



Effectiveness of an Instructional Program on Patient's Knowledge concerning Functional Dyspepsia Diet

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Abstract

Background: A quasi experimental study was conducted at the Karbala Centre for Gastrointestinal and Liver Diseases and Surgery (AL-Hussein Medical City) between February 21, 2024, and January 1, 2025.

Objective: To assess the effect of the instructional program on knowledge of patients with functional dyspepsia and to determine the correlation between the demographic characteristics of the patients and their knowledge concerning functional dyspepsia diet

Methodology: Fifty patients chosen as a purposeful sample. The control group, which consists of twenty-five patients, is not subjected to the dietary instruction program, while twenty-five patients in the case group are subjected to the instruction program. The literature review and antecedent research were the foundations for the development of the program and study instrument. A panel of (11) assessed the validity and reliability of the instrument experts and the sample correlation coefficient was used to ascertain the questionnaire's internal consistency. The descriptive and inferential statistical analysis procedure was implemented to analyse the data

Results: The study's findings demonstrate that the patient's knowledge concerning functional dyspepsia diet of the case group, which participated in the instructional program, improved at post-test in comparison to the control group that did not get the program. Furthermore, significant statistical correlation was seen between patients' level of education and their knowledge concerning functional dyspepsia diet

Conclusion: The study concluded that the instructional program effectively enhanced the case group's knowledge regarding the functional dyspepsia diet.

Recommendations: Increase health awareness among patients with functional dyspepsia regarding functional dyspepsia die through lectures, television programs, and social media. Activating the role of nutritionist in hospitals and

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gastrointestinal centres and utilising the current program for all patients with functional dyspepsia to increase health awareness regarding functional dyspepsia die.

Keywords: Instructional program, Patient's knowledge, Functional Dyspepsia Diet.

الخلاصة:

الخلفية: دراسة شبه تجريبية أجريت في مركز كربلاء لأمراض وجراحة الجهاز الهضمي والكبد (مدينة الحسين الطبية) بين ٢١ شباط ٢٠٢٤ و ١ كانون الثاني ٢٠٢٥.

الهدف: تقييم فاعلية البرنامج الإرشادي على معارف المرضى الذين يعانون من عسر الهضم الوظيفي وتحديد العلاقة بين الخصائص الديموغرافية للمرضى ومعارفهم فيما يتعلق بالنظام الغذائي لعسر الهضم الوظيفي.

المنهجية: تم اختيار خمسين مريضا كعينة غرضية لا تخضع المجموعة الضابطة، التي تتكون من خمسة وعشرين مريضا، للبرنامج الإرشادي، في حين يخضع خمسة وعشرين مريضا في مجموعة الدراسة للبرنامج الإرشادي. كانت مراجعة الأدبيات وأبحاث السابقة هي الأسس لتطوير البرنامج وأداة الدراسة. قام فريق مكون من (١١) خبيراً بتقييم ثبات وموثوقية الأداة واستخدام معامل ارتباط العينة للتأكد من الاتساق الداخلي للاستبيان. تم تنفيذ إجراءات التحليل الإحصائي الوصفي والاستدلالي لتحليل البيانات.

النتائج: تظهر نتائج الدراسة أن معارف المرضى فيما يتعلق بالنظام الغذائي لعسر الهضم الوظيفي لمجموعة الدراسة التي شاركت في البرنامج الإرشادي تحسنت في مرحلة الاختبار البعدي مقارنة بالمجموعة الضابطة التي لم تحصل على البرنامج. علاوة على ذلك، شوهدت علاقة إحصائية كبيرة بين مستوى الثعلم للمرضى ومعارفهم فيما يتعلق بالنظام الغذائي لعسر الهضم الوظيفي.

الاستنتاج: خلصت الدراسة إلى أن البرنامج الإرشادي عزز بشكل فعال معرفة مجموعة الدراسة فيما يتعلق بالنظام الغذائي لعسر الهضم الوظيفي.

