19) Correlation between total patients' knowledge, and compliance pre and post 6 months of educational program implementation

r-\ p values / *Variable*	Study Periods	*Total knowledge*	
		r	***P -value***
Total compliance	Pre	0.379	0.002*
	Post 6 months of educational program	0.411	0.001**

(*) Statistically Significant at ≤0.05 (**) Highly statistically significant at ≤0.001

Discussion

Chronic gastritis represents a significant public health challenge, characterized by persistent inflammation of the gastric mucosa that can progress to more severe complications such as peptic ulcers, anemia, and gastric malignancies if not properly managed. Patient education plays a pivotal role in the management of this chronic condition, as successful treatment outcomes rely heavily on the patient's adherence to medication regimens, dietary modifications, and lifestyle changes.

Regarding the demographic characteristics of the studied patients, the current study revealed that nearly one-third of the patients were aged between 30 and less than 40 years, with a mean age of 39.51 ± 1.12 years. From the researcher's point of view, this prevalence in the middle-aged adult population may be attributed to high levels of life stress, occupational pressures, and poor dietary habits such as the consumption of fast food and irregular meal timing, which are common in this age group. Additionally, the accumulated exposure to risk factors such as Helicobacter pylori infection over decades typically manifests clinically during these years.

These findings are in the same line with a study conducted by **Zhang et al.,(2022)** titled "Epidemiological features of chronic gastritis in young and middle-aged adults," which reported that the highest incidence of chronic gastritis was observed in the 35-45 age group due to lifestyle factors. Similarly, **Al-Jumaily &Al-Shammari (2023)** in their study "Impact of Lifestyle on Gastritis Prevalence," found that the mean age of participants was 38.5 years, suggesting that this active age group is particularly vulnerable to gastrointestinal disorders due to work-related stress and dietary irregularities.

Concerning gender, the current study showed that more than half of the studied patients were female (52.2%). From the researcher's point of view, this slight female predominance could be explained by hormonal factors that may influence gastric mucosal integrity or autoimmune susceptibility, as autoimmune gastritis is known to be more prevalent in women. Furthermore, women may be more likely to seek medical advice for gastrointestinal symptoms compared to men. This finding is consistent with the results of a study by Silva et al., (2021) regarding "Gender differences in functional dyspepsia and gastritis," which indicated a higher prevalence of gastritis symptoms among women. However, this finding disagrees with **Wang et al., (2024)** who reported in "Global Burden of Gastritis" that infection rates of H. pylori-induced gastritis were slightly higher in males in certain Asian populations due to higher rates of smoking and alcohol consumption.

As for marital status, the results revealed that the majority of the patients (70.1%) were married. This finding might be reflective of the general age distribution of the sample, falling within the typical age of marriage. It also suggests that family responsibilities and stressors could potentially contribute to the exacerbation of symptoms. This aligns with the findings of **El-Sayed et al., (2022)** who studied "Psychosocial factors affecting chronic gastritis patients" and found that the majority of their sample were married individuals facing significant familial and economic stressors.
Regarding educational level, the study showed that nearly thirty percent of the patients had an intermediate qualification, while approximately twenty percent could not read or write. From the researcher's perspective, the variation in educational levels highlights the necessity for educational materials that are simplified, visual, and easy to comprehend for all literacy levels. The presence of illiterate patients emphasizes the importance of verbal explanation and pictorial aids in the educational program. This is supported by **Thompson & Miller (2023)** who emphasized in "Health Literacy in Gastroenterology" that low health literacy is a significant barrier to disease management and requires tailored educational interventions.

Concerning occupation and residence, more than sixty percent of the patients were working, and more than half lived in urban areas. This high percentage of urban residents might be linked to the "westernized" diet and stressful lifestyle associated with city living, including higher consumption of processed foods. This is in agreement with **Chen et al., (2021)** who found a higher prevalence of gastritis in urban populations compared to rural ones in their study "Urbanization and Gastrointestinal Health." Additionally, regarding monthly income, about half of the patients reported insufficient income. Financial constraints can severely impact dietary choices and medication adherence, as patients might opt for cheaper, less healthy food options or skip medication doses. This observation is corroborated by **Gomez et al., (2022)** who noted that socioeconomic status is a strong predictor of dietary compliance in chronic gastrointestinal diseases.

Regarding the health history of the studied patients, the results revealed that more than one-third of the patients had been diagnosed for more than one year. This indicates the chronicity of the condition and the potential for patients to develop maladaptive coping mechanisms or misconceptions over time if not properly educated. Furthermore, more than half of the patients (56.7%) had been hospitalized due to chronic gastritis, with the majority hospitalized more than once. This high rate of hospitalization underscores the severity of the condition among the study sample and highlights a gap in effective outpatient management and self-care, which the educational program aimed to address. This finding is consistent with **Hopkins et al., (2023)** who reported high readmission rates for gastritis flare-ups in patients with poor self-management skills.
The study also found that nearly thirty percent of patients had previous surgeries, specifically appendectomies in more than half of those cases. Additionally, a significant percentage (56.7%) reported a family history of chronic gastritis, primarily among first-degree relatives. This suggests a genetic predisposition or shared environmental and dietary factors within families, such as H. pylori transmission. This aligns with the study by **Park & Kim (2024)** titled "Familial Aggregation of Helicobacter pylori Infection," which confirmed that family members often share similar gastric health profiles due to cross-infection and shared dietary habits.

