

# Instruction Program for patients with Ulcerative colitis about preventive measures for colorectal cancer

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**ABSTRACT**

Ulcerative colitis, a common disease of the gastrointestinal tract, is primarily a nonspecific chronic inflammatory disease that invades the colonic mucosa. In recent years, the incidence of ulcerative colitis has increased significantly. Evaluate the effectiveness the educational program on patient knowledge. Find out the relationship between the effectiveness of program and patient level of education, duration of disease and adherence of treatment. Quiz-experimental design that was performed on an outpatient basis at the Gastroenterology and Hepatology Teaching Hospital, from March 2021 to September 2021. The non-probability sampling method of 50 patients. Out of 50 patients who participated in present study was, 72% were men, and 28% were women, the highest percentage of patients are young adult with age 28-37 year. In addition to that, 52% % of patients were married and 42% of them are still single. The total mean scores of knowledge was  $15.32 \pm 2.527$  in pretest (53 %), and  $19.46 \pm 0.838$  in posttest (95 %). The study concluded that the patient's knowledge about preventive measures to avoid colorectal cancer, which are a main complication of ulcerative colitis, was improved after applying the instruction program on patients. The study recommended to establishing a rehabilitation center for gastroenterology problems to improve patients' knowledge and practices to avoid developed of disease.



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## 1. INTRODUCTION

Inflammatory bowel disease (IBD) is a group of non-specific, chronic inflammatory diseases of the intestine, which includes Crohn's disease (CD), ulcerative colitis (UC), and non-specific colitis. The pathogenesis of IBD remains unclear, characterized by prolonged and relapsing enteritis. One of the most serious complications of long-standing inflammatory bowel disease, especially UC, colon and rectal cancer associated with colitis [1]. UC a common disease of the gastrointestinal tract is primarily a non-specific chronic inflammatory disease that invades the colonic mucosa. In recent years, the incidence of ulcerative colitis has increased significantly, and many studies have shown that long-term hepatitis increases the risk of multiple complications, the most serious of which is the induction of colorectal cancer [13]. While the majority of patients have a mild course, about 10-15% of patients have an acute disease course with significant

morbidity with frequent flares and hospital admissions, requiring immunosuppressive therapies and corticosteroids, and imposing a significant direct and indirect economic burden [12]. Ulcerative colitis characterized by chronic inflammation of the mucous membrane of the colon and submucosa with frequent relapse and remission, but the pathogenesis is unknown. Patients with longstanding UCS are at risk of developing tumors Development [2]. Mounting evidence indicates that changes in the composition and structure of the gut microbiome contribute to a variety of human diseases, including obesity, diabetes, and complex gastrointestinal disorders, such as UC and CRC [14]. Ulcerative colitis characterized by chronic mucositis; a previous meta-analysis revealed that ancient UC leads to UCS-related cancer development, with a cumulative incidence rate of 2% in 10 years, 8% at 20 years, and 18% in 30 years [3]. Ulcerative colitis contributes only 1-2% of colorectal carcinomas (CRC) to the total population, it accounts for about 15% of all causes of death among IBD patients and the risk of ulcerative colitis is 1.5 - 2.4 times higher in inflammatory bowel patients compared to the normal population [1]. According to a large population study from Hong Kong, the incidence of CACC in UC patients is 0.81%, which is lower than in western countries (3.7%). However, the incidence of IBD is increasing (up to 30 times in the past decade) and the incidence of CACC expected to increase rapidly. The risk of developing CACC ranges from 0.5 to 1% per year after UC diagnosed and increases over time, that is, 1.6% after 10 years, 8.3% at 20 years, and 18.4% after 30 years after the onset of uterine infection [4]. Increasing evidence suggests a causal relationship between inflammation and tumor.