لتوصيات: زيادة الوعي الصحي بين المرضى الذين يعانون من عسر الهضم الوظيفي فيما يتعلق بالنظام الغذائي من خلال المحاضرات والبرامج التلفزيونية ووسائل التواصل الاجتماعي. تفعيل دور أخصائي التغذية في المستشفيات ومراكز الجهاز الهضمي واستخدام البرنامج الحالي لجميع المرضى الذين يعانون من عسر الهضم الوظيفي لزيادة الوعي الصحي.

الكلمات المفتاحية: البرنامج الإرشادي، معارف المرضى، النظام الغذائي لمرضى عسر الهضم الوظيفي.

Introduction

Functional dyspepsia is a gastrointestinal condition marked by postprandial fullness, early satiety, epigastric pain, and epigastric burning. The disease's pathogenesis remains incompletely understood, and there is no

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definitive treatment; nevertheless, certain interventions, including pharmaceuticals and natural cures, aim to alleviate symptom (1). It is a most prevalent disorders in clinical practice (2). It exhibits a significant prevalence, affecting 10-30% of individuals globally (3). Notwithstanding its widespread occurrence, considerable ambiguities persist concerning its definition, aetiology, diagnosis, and treatment. Due to the absence of a standardized treatment for Functional dyspepsia, research into effective therapies is ongoing but requires additional validation. Protein pump inhibitors represent the predominant therapeutic approach for acid suppression (4).

Conversely, a diet that seems to be significantly associated with the alleviation of functional dyspepsia symptoms is one rich in fruits and vegetables. The cross-sectional study by Tabibian et al indicates that individuals adhering to a fruit-rich diet have a 32% reduced risk of functional dyspepsia, along with diminished risks of early satiation and postprandial fullness compared to those following a low fruit diet. Furthermore, a substantial consumption of vegetables appears to exert a positive influence on functional dyspepsia (5). Zito and his colleagues discovered a similar pattern and underscored the need of adhering to a balanced diet through their findings (6).

Diet significantly influences the alleviation or aggravation of functional dyspepsia symptoms; so, dietary management is deemed highly important. Various foods have been proposed to exacerbate functional dyspepsia, including fatty and spicy items, soft drinks, while certain foods are believed to mitigate symptoms, such as apples, rice, bread, olive oil, yoghurt, and others. A link exists between functional dyspepsia and irregular eating patterns (1)

In light of the widespread prevalence of functional dyspepsia and its impact on the quality of life of adult patients experiencing dyspeptic symptoms, the researcher has developed an instructional program concerning functional dyspepsia diet aimed to enhancing patients' awareness of eating patterns and identifying foods that exacerbate or alleviate symptoms. This program seeks to establish more precise dietary guidelines and the avoidance of specific nutrients in the management of functional dyspepsia symptoms. The study aims to assess the effect of the program on knowledge of patients with functional dyspepsia and to determine the correlation between the demographic characteristics of the patients and their knowledge concerning functional dyspepsia diet.

Methodology

Study Design: A quasi-experimental design was employed utilising a pre-test and post-test methodology for both the experimental and control groups in the

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sample. The research was carried out in AL-Hussein Medical City, particularly at the Karbala Centre for Gastrointestinal and Liver Diseases and Surgery.

Setting of the Study: Karbala Centre for Gastrointestinal and Liver Diseases and Surgery.

Sample and sampling: Fifty patients chosen as a purposeful sample. The control group, which consists of twenty-five patients, is not subjected to the dietary instruction program, while twenty-five patients in the case group are subjected to the dietary instruction program.. The descriptive and inferential statistical analysis procedure was implemented to analyse the data.

Instrument and program: The literature review and antecedent research were the foundations for the development of the program and study instrument. A panel of (11) assessed the validity and reliability of the instrument experts and the sample correlation coefficient was used to ascertain the questionnaire's internal consistency. To evaluate the effect of the program, the researcher used the instrument consists of two parts:

Section I: The demographic data for study participant.

Section II: MCQ and true or false question to evaluate patient's knowledge concerning functional dyspepsia diet.

Statistical Analysis: The descriptive and inferential statistical analysis procedure was implemented to analyse the data., the researcher used the SPSS version 20 to analysis of data.

