

Effectiveness Of A Nurse-Led Self-Management Interventions In Improving General Health Status Of Patients With Inflammatory Bowel Disease

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Abstract

Inflammatory Bowel Disease, is more than just a gastrointestinal disorder; it is a significant health concern due to its chronic nature that impaired patient's physical, mental, and social health dimensions. A nurse-led approach in IBD care may ensuring optimal nutrition, symptoms monitoring and providing support to minimizing complications.

Aim: Study aimed to evaluate the effectiveness of a nurse-led self-management interventions in improving general health status of patients with inflammatory bowel disease.

Methods: A quasi-experimental , pre-posttest study was conducted for 80 patients (n=40) into intervention group and (n=40) into control group using purposive sampling in the specialized hospital for gastrointestinal and liver disease and surgery at Al-Najaf Al-Ashraf city during 2025–2026. Patients in the intervention group received a face to face comprehensive three sessions addressing education about the disease and discussion the concerns of the symptoms, nutritional management and medication adherence, sleep hygiene, stress management with application exercises and acceptance of the illness strategies. While the control group received only standard care. Post-test was conducted after 8 weeks from the last session.

Results: A significant improvement in mean all domains patients' health status scores of intervention group ($P < 0.0001$), Whereas no significant changes were observed in the control group.

Conclusion: Nurse-led interventions enhanced patient's awareness about self-management then improved their general health status. The importance of creating nurse-led self-management unit into GIT hospital focused on non-pharmacological techniques as a routine care is recommended to ensure optimum outcomes for those living with IBD.

Keywords: nurse-led, interventions, self-management, general health, inflammatory, bowel disease.

1. Introduction

Inflammatory bowel disease (IBD), has become a major global public health concern as a result of escalating incidence each year [1]. It is encompassing Crohn's disease and ulcerative colitis, are a chronic progressive condition that affects more than 7 million people worldwide. Moreover, the unpredictable and chronic nature of IBD can lead to psychological distress, social stigma, impaired social functioning, and worsening disease burden [2,3].

This chronic disease characterized by repeated attacks and primarily presents with symptoms such as abdominal pain, diarrhea, and mucus or mucopurulent bloody with remain impacting patients' physical and mental health [4].

Individuals with IBD often report impairments in physical functioning, fatigue, pain, social isolation, and emotional distress such as anxiety and depression, even during periods of disease remission. Disease activity correlated strongly with health state. These factors collectively reduced perception of overall health and well-being [5]. Furthermore, this disease is unpredictable course makes IBD management challenging [6].

Global prevalence is expected to rise from 0.5% in 2010 to approximately 1% by 2030. This trend is closely related to urbanization and altered lifestyles, especially air pollution, unhealthy diets, physical inactivity, smoking, and excessive alcohol use. The changes in working and living habits also have consequences for physical, mental, and social health [7].

IBD significantly affects patients' health status highlighting the importance of self-management intervention that provides patient education on non-pharmacological strategies for symptom management (eg, dietary modification, stress reduction, etc..) has been shown to decrease abdominal pain, reduced anxiety, depression, fatigue, extra intestinal symptoms and improved self-reported sleep compared to usual care. Nurse-led interventions improve patient-centered outcomes such as satisfaction, self-management and adherence among adults and older adults [8,9].

Despite evidence supporting self-care and lifestyle modification, there remains a notable limited of research that investigated the effectiveness of nurse-led interventions focusing on self-management on patient's health status specifically in Iraqi patients.

Therefore, the nurse-led self-management interventions have emerged as a promising approach that empowers patients to actively manage their symptoms and treatment, which is critical in chronic conditions like IBD [10].

1.1. Objective of the Study

This study aimed to evaluate the effectiveness of a nurse-led self-management interventions in improving general health status of patients with inflammatory bowel disease.

2. Methodology

2.1. Study Design and Setting

A quasi-experimental study used to evaluate the Effectiveness of a Nurse-Led interventions on general health status of patients with inflammatory bowel disease.

2.2. Sample Size

In this study is calculated using the G-Power program version 3.1.9.7 was used to confirm the sample size. So, based on the factors (power 95%, α 0.05, and effect size 0.5) we need a total of 70 participants to analyze. For statistical power, anticipated attrition and to obtain representative numbers of patients with IBD, to be accounted for an anticipated dropout rate of 10% over the study period, the final number of recruited patients was increased to 80 participants (40 per group) [11].