Likewise, colitis Associated cancer is known to be the most serious complication of ulcerative colitis [15]. Identified risk factors for colorectal cancer in UC patients are pancreatitis, young age, prolonged disease, primary sclerosing cholangitis (PSC), and a family history of colorectal cancer [5]. Multiple factors are involved in cancer-related inflammation such as cyclooxygenase-2 (COX-2) and interleukin-6 (IL-6), which are also important in epithelial and mesenchymal transport (EMT). A process by which epithelial cells reduce adhesion and increase migration or Invasion to initiate cancer and metastasis invasion, therefore, suppressing inflammation is a potential strategy for treating ulcerative colitis and colorectal cancer [6]. The program used in the research consists of several sections. The first section includes a lecture on ulcerative colitis (definition, symptoms and signs, causes, and complications of the disease), the second section includes preventive measures that are supposed to be followed by the patient to reduce the incidence of colorectal cancer. The researcher dealt with preventive methods and based on literature reviews and several researches that talk about reducing the complications of ulcerative colitis, especially colorectal cancer. Preventive means are quitting smoking, quitting drinking, and means of how to quit smoking and drinking alcohol, healthy food, and healthy food types that suit ulcerative colitis patients, periodic examination of ulcerative colon and its benefits, exercise and its benefits for the patient. maintaining a normal weight, Adherence to taking prescribed medications, psychological stress and its effect on the patient, ways to reduce respiratory distress in a manner appropriate to the patient's environment. The program used in the research helped patients increase their information about ulcerative colitis, as well as increase their curiosity about the prevention of complications, as well as how to reduce the transformation of the disease to colorectal cancer. Patients love those who hear their sick problems and prefer to understand everything if they find someone to help them in this matter, and thank God all possible assistance has been provided to them.

## **2. Methodology**

### ***2.1 Design and setting of the study***

A descriptive study design carried out in the outpatient clinic at the Gastroenterology and Hepatology Teaching Hospital, from the period of March 2021 to September 2021, in order to evaluate the patient's knowledge about ulcerative colitis and colorectal cancer.

## 2.2 Sample of the study

A non-probability sampling method consists of 50 patients was selected purposively based on the study criteria and after obtains verbal consent permission from them.

## 2.3 The study instrument

Four parts of the questionnaire were used in this study. Part one, designed to assess sociodemographic data; the second part was used to find out the level of knowledge about ulcerative colitis about preventive measures for colorectal cancer. The third part was about Knowledge of the patient about preventive measures to avoid the development of the disease. The fourth part was about patient adherence to preventive measures to avoid colorectal cancer. Questionnaire of Inflammatory Bowel Disease Knowledge (IBD-KNOW) is a validated 10-item self-report questionnaire was formerly constructed and validated by Yoon H, et al., (2017) in the Korean. This questionnaire was proposed to evaluate knowledge regarding ulcerative colitis disease through 10-questions. Four questions about ulcerative colitis to see the knowledge of patients, 2 question about smoking, 1 question about complication, 1 question about alcohol. 2 questions about nutrition, 1 question about colonoscopy.

## 2.4 Statistical analysis

The data were analyzes by using the program of IBM Statistical Package of Social Sciences (SPSS) Version 26. Both descriptive statistical analysis {include frequencies (F), percentages (%), cumulative percent, MS, and standard deviation (SD)} and inferential statistical analysis approaches were used in order to analyze and assess the results of the study, a Person correlation test was used to associate selected demographic variables of patients with level of knowledge respondents. A p-value of <0.05 was considered statistically significant.

**Table (1):** Distribution of the study Sample According to their Personal Characteristics

No.	Characteristics	Case group		
		f	%	
1	Age (year)	18 – 27	13	26
		28 – 37	15	30
		38 – 47	10	20
		48 – 57	6	12
		58 – 67	5	10
		68 – 77	1	2
		<b>Total</b>	<b>50</b>	<b>100</b>
2	Gender	Male	36	72
		Female	14	28
		<b>Total</b>	<b>50</b>	<b>100</b>
3	Social status	Single	21	42
		Married	26	52
		Widowed/er	2	4
		Divorced	1	2

		<b>Total</b>	<b>50</b>	<b>100</b>
4	<b>Occupation</b>	Governmental employee	18	36
		Private employee	15	30
		Jobless retired	4	8
		Working retired	2	4
		Housewife	7	14
		Students	4	8
		<b>Total</b>	<b>50</b>	<b>100</b>
5	<b>Level of education</b>	Read & write	1	2
		Elementary	3	6
		Middle school	18	36
		Secondary school	9	18
		Institute	12	24
		College & higher	7	14
		<b>Total</b>	<b>50</b>	<b>100</b>
6	<b>Residency</b>	Rural	11	22
		Urban	39	78
		<b>Total</b>	<b>50</b>	<b>100</b>
7	<b>House type</b>	Rented	28	56
		Own	22	44
		<b>Total</b>	<b>50</b>	<b>100</b>
8	<b>Monthly income</b>	Sufficient	21	42
		Barely sufficient	27	54
		Insufficient	2	4
		<b>Total</b>	<b>50</b>	<b>100</b>

No: Number, f: Frequency, %: Percentage

The descriptive analysis in this table shows that the highest percentage of patients in the case group are young adult with age 28-37 year (n=15, 30%). The gender refers that 72% of patients in the case group are males (n=36) and remaining are females. The social status for patients in the case group refers that 52% of them are married (n=26) and 42% of them are still single (n=21). Regarding occupation, the highest percentage of patients in the case group refer to governmental employees (36%, n=18) and 30% of them are working private employment (n=15). The level of education refers that patients in the case group are graduated from middle school as reported among 36% (n=18). The residency variable refers that patients in the case group are resident in urban areas (n=39, 78%). The house type reveals that more than half of patients in the case group are living in rented house (n=28, 56%) and remaining are owned their house.