Results

Table 1. Socio-demographic variables for study participant :

SDVs	Classification	Study Group		Control Group	
		No.	%	No.	%
Sex	Male	11	44.0	10	40.0
	Female	14	56.0	15	60.0
Age	20 to less than 30	9	36.0	7	28.0
	30 to less than 40	9	36.0	10	40.0
	40 to less than 50	5	20.0	5	20.0
	50 and older	2	8.0	3	12.0
	<i>Mean± SD</i>	35.48±9.832		36.36±9.128	
Occupation	Housewife	8	32.0	9	36.0
	Employee	7	28.0	8	32.0
	Student	3	12.0	2	8.0
	Free work	5	20.0	5	20.0
	Not work	2	8.0	1	4.0
Marital status	Single	7	28.0	3	12.0
	Married	14	56.0	19	76.0
	Widowed	1	4.0	1	4.0
	Divorced	2	8.0	1	4.0
	Separated	1	4.0	1	4.0
Education	Reads and writes	7	28.0	8	32.0

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level	Elementary	3	12.0	5	20.0
	Intermediate	2	8.0	2	8.0
	Secondary	2	8.0	1	4.0
	Diploma	7	28.0	4	16.0
	Bachelor's	2	8.0	4	16.0
	Postgraduate	2	8.0	1	4.0
Residents	Rural	9	36.0	7	28.0
	Urban	16	64.0	18	72.0
Monthly income	Enough	5	20.0	3	12.0
	Enough to certain	14	56.0	13	52.0
	Not enough	6	24.0	9	36.0

No.= Number; %= Percentage

The findings provide a comprehensive analysis of the characteristics of patients with functional dyspepsia. Female participants were predominant in both the study (56.0%) and control (60.0%) groups. average age of study group was 35.48 ± 9.832 years, while the control group average age of 36.36 ± 9.128 years. Regarding occupation, most participants in the study group were Housewife (32.0%), similar to the control group (36.0%). In terms of marital status, a majority were married in both the study (56.0%) and control (76.0%) groups. Concerning education level, reads and writes participants made up the highest percentage in both the study (28.0%) and control (32.0%) groups. The majority of participants resided in urban areas, accounting for 64.0% in the study group and 72.0% in the control group. Lastly, more than half of the participants in the study (56.0%) and control (52.0%) groups reported a moderate monthly income

Table 2. Overall Effectiveness of Program on knowledge of Patients with Functional Dyspepsia between Study and Control groups

Periods	Groups	Mean	Std. Deviation	t-value	d.f	η^2	Sig
Pre-test	Study	13.52	2.200	0.538	48	0.00	.529
	Control	13.20	2.000				
Post-test	Study	32.48	2.219	27.531	48	0.94	.000
	Control	14.48	2.400				

Level of Assessment of \sum mean (Poor= 0-14.66; Fair= 14.67-29.33; Good= 29.34-44)

The results demonstrate that no statistically significant change was observed in patients' knowledge about all domains of a dietary instructional program, between the study group (13.52 ± 2.200) and the control group (13.20 ± 2.00) during the pre-test period. Both groups exhibited a comparable yet low level of knowledge, with no significant variation observed ($t=0.538$; $p=0.529$) and a negligible effect size ($\eta^2=0.00$).

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In contrast, a statistically significant difference in knowledge was noted in the post-test interval, with the study group (32.48 ± 2.219) showing a marked improvement compared to the control group (14.48 ± 2.400). The study group demonstrated a significantly higher level of knowledge ($t=27.531$; $p<0.001$), with effect size is a large ($\eta^2=0.94$), indicating the program substantial impact.

Table 3. Overall comparison of Patients knowledge about y Instructional Program between periods of measurement

Groups	Periods	Mean	Std. Deviation	t-value	d.f	Sig
Study Group	Pretest	13.52	2.200	31.825	24	.000
	Posttest	32.48	2.219			
Control Group	Pretest	13.20	2.000	1.109	24	.066
	Posttest	14.48	2.400			

t-value = t-test; d.f = Degree of Freedom, Sig. = Significant Level at ≤ 0.05

The results demonstrate a statistically significant difference in patients' knowledge of the Instructional Program between the study group's pretest ($M=13.52$, $SD=2.20$) and posttest ($M=32.48$, $SD=2.22$) scores, with both assessments exhibiting considerable variation ($t=31.825$, $p<0.001$). The control group shown no statistically significant difference in knowledge, with pretest ($M=13.20$, $SD=2.00$) and posttest ($M=14.48$, $SD=2.40$) scores.