2.3. Study Instruments

Questionnaire: Validated by a panel of experts ($n = 15$) experts have more than ten years of experience in their scientific field to review interventional program for their content and instruments to investigate the clarity and was confirmed reliable by Cronbach's alpha (> 0.883). It covered:

The Study Instruments Included Three Parts:

Part I: Patients socio-demographic characteristics, consists of (7) items.

Part II: Clinical Data, which includes (4) items, family history, type of diagnosis, past surgery for IBD and smoking.

Part III: A validated SF-36 Health Survey, self-rating scale used Arabic version to assess general health status of patients across eight domains, physical and social functioning, role of physical and emotional, bodily pain, fatigue and energy, mental health and general health perception.

Intervention Program

The nurse-led self-management program was conducted at the central biological treatment unit and in special rooms in GIT hospital, delivered to patients across three sessions (one in a week for three weeks), were introduced to patients through individualized session. The duration of each session ranged from (45-60) minutes.

Its content included:

Session 1: Education about inflammatory bowel disease and discussion their concerns.

Session 2: Dietary modification with used personal diary for each patient and medication adherence techniques.

Session 3: sleep hygiene and stress management with applying exercises, abdominal breathing and acceptance the illness strategies.

learning methods included, discussion and active listening, pictures, motivational video by computer, application of techniques and exercises together, booklet and individualized follow-up. Patients in the control group received no intervention and continued standard care. Post-test was conducted after 8 weeks from the last session.

2.4. Data Collection

Started from 13th November 2025 to 10th February 2026. Two tests conducted (Pre-test and post-test). It takes approximately (10-15) minutes for the pre-test and (10) minutes for the post-test to finish the questionnaire. The study was conducted in the specialized hospital for gastrointestinal and liver disease and surgery at Al-Najaf Al-Ashraf City, Iraq.

2.5. Inclusion Criteria

Patient age 19-65 years old, diagnosed with inflammatory bowel disease for more than six months, stable condition, able to communicate, and have desire to participation. patients were eligible if they Newel have taken biological therapy, Patients with cancer and undergoing chemotherapy due to they need specialized treatment and dietary plans and who refuse to participate in the study cause of their conditions.

2.6. Ethical Considerations

This study was approved by the International Review Board at the College of Nursing, University of Kufa under the ID MEC 245, at 20\10\2025. Each participant was asked for their informed consent after ensuring they understood the purpose, procedures, and their rights in the study. Participation was completely voluntary, and individuals were informed of their right to withdraw from the study at any time without any adverse impact on their care standing.

2.7. Statistical Analysis

All the data in the current study were entered into the SPSS program (version 24) and Microsoft Excel 2016. Furthermore, it was tested for normality test using the Kolmogorov-Smirnova and Shapiro-Wilk tests, and the sample is found to be normally distributed. Descriptive statistics (Frequencies, Percentage, means and Standard deviation) summarized participant's characteristics. Inferential tests, including paired sample t-test, Cohen's d and One-way ANOVA, were used to assess differences within and between groups.

3. Results

The study results in (Table 1) indicated that most of 80 participants are male in both groups, and they were ≤ 29 -year-old (52.5%) in study group and (45%) in the control group were between 30-40 years. the highest percentage in study group was graduated from college and postgraduate (27.5%). While (35%) of subjects in control group have primary school levels and were married in both groups. (85.7%) of subjects in study group have own work, while (32.5%) in control group were employed. Regarding Socioeconomic status, half of the samples have less than 300,000(IQD) and they were from urban areas (82.5% in the study group vs. 80% in the control group).

Table 1: Demographic Characteristics of Patients

Socio-Demographic Data	Rating And Interval	Study group(n=40)		Control group(n=40)	
		Freq.	%	Freq.	%
Sex	Male	24	60.0	30	75.0
	Female	16	40.0	10	25.0
	Mean	1.40		1.25	
	SD	0.496		0.439	
Age	≤ 29	21	52.5	14	35.0
	30 - 40	12	30.0	18	45.0
	41 - 51	4	10.0	5	12.5
	52+	3	7.5	3	7.5
	Mean	32.05		33.08	
	SD	11.149		9.880	
Education level	Doesn't Read and Write	1	2.5	1	2.5
	Read and Write	1	2.5	1	2.5
	Primary school	8	20.0	14	35.0
	Intermediate school	8	20.0	1	2.5
	Preparatory school	7	17.5	7	17.5
	Diploma	4	10.0	7	17.5
	College and postgraduate	11	27.5	9	22.5
	Mean	4.88		4.73	
	SD	1.697		1.768	
Marital status	Single	13	32.5	14	35.0