**Table (2):** Distribution of the Sample According to their Medical History and Unhealthy Behaviors

No.	History	Case group		
		f	%	
1	<b>Hypertension</b>	Yes	18	36
		No	32	64
		<b>Total</b>	<b>50</b>	<b>100</b>
2	<b>Diabetes mellitus</b>	Yes	10	20
		No	40	80
		<b>Total</b>	<b>50</b>	<b>100</b>
3	<b>Hypercholesterolemia</b>	Yes	20	40
		No	30	60
		<b>Total</b>	<b>50</b>	<b>100</b>
4	<b>Heart disease</b>	Yes	6	12
		No	44	88
		<b>Total</b>	<b>50</b>	<b>100</b>
5	<b>Arthritis</b>	Yes	31	62
		No	19	38
		<b>Total</b>	<b>50</b>	<b>100</b>
6	<b>Renal disease</b>	Yes	15	30
		No	35	70
		<b>Total</b>	<b>50</b>	<b>100</b>

No: Number, f: Frequency, %: Percentage

The descriptive of medical history in table (2) indicates that patients in the case group associated with medical history of: hypertension (n=18, 36%); diabetes mellitus (n=10, 20%); hypercholesterolemia (n=20, 40%); heart disease (n=6, 12%); arthritis (n=31, 62%); and renal disease (n=15, 30%).

**Table (3):** Distribution of the Study Sample According to their Unhealthy Behaviors

No.	Unhealthy behaviors	Case group		
		f	%	
1	<b>Smoking before diagnosis</b>	Yes	31	62
		No	19	38
		<b>Total</b>	<b>50</b>	<b>100</b>
2	<b>Duration of smoking</b>	None	19	38
		1 – 10 years	11	22
		11 – 20 year	17	34
		21 – 30 year	2	4

		31 – 40 year	1	2
		<b>Total</b>	<b>50</b>	<b>100</b>
3	<b>Smoking after diagnosis</b>	Yes	27	54
		No	23	46
		<b>Total</b>	<b>50</b>	<b>100</b>
4	<b>Smoking family member</b>	Yes	15	30
		No	35	70
		<b>Total</b>	<b>50</b>	<b>100</b>
5	<b>Smoking hookah</b>	Yes	1	2
		No	49	98
		<b>Total</b>	<b>50</b>	<b>100</b>
6	<b>Consume alcohol before diagnosis</b>	Yes	0	0
		No	50	100
		<b>Total</b>	<b>50</b>	<b>100</b>
7	<b>Consume alcohol after diagnosis</b>	Yes	0	0
		No	50	100
		<b>Total</b>	<b>50</b>	<b>100</b>

No: Number, f: Frequency, %: Percentage

This table indicates that 62% of patients in the case group are smokers (n=31) for the duration of 11-20 year (n=17, 34%). More than half of patients in the case group are smoking after diagnosis (n=27, 54%). The smoking family member for patients in the case group refer to 305 only (n=15). The smoking hookah indicates that only one (2%) of patients in the case group is smoking and remaining are not. Regarding consumption of alcohol, all of patients in the case group are reporting they didn't drink alcohol.

**Table (4):** Patients' Knowledge about Preventive Measures for colorectal Cancer at pre and posttest for instruction program

List	Items	Case group (N=50)							
		Pre-test				Post-test			
		Incorrect		Correct		Incorrect		Correct	
		f	%	f	%	f	%	f	%
1	Ulcerative colitis is defined as inflammation of the inner lining of the colon and rectum	30	60	20	40	0	0	50	100
2	Ulcerative colitis occurs at ages 15-40 years old	18	36	32	64	1	2	49	98
3	The main causes of ulcerative colitis include: Weak immunity, Environmental factors such as exposure to chemicals and radiation, Irregular diet, and Psychological stress	35	70	15	30	5	10	45	90
4	Complications that occur with ulcerative colitis patients are Colorectal cancer	18	36	32	64	3	6	47	94