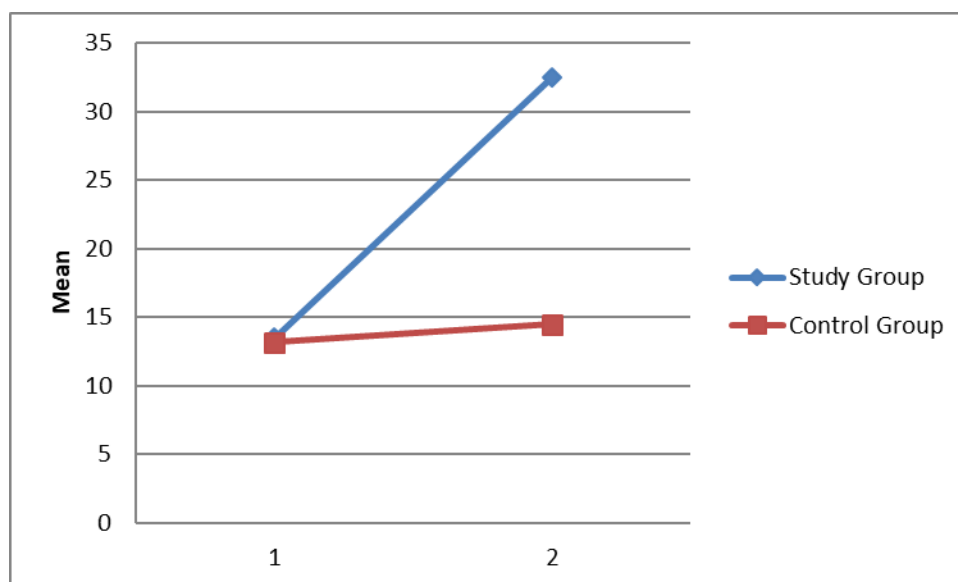


Figure 1. Patients' Knowledge in Pre- and Post-Test for Case and Control Groups

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Figure 1 illustrates the effect of program, demonstrating a significant difference in knowledge scores between the case group and the control groups in both pre and post-test evaluations. The case group's scores improved from (M=13.52, SD=2.20) in the pre-test to (M=32.48, SD=2.22) in the post-test.

Table 4. Statistical Differences in Knowledge of Patients between Groups of Socio-demographic Characteristics

Factors	Source of variance	Sum of Squares	d.f	Mean Square	<i>F-statistic</i>	<i>Sig.</i>
Sex	Between Groups	4.526	1	4.526	.915	.349
	Within Groups	113.714	23	4.944		
	Total	118.240	24			
Age	Between Groups	9.429	3	3.143	.607	.618
	Within Groups	108.811	21	5.181		
	Total	118.240	24			
Occupation	Between Groups	24.136	4	6.034	1.282	.310
	Within Groups	94.104	20	4.705		
	Total	118.240	24			
Marital status	Between Groups	43.169	4	10.792	1.875	.060
	Within Groups	75.071	20	3.754		
	Total	118.240	24			
Education level	Between Groups	86.311	6	14.385	8.110	.001
	Within Groups	31.929	18	1.774		
	Total	118.240	24			
Residents	Between Groups	9.302	1	9.302	1.964	.174
	Within Groups	108.938	23	4.736		
	Total	118.240	24			
Monthly income	Between Groups	3.583	2	1.791	.344	.713
	Within Groups	114.657	22	5.212		
	Total	118.240	24			

The analysis of variance indicated no statistically significant variations in knowledge scores among patients with functional dyspepsia according to sex ($p = 0.349$), age ($p = 0.618$), occupation ($p = 0.310$), marital status ($p = 0.060$), residence ($p = 0.174$), or monthly income ($p = 0.713$). Statistically significant variations were noted for education level ($p = 0.001$).