	Married	26	65.0	25	62.5
	Divorced – separate	1	2.5	1	2.5
	Mean	1.70		1.68	
	SD	0.516		0.526	
Employment status	Retired	2	5.0	1	2.5
	Full time student	9	22.5	7	17.5
	Employee	7	17.5	13	32.5
	Own work (Free work)	12	30.0	12	30.0
	Housewife	6	15.0	4	10.0
	jobless	4	10.0	3	7.5
	Mean	3.58		3.50	
	SD	1.394		1.198	
Total Monthly income of the family (in IQD)	less than 300,000	20	50.0	20	50.0
	300,000-600,000	11	27.5	14	35.0
	601,000-900,000	6	15.0	2	5.0
	901,000-1,200,000	1	2.5	4	10.0
	1,201,000-1,500,000	2	5.0	0	0
	Mean	1.85		1.75	
	SD	1.099		0.954	
Residence	Urban	33	82.5	32	80.0
	Rural	7	17.5	8	20.0
	Mean	1.18		1.20	
	SD	0.385		0.405	

MS: Mean of Scores; SD: Standard Deviation

Table (2) showed seems that the sample in both groups with no family history of IBD, they have ulcerative colitis (55%) in study group and (57.5%) in control group. Nearly all the subjects in study group and control group have no past surgery for IBD. (77.5%) of samples in both groups, were none smokers.

Table (2): - The Clinical Characteristic of Patients

The Clinical Characteristic	Rating And Interval	Study group(n=40)		Control group(n=40)	
		Freq.	%	Freq.	%
Family history of inflammatory bowel disease	Yes	6	15.0	3	7.5
	No	34	85.0	37	92.5
	Mean	1.85		1.93	
	SD	0.362		0.267	
Type of Diagnosis	Crohn's disease	18	45.0	17	42.5
	Ulcerative colitis	22	55.0	23	57.5
	Mean	1.55		1.58	
	SD	0.504		0.501	
Past Surgery for IBD	Yes	1	2.5	0	0.0
	No	39	97.5	40	100.0
	Mean	1.98		2	
	SD	0.158		0.00	
Smoking	Smoker	9	22.5	9	22.5
	None smoker	31	77.5	31	77.5
	Mean	1.78		1.78	

	SD	0.423	0.423
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MS: Mean of Scores; SD: Standard Deviation

Table (3) showed an improvement across study group in their mean score of all health domains. Overall assessment of Health Status in pre-test of study group was moderate with mean of score =43.7326 and moderate for post-test of study group with mean of score =60.5938, which indicate a noticeable difference in the mean of score. While, the Control Group 's assessment remained relatively stable between pre-test and post-test level of measurements.

Table (3): - Assessment of General Health Status Domains for Patients with Inflammatory Bowel Disease at The Pre-Test and Post-Test Level in Both Groups

General health status Domains		Study Group (n=40)										Control Group (n=40)									
		Pre-Test					Post-Test					Pre-Test					Post-Test				
		F.	%	MS	SD	Assess	F.	%	MS	SD	Assess	F.	%	MS	SD	Assess	F.	%	MS	SD	Assess.
Physical Functioning	Poor	5	12.5	65	23.31501	Good	2	5.0	74.6250	15.98828	Good	5	12.5	66.3750	22.70173	Moderate	6	15.0	63.5000	22.07795	Moderate
	Moderate	14	35.0				11	27.5				14	35.0				13	32.5			
	Good	21	52.5				27	67.5				21	52.5				21	52.5			
Role limitations due to Physical Health	Poor	30	75.0	23.7500	30.98283	Poor	16	40.0	48.1250	30.69050	Moderate	22	55.0	39.3750	40.38576	Moderate	21	52.5	40.6250	37.41979	Moderate
	Moderate	5	12.5				8	20.0				6	15.0				7	17.5			
	Good	5	12.5				16	40.0				12	30.0				12	30.0			
Role limitations due to Emotional Problems	Poor	33	82.5	25	36.00411	Poor	16	40.0	57.5000	32.89238	Moderate	29	72.5	30.8333	42.95860	Poor	28	70.0	30.8333	42.29021	Poor
	Moderate	1	2.5				14	35.0				1	2.5				3	7.5			
	Good	6	15.0				10	25.0				10	25.0				9	22.5			
Energy / Fatigue	Poor	23	57.5	32.8750	17.01762	Poor	10	25.0	46.7500	14.03064	Moderate	14	35.0	48.3750	22.74123	Moderate	15	37.5	45.0000	21.12235	Moderate
	Moderate	15	37.5				14	35.0				17	42.5				17	42.5			
	Good	2	5.0				16	40.0				9	22.5				8	20.0			
Emotional well-being	Poor	17	42.5	38.1000	16.65302	Moderate	2	5.0	55.3000	15.84249	Moderate	7	17.5	50.9000	18.87041	Moderate	8	20.0	48.5000	17.98432	Moderate
	Moderate	19	47.5				23	57.5				22	55.0				22	55.0			
	Good	4	10.0				15	37.5				11	27.5				10	25.0			
Social Functioning	Poor	9	22.5	50	25.31848	Moderate	1	2.5	72.1875	21.08581	Good	5	12.5	63.1250	27.58292	Moderate	8	20.0	56.2500	21.72084	Moderate
	Moderate	20	50.0				14	35.0				19	47.5				16	40.0			
	Good	11	27.5				25	62.5				16	40.0				16	40.0			
Pain	Poor	12	30.0	50.5625	29.00314	Moderate	3	7.5	71.1250	22.03545	Good	5	12.5	63.1250	22.91812	Moderate	5	12.5	64.9375	23.59845	Moderate
	Moderate	16	40.0				12	30.0				17	42.5				14	35.0			
	Good	12	30.0				25	62.5				18	45.0				21	52.5			
General Health	Poor	14	35.0	39.2500	13.75379	Moderate	7	17.5	49.2500	11.63273	Moderate	12	30.0	42.8750	10.67513	Moderate	14	35.0	39.4250	9.95860	Moderate
	Moderate	21	52.5				23	57.5				13	32.5				18	45.0			
	Good	5	12.5				10	25.0				15	37.5				8	20.0			
Overall assessment of Health Status	Poor	12	30.0	43.7326	14.54753	Moderate	14	35.0	60.5938	11.41457	Moderate	3	7.5	52.9132	17.41402	Moderate	6	15.0	50.7326	15.85487	Moderate
	Moderate	19	47.5				26	65.0				23	57.5				20	50.0			
	Good	9	22.5				14	35.0				14	35.0				14	35.0			