5	The effect of smoking on ulcerative colitis patients is Reduces the formation of mucous material that helps in skin growth	36	72	14	28	6	12	44	88
6	Passive smoking on ulcerative colitis patients leads to Increase in symptoms of the disease	36	72	14	28	7	14	43	86
7	Alcohol consumption by ulcerative colitis patients Increases the incidence of colorectal cancer	7	14	43	86	0	0	50	100
8	The effect of unhealthy food on ulcerative colitis patients is Reduces oxidizing substances and thus damage to the stomach and colon	10	20	40	80	0	0	50	100
9	The effect of eating vegetables on ulcerative colitis patients is Reduces the incidence of colorectal cancer	16	32	34	68	5	10	45	90
10	Periodic examination of the patient is useful in early detection of cancerous growths	28	56	22	44	0	0	50	100
<b>Total</b>					53%				95%
<b>Mean ± SD</b>		<b>15.32 ± 2.527</b>			<b>19.46 ± 0.838</b>				

N: Sample size, f: Frequency, %: Percentage, SD: Standard deviation

**Table (5): Effectiveness of Instruction Program on Patients Knowledge**

Knowledge	Case Group (N=50)				
	M.	t	df	p-value	Sig.
Pre-test	15.32	12.290	49	.001	H.S
Post-test	19.46				

M: Mean, t: t-test, df: Degree of freedom, p: Probability, HS: High Significant

Table five presented the effectiveness of instruction program about preventive measures to avoid colorectal cancer among patients with ulcerative colitis through the highly significant of patient's knowledge at post test

**Table 6: Association between effectiveness of instruction program and patients**

Variables		Age	Study Group (N=50)					
			Sum of Squares	df	Mean Square	F	p-value	Sig.
Knowledge	Between Groups		45.170	5	9.034	1.485	.214	N.S
	Within Groups		267.710	44	6.084			
	Total		312.880	49				

The ANOVA test for patients in the case group shows that there is high significant difference between patients' age and their adherence to treatment at p-value= .001, and there is also significant differences among stress reduction methods and responsive measures with regard to patients' age at p-value= .008.

Gender	Study Group (N=50)					
	M	SD	t	df	P ≤	Sig

Variables						0.05	
Knowledge	Male	15.11	2.290	-.936	48	.354	N.S
	Female	15.86	3.085				
	Female	18.29	1.816				

The Independent sample test for patients in the case group shows that there is no significant difference among knowledge, adherence to treatment, stress and fatigue, stress reduction methods, and responsive measures with regard to patients' gender.

Education		Study Group (N=50)					
Variables		Sum of Squares	df	Mean Square	F	p-value	Sig.
Knowledge	Between Groups	189.495	5	37.899	13.515	.001	H.S
	Within Groups	123.385	44	2.804			
	Total	312.880	49				

The ANOVA test for patients in the case group shows that there is high significant difference between patients' knowledge and their level of education at p-value= .001.

Residency		Study Group (N=50)					
Variables		M	SD	t	df	P ≤ 0.05	Sig
Knowledge	Rural	13.55	1.968	-2.818	48	.007	S
	Urban	15.82	2.459				
	Urban	18.54	1.374				

The Independent sample test for patients in the case group shows that there is significant difference in patients' knowledge with regard to their residency (urban) at p-value= .007.

### 3. Discussion

Ulcerative colitis is a very dangerous disease because it can turn into cancer in the future and thus have a very big impact on the patient's life. Therefore, it is important to raise the level of knowledge, not only for patients diagnosed with UC, but also for all people, because of the weak healthy information of the majority of the Iraqi people.... This talk comes through listening to patients, how their disease began due to the wrong practices of the patient or the wrong use of medicines without consultation. Ulcerative colitis disease includes a group of related chronic relapsing disorders. They place a huge demand on healthcare resources including time for consultation. This can be inferred from the incidence and prevalence of UC in the population. A recent systematic review published in The Lancet assessed the incidence and prevalence of UC worldwide. Studies using UK data from the 1990s have reported incidence rates ranging from 21 to 32.2/100,000 and prevalence estimates ranging from 328 to 409/100,000. The review suggested that incidence rates have stabilized in the Western world, while other studies have reported persistent increases in incidence.