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Discussion

During the data analysis of the current study, The findings provide a comprehensive analysis of the characteristics of patients with functional dyspepsia. The findings show that the Female participants were predominant in the study (56.0%) and control (60.0%) groups.

This result is supported by Piotrowicz et al (7) who studied the socio-demographic characteristics of patients with functional dyspepsia. The study included 230 individuals suffering from indigestion disorders, with the largest group comprising women (60.9%). So These results agree with several descriptive studies conducted in many different countries (8)(9) in this studies that the majority of participant are female. The vulnerability of females to functional dyspepsia can be affected by many factors including hormonal inconstancy, differences in lifestyle habits, genetic predisposition, and differences in stomach acid secretion. Additionally, stress, diet, and certain medications can also contribute to the development of functional dyspepsia

Shriraam, et al (10) conducted a study involving 366 patients in India to assess their knowledge of chronic diseases, revealing that 76.5% of participants were female and 23.5% were male. The researcher believes that females exhibit a greater interest than males in enhancing their knowledge, thus playing a significant role in the family to prevent various health issues.

The present study indicates that the average age of participants in the study group was 35.48 ± 9.832 years, whereas the control group was a higher average age of 36.36 ± 9.128 years. The results align with studies (11) (12) indicating that the mean age of patients with digestive disorders is that of young adults. Furthermore, the prevalence of functional dyspepsia among young adults can be attributed to a lack of awareness regarding healthy habits and insufficient knowledge about its causative factors..

Ghaleb et al. conducted a quasi-experimental study in the gastrointestinal outpatient clinic at Alexandria Main University Hospital. A sample of 40 patients with functional dyspepsia was selected from the previously described setting. The majority of the patients studied were female. The majority, comprising 75%, were within the age group of 20 to 40 years (13).

In terms of occupation, the majority of participants in the study group were housewives (32.0%), which is comparable to the control group (36.0%). This study aligns with previous research (14) (15) this studies shows that most of participant is housewife and not had job. These insights into patient demographics provide a nuanced understanding of the population under study, facilitating a more informed interpretation of the impact of functional dyspepsia and associated lifestyle modifications within different demographic segments.

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In terms of marital status, the study show a majority were married in both the study (56.0%) and control (76.0%) groups. This study aligns with a study to diagnostic of ulcer of peptic ulcer disease in dyspepsia patients performed by the endoscopy unit of the northern Ethiopian hospital affiliated with the University of Gondar indicated that 64% of the participants were married(16). This study concurs with (17) (18) In the present study, the assertion that married people are affected by digestive disorder more than unmarried people may not be entirely true but depends on several characteristics, including the specific circumstances of the individuals and populations being studied. Married couples may be more probable to share meals and eating habits with their spouse, which may affect their gastric health. But if the marriage is stressful or if there are conflicts within the relationship, this may have negative effects on stomach health due to increased stress and anxiety

Concerning education level, the present study show the reads and writes participants made up the highest percentage in study (28.0%) and control (32.0%) groups. This study come with (19) (20) their study results reported the largest percentage of participants in the study were read and write, The association between low levels of education and the rate of digestive disorder is not clear and may be influenced by various factors. However, education level can influence health consequences through several ways such as access to health care, knowledge of preventive measures, and socioeconomic factors, and is not directly related to the development of functional dyspepsia.

The majority of participants resided in urban areas, accounting for 64.0% in study group and 72.0% in control group. This results agrees with several studies (21) (22) reported that the largest percentage of the participants in the study were urban residential area living. Most city dwellers often experience high levels of stress due to factors such as long work hours, traffic congestion, and crowded living conditions, and may be more susceptible to unhealthy lifestyle habits such as poor nutrition choices, easy access to fast food, and processed foods and foods that contain a high percentage of fat. These factors can contribute to the development of functional dyspepsia.