Clinically, the most reported symptoms were loss of appetite and nausea (26.9%), and reactive gastritis was the most common type diagnosed (31.3%). This correlates with the demographic finding of high NSAID use (22.4%) and potential dietary irritants. Moreover, nearly sixty percent of patients suffered from other chronic diseases, with diabetes mellitus being the most common (48.7%). The presence of comorbidities like diabetes complicates the management of gastritis, as diabetic gastroparesis can mimic or worsen gastritis symptoms. This is supported by **Ahmed &Hassan (2021)** who found a strong correlation between diabetic autonomic neuropathy and gastric mucosal disorders.

Overall, the total knowledge scores reflected a shift from a predominantly "Poor" level pre-program to a "Good" level post-program. The fact that 82.1% of patients had good knowledge regarding eating habits immediately post-program compared to only 13.4% pre-program is a testament to the program's efficacy. The slight decline observed at 6 months (to 67.2%) is a common phenomenon in educational interventions, suggesting the need for booster sessions or follow-up reminders. This pattern is similar to findings by **Wilson & Brown (2023)** in "Long-term retention of health education in chronic disease," where knowledge retention peaked immediately post-intervention and stabilized at a lower but still significantly improved level over time.

When analyzing the total compliance levels, the study found a dramatic shift. For stress management behavior, the percentage of patients with an "Excellent" compliance level rose from 11.9% pre-program to 50.8% post-program. Overall, the improvement in total compliance reflects the holistic impact of the educational intervention, addressing not just pills but the patient's entire lifestyle. This mirrors the conclusion of **Anderson & Clark (2022)** in their meta-analysis "Effectiveness of self-management programs for chronic illness," which found that multicomponent interventions yield the best compliance outcomes.

Regarding to Correlation Between Total Knowledge and Compliance ,The ultimate goal of increasing knowledge is to improve behavior. The current study revealed a statistically significant positive correlation between total knowledge scores and total compliance scores at both the pre-program ($r = 0.379$, $p = 0.002$) and post-6-month periods ($r = 0.411$, $p = 0.001$). This finding confirms the research hypothesis that improved knowledge leads to better compliance.

From the researcher's point of view, this correlation suggests that when patients understand the rationale behind therapeutic instructions—for instance, understanding that NSAIDs erode the stomach lining—they are more likely to comply with the instruction to avoid them. Knowledge empowers decision-making. The increase in the correlation coefficient at 6 months (from 0.379 to 0.411) indicates that as knowledge consolidates, its influence on behavior strengthens, or that the learned behaviors become habits reinforced by the understanding of the disease.

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Conclusions

Based on the results of the present study, the following conclusions can be drawn:

The implementation of a structured educational program significantly improved patients' total knowledge regarding chronic gastritis. This improvement was observed across all domains, including anatomy and physiology of the stomach, disease overview, risk factors, treatment methods, potential complications, and healthy dietary habits.

The educational intervention proved effective in correcting misconceptions and enhancing patients' understanding of their condition, as evidenced by the statistically significant increase in knowledge scores immediately post-program and the retention of information at the six-month follow-up compared to pre-program levels.

Furthermore, the study demonstrated a significant enhancement in patients' total compliance behaviors following the educational intervention. Patients exhibited marked improvements in adhering to dietary modifications, adopting healthy lifestyle practices such as regular exercise and stress management, adhering to prescribed medication regimens, and attending follow-up appointments. The shift from poor compliance levels pre-program to good and excellent levels post-program underscores the efficacy of targeted nursing education in promoting positive behavioral changes.

The study results also revealed a statistically significant positive correlation between patients' total knowledge scores and their compliance behavior scores at both pre-program and follow-up phases. This finding supports the research hypothesis that increased knowledge acts as a catalyst for better adherence to therapeutic instructions. When patients understand the rationale behind treatment and lifestyle modifications, they are more likely to comply with the prescribed regimen.

Recommendations

In the light of the current study findings, the following recommendations are suggested:

Clinical Practice and Nursing Implications

Integrate structured educational programs regarding chronic gastritis into the routine nursing care plan for all diagnosed patients in outpatient clinics and inpatient units.

Nurses should utilize simplified visual aids, such as anatomical charts, videos, and illustrated pamphlets, to facilitate patient understanding, particularly for those with lower literacy levels.

Emphasize the importance of lifestyle modifications, including stress management techniques and dietary planning, as integral components of the treatment plan, rather than focusing solely on pharmacological therapy.

Conduct regular assessments of patients' compliance and knowledge during follow-up visits to identify gaps and provide immediate reinforcement.

Patient Education Materials

Develop and distribute simple, illustrated educational booklets or brochures in Arabic that cover all aspects of chronic gastritis, including "Do's and Don'ts" regarding diet and medication.

Create accessible digital resources, such as short mobile-friendly videos or messages, that reinforce key health instructions and remind patients of medication schedules and follow-up appointments

3. Administrative and Policy Level

Establish continuous in-service training programs for nursing staff to upgrade their knowledge about gastrointestinal disorders and enhance their communication and health education skills.

Designate a dedicated health education counseling area within gastroenterology clinics to ensure privacy and provide a conducive environment for patient teaching.

Implement hospital policies that standardize discharge planning and education for gastritis patients to ensure consistency in the information provided.

4.Program Implementation and Reinforcement

Implement booster education sessions at regular intervals (e.g., three-month and six-month follow-ups) to reinforce previously learned information and sustain compliance levels.

Develop a telephone or mobile-based reminder system to send patients motivational messages, medication reminders, and tips for healthy dietary and lifestyle habits.

Encourage family involvement in educational sessions, particularly for patients with a family history of chronic gastritis, to promote shared understanding and support adherence to preventive measures.

5.Addressing Socioeconomic Barriers

Collaborate with social services to provide financial assistance or subsidized medications for patients with insufficient income to ensure that economic constraints do not compromise treatment adherence.

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