%= percentage, F. = frequency, M.S: Mean of score, Poor (mean of scores 0-33), Moderate (mean of scores 34-67), Good (mean of scores 68 and more), SD: Standard Deviation, Assess. = Assessment.

Table (4) illustrated there is a significant difference in the health status among the study group throughout two periods of measurement (pre-test, post-test) at a P-value less than 0.05 with large effect size= 1.061 (Nurse-Led Self-Management program was effective).

Table (4) Paired Samples Statistics of General health status for Patients with IBD among the Study and Control Group Participants throughout Two Periods of Measurements (Pre-test and Post-test).

Groups	Periods of Measurement	M.S	N	SD	t-value	Df	Effect size	P.value
Study	Pre-test	43.7326	40	11.414	6.715	39	1.061	0.0001
	Post-test	60.5938	40	14.547		39		
Control	Pre-test	52.9132	40	17.414	1.964	39	0.310	0.057
	Post-test	50.7326	40	15.854		39		

M.S= Mean of Score; SD = Standard deviation; d.f = degree of freedom, P = probability value.

4. Discussion

4.1. Discussion of Patients' Socio-Demographic and Clinical Characteristics

Due to continued urbanization and changes in lifestyle, inflammatory bowel disease has become a major health problem in many nations in recent year. The most of the participants are male in both groups as a combination of biological and lifestyle factors. This study comes with [12], they demonstrated a males have a higher risk of incident CD starting in adolescence and above 45 years' higher risk of UC than female.

Patients aged were ≤ 29 years, similar to the findings of [13]. This finding may be attributed to epidemiological pattern of IBD, which commonly in early adulthood.

The highest percentage of the control group are having primary school levels then followed closely by college and postgraduate patients in study group in (Table 1), this is consistent with the outcomes reported by [14], who found that most of the people in their study had a lower level of education than secondary school. While, the finding of previous IBD studies by [15], where documented a higher proportion of participants had college-level education. This balanced distribution reflects the socioeconomic reality of Arabic community where primary education remains prevalent. The participants were married respectively in both groups. This finding is agree with [16], they found proportion of their sample were married. This highlighting the role of a husband or wife are frequently encouraging medical consultation and attendance at follow up appointments.

Furthermore, the majority of subjects in study group have own work (Free work). This aligns with [17], they found that more than half of IBD patients were in paid employment. This indicate patients who have a source of income, even if modest, are better access healthcare services for follow-up visits.

Half of the samples have less than 300,000(IQD) in both groups, it is considered low income. This may because a large number of participants were either students or employed in the private sector, both of which are commonly associated with instability or low income. This economic situation differing from findings by [18], where monthly income between 300,000-600,000 IQD among study subjects.