The results of the current study reveal that more than half of the participants in both the study (56.0%) and control (52.0%) groups reported a modest monthly income. Numerous studies (23) (24) indicate that the predominant percentage of participants possesses a moderate monthly income. Additionally, a study including 54 persons in Iraq demonstrates that 44.4% of the sample has an insufficient monthly income (25)

Results of the present study indicate that there is no statistically significant difference in patients' knowledge about all domains of a dietary instructional program, between the study group (13.52 ± 2.200) and the control group (13.20 ± 2.00) during the pre-test period. Both groups exhibited a

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comparable yet low level of knowledge, with no significant variation observed ($t=0.538$; $p=0.529$) and a negligible effect size ($\eta^2=0.00$). In contrast, a statistically significant difference in knowledge was observed at the post test period, with the study group (32.48 ± 2.219) showing a marked improvement compared to the control group (14.48 ± 2.400). The study group demonstrated a significantly higher level of knowledge ($t=27.531$; $p<0.001$), with a large effect size ($\eta^2=0.94$), indicating the dietary instructional program substantial impact.

These results are supported by (26) A study was conducted in Iraq including 70 participants separated into two groups: case and control. The study concludes that customers possess an equivalent level of knowledge regarding all instructional program domains for both the case and control groups at the pretest stage. The clients' knowledge in the case group subjected to the instructional program significantly improved from pre-test to post-test, demonstrating a statistically significant difference in knowledge between the case and control groups during the post-test time.

The findings indicate a statistically significant difference in patients' knowledge scores about Instructional Program between pretest ($M=13.52$, $SD=2.20$) and posttest ($M=32.48$, $SD=2.22$) for study group, with both tests showing substantial variation ($t=31.825$, $p<0.001$). In contrast, control group exhibited no significant difference in knowledge scores, with pretest ($M=13.20$, $SD=2.00$) and posttest ($M=14.48$, $SD=2.40$)

These results are supported by (27) study conducted in Iraq The study indicates that the assessment of patients' knowledge in the study groups during measurement periods revealed that the majority of the evaluated items had poor mean scores prior to the implementation of the instructional program. In comparison, the majority of the examined items exhibited a high mean score in the post-test following the program's adoption. Moreover, the assessment of patients' knowledge in the control group during the measurement intervals indicates minimal variation in the mean score in the post-test.

The program's effect was evident in the case group's comparison to the control group at both the pre- and post-testing stages.. Patients' knowledge scores for study group wh are exposed to the instructional program demonstrate improvement from ($M=13.52$, $SD=2.20$) at pre test to ($M=32.48$, $SD=2.22$) at post test compare to control group who are not exposed to instructional program. There is no statistically significant difference in knowledge scores, with pretest ($M=13.20$, $SD=2.00$) and posttest ($M=14.48$, $SD=2.40$) (figure 3.1)

The present findings are supported by (28) study conducted in East China involving 378 participants aimed to enhance their understanding of health issues. The findings indicate that the participants possessed inadequate knowledge regarding health problems prior to the program, whereas their knowledge significantly improved following their exposure to the program. A

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study concluded that a brief educational talk for patients positively affects their knowledge.

This results agrees with other studies (29) (30)(31) aimed to assess the effectiveness of an educational program on patients' awareness about health problems, these studies show There are substantial changes between the pretest and posttest in the study group concerning the patients' knowledge, indicating the significant effect to the instructional program on their understanding..

The findings of the present study show there is no statistically significant differences in knowledge scores among patients with functional dyspepsia based on sex ($p = 0.349$), age ($p = 0.618$), occupation ($p = 0.310$), marital status ($p = 0.060$), residence ($p = 0.174$), or monthly income ($p = 0.713$). However, a significant differences were noted concerning education level ($p = 0.001$).

The results align with a quasi-experimental study(32) conducted at many colleges at University of Baghdad, involving 160 employees divided into two groups, aimed at assessing the impact of a Mediterranean diet educational program on employees' knowledge of functional gastrointestinal disorders. The investigation revealed no significant statistical correlations between knowledge levels and demographic factors, except for the participants' levels of education, which exhibited a highly significant association ($P \text{ value} \leq 0.01$).

Conclusion

The study concluded that the instructional program was effective on patient's knowledge concerning functional dyspepsia diet in case group

Recommendations

The study recommends to Increase health awareness among patients with functional dyspepsia regarding functional dyspepsia die through lectures, television programs, social media. Activating the role of nutritionist in hospitals and gastrointestinal centres and use of the presents program for the all patients with functional dyspepsia.

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