A total of (50) patient was involved in this study in order to evaluate their knowledge about ulcerative colitis. Table (1) represent the socio-demographic characteristics of participants, it is exposed that are the highest percentage of patients in the case group are young adult with age 28-37 year 30%, and approximately Two-thirds of patients in the case group are males, One third of female. Regarding occupation, the highest



percentage of patients in the case group refer to governmental employees One third, and One third of them are working private employment, level of education refers that patients are graduated from middle school as reported among One third. House type reveals that more than half of patients are living in rented house (56%) and remaining are owned their house. This result corresponds with the finding of the study, which was done by [7] that are reported about Three thousand seven patients 48% female and half was male, where belonged to young adult with age 25-35 year old. In another study done by [16] conducted there study Association of endoscopic and histological remission with clinical course in patients of ulcerative colitis, they reported about 46 patients with ulcerative colitis, age between 18-73 year, the ratio of male to female was =1.5:1.0. The researcher's opinion is in these ages, which constitute the highest percentage of young adults, due to bad eating habits, as well as psychological pressures on this group of ages and burdening them with the burden of living, and they do not even have a job to live on.

[8] a study on epidemiology and clinical characteristics of ulcerative colitis in chaharmahal and bakhtiari province in Iran, reported that are the patients were  $38.31 \pm 11.99$  years old (age range: 19-76 years). In addition, more than half of cases were males and the male-to-female ratio was 1.45, and in the Demographic characteristics, with regard to educational level, the highest prevalence of the disease was among individuals with a bachelor's degree and above One third, while the lowest was among illiterate individuals (8.5%). In terms of occupational status, patients belonged to the categories of homemaker's One third, employees One third, students (3.4%), the self-employed One third, and the unemployed (7.9%). Concerning to the participants smoking before diagnosis was more than the half and after diagnosis was half percent. This result was come to an agreement with the findings of the study, which was done by [9] they found in their study the total of patients was 1050, among half of them UC, and Two thirds was not smoking. [17] they found in their study conducted on 47 patient with ulcerative colitis. Patients were between 14 and 70 years old, with mean age 36, Fifteen percent were aged <20 years, one quarter were aged 20-29, one third were aged 30-39, less than one quarter were aged 40-49, one quarter were 50-59, and one quarter 60-70 years. About level of education, they found primary school was (17), secondary school was (14), and university was (17). [18] they found in their study about the influence of socio-demographic and clinical factors on the process of acceptance of the disease among patients with ulcerative colitis, conducted on 50 patients with ulcerative colitis participated, including 20 females and 30 males. The mean age was 38.82. All respondents were adults, ranging in age from 21 to 76 years. The shortest course of the disease was 2 years and the longest was 17 years. The majority of respondents stated that they live in a city. Half of patients had a higher education. one third a secondary and quarter a vocational certificate. More than half were professionally active, one third were on social benefits due to their inability to work, 12% were in training and 6% were on a pension. Opinion of researcher about the results, found the disease affects people even before puberty, and as I mentioned due to psychological pressures and wrong practices about eating, drinking, little sleep and a lot of effort in exchange for little rest, the disease showed at these ages. In addition, I found that the healthy culture is few among the various graduates and learners.

Concerning to the patient's knowledge about ulcerative colitis and colorectal cancer, as shown in table (4) the findings highlight that the participants have had low level of knowledge in most domains regarding ulcerative colitis and preventive measures. The overall total level of knowledge was inadequate; the mean of score was  $15.32 \pm 2.527$  in pretest and the mean score was  $19.46 \pm 0.838$  in posttest. This finding was corresponding with the result of the study that was done by [10] revealed that are a significant in case group ( $P < 0.001$ ), they found in their study patients have low level of knowledge about ulcerative colitis and colorectal cancer. In other study done by [11] shows significant deficits in patient knowledge. A total of (203) patients were included, more than half were female, and more than half were diagnosed with ulcerative colitis, only one third of the patients answered more than half of the questions correctly, Patients older than 50 years,

with ulcerative colitis, with disease durations less than five years and patients without histories of surgery exhibited lower disease-related knowledge. The researcher's opinion about these results is that patients do not have enough information about the disease, as well as ignorant of the serious complications due to ulcerative colitis. Patients just leave everything that causes them pain, whether it is food or anything else. This is due to the lack of health education and health awareness among the majority of patients.

#### **4. Conclusions**

The study concludes that an inadequate level of knowledge regarding the ulcerative colitis about colorectal cancer was shown in overall domains that are related to Preventive Measures, and there is a highly significant correlation found between the patients' knowledge and their educational level, occupation, and a family history with ulcerative colitis.

#### **5. Recommendations**

The study recommended and confirms the importance of an educational program for patients diagnosed with ulcerative colitis in order to improve their knowledge regarding decreasing the risk of colorectal cancer, and more efforts should be done to educate patients about the Preventive Measures of ulcerative colitis and colorectal cancer. In addition, it is important to encourage health care providers especially nurses and physicians to teach their patients during the recovery period about preventive measures of ulcerative colitis and colorectal cancer.

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