Participants resided in urban area. This study agrees with [19]. This indicating a positive correlation between urbanization and industrialization of Societies with linked to changes in microbial exposure and likelihood of developing IBD.

Both groups have no family history of IBD, this supported by [20]. As this disease considered a multifactorial illness with a complicated etiology.

Participants have ulcerative colitis in both group. This is consistent with [21]. This is may have been due to UC, require a weaker genetic predisposition and responds differently to environmental factors like smoking and urbanization, while Crohn's disease more strongly on genetic susceptibility and specific environmental triggers.

Nearly all the subjects have no past surgery for IBD, because modern medical treatments such as immunosuppressive and biological drugs can control inflammation and prevent complications in many cases. Surgery is mainly needed for complications, not for all patients. This agree with several studies [22].

More samples were none smokers this supported by [23]. Smokers may have tended to have more ideal involvement, but nonsmokers tended to have more inflammatory type.

4.2. Discussion of Patients 'General Health Status

The current study assessed the general health status of patients with inflammatory bowel disease based on short form 36 health survey questionnaire and reported severely compromised, these disruptions may be caused by physical symptoms, mental and social impairment. These findings are agreeing with [24], showed these Patients have clearly encountered the negative consequences of the illness. Therefore, the researcher emphasizes the significance of self-management and nursing techniques that go beyond these illnesses. An improvement in study group for physical functioning at post-test indicated good physical capabilities, as an implementation of the self-management intervention, this helped patients become more conscious of the value of regular exercise, such as resistance and aerobic exercises that improve their general health. This is in line with [25], their results suggest that regular physical activity (PA) in patients with IBD significantly improves HRQoL and overall physical condition.

Patient's role limitations due to physical health also improved from (poor) in the pre-test to (moderate) in post-test for study group that reflecting decreased physical limitations. This result corresponds with [26], they demonstrated that higher-intensity exercise effectively improved the physical functioning aspects (physical performance, pain, limitations). Also, enhanced ability to emotional adjustment regard to the application of the interventions that focused on reducing the stress and anxiety during the sessions and enhanced their feelings. These results are consistent with [27], they showed that interventions may also improve understanding of the illness and treatment compliance by encouraging increased self-awareness and emotional resilience.

A significant reduction in patient's fatigue and increased energy level scores from (poor) in the pre-test to (moderate) in post-test. These results support with [28], they reported that multimodal lifestyle interventions, during sessions with improve quality of life and reduce fatigue. A significant improvement of emotional well-being in this study due to provided psychological support, education about how yoga, mindfulness meditation and relaxation techniques. These findings supported by [29], they suggest that a number of IBD outcomes can be improved with the help of mindfulness-based interventions. The social functioning of patients with IBD in the current study shows a notable improvement from (moderate) on the pre-test to (good) after using the self-management techniques, this result confirms with [30], they stated that patients' life satisfaction, which is positively correlated with resilience and social support, will be improved by comprehensive intervention measures. Also, an improvement in pain domains was observed in study group from (moderate) in the pre-test to (good) due to uses a non-pharmacological methods and adherence to prescribed medications. This result is exactly in line with [31], who found that Combinations of non-pharmacological interventions have been improve pain management and well-being.

A significant improvement on the patients' general health was observed after eight weeks of the last intervention by learning more about IBD, managing symptoms, sleep hygiene and managing stress and concerns. This is in agreement with [32], who represent that the improvement in QoL may be associated with an increase in knowledge about IBD and better understanding has a positive effect on social wellbeing, treatment acceptance, and adherence.

5. limitations

Because the design is a quasi-experimental, that may affect the interpretation of the findings and their generalizability. Therefore, Participants may have been recruited from a specific health care setting(s), which may restrict the representativeness of the sample and limit the applicability of the findings to IBD patients in other regions or care contexts.

6. Conclusion

This study clearly showed that individualized self-management skills can positively influence the patient's health status as a result of the positive impact of a structured nurse-led program for individuals with inflammatory bowel diseases. This study offers clear evidence that if patients are empowered to take an active role in managing their health, with personalized nursing support, the patient's behavior can change for the better across multiple domains, include the following: physical functioning, role limitations due to physical health, emotional well-being, energy / fatigue, social functioning, pain and general health, highlighting the importance of integrating self-management unit lead by nurse to provided effective simple self-management skills that focused on non-pharmacological techniques to reduce reliance on medication especially in the context of raising medication costs and continue unavailability are needed into practice to ensure optimum outcomes and improve general health status for those living with IBD. Although, randomized studies are needed for generalization and longer-term follow-up to validate these findings further.

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