Pharmacophore

ISSN-2229-5402



Journal home page: http://www.pharmacophorejournal.com

PREVALENCE AND EFFECTS OF COMPLEMENTARY AND ALTERNATIVE TREATMENT IN INFLAMMATORY BOWEL DISEASE IN SAUDI ADULT PATIENTS

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ABSTRACT

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ARTICLE INFO

Received: 28 Sep 2023 **Accepted:** 06 Dec 2023

Keywords: Burn first aid, Burns management, Knowledge, Practice, Saudi Arabia

IBD is a chronic intestinal disease affected by microbiome, genetic, environmental, and immunological factors. Traditional medicine is accompanied by a high percentage of side effects. CAM is designed by four methods including nutrition, microbe balance, dietetic management, and micro biome-therapy. This study aims to determine the prevalence and effects of CAM use in patients with IBD in the Saudi Arabian population. We will conduct a cross-sectional study with a representative random sample of Saudi residents in the Kingdom of Saudi Arabia using a self-administered questionnaire. For data analysis, we will use Statistical Package of Social Science Software (SPSS) version 24. In this paper, 386 people participated in the current study including 67.1% female and 32.9% male. More than 60% were aged below 39 years old, and around 60% were married. 40.9% were employed, so the majority of them had low monthly income, and 55.4% got bachelor's degrees. 28.5% reported other reasons behind choosing CAM for IBS, while 23.6% feared conventional therapy. CAM is frequently utilized by IBD patients in Saudi Arabia. Patients today also receive CAM therapies in addition to conventional treatment. So, discussing CAM co-treatment should be a regular part of IBD consultations.

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To Cite This Article: Ahmed HA, Almeshari RA, Al Dawood SA, Alwadai AM, Alzahrani KT. Prevalence and Effects of Complementary and Alternative Treatment in Inflammatory Bowel Disease in Saudi Adult Patients. Pharmacophore. 2023; 14(S1): e-723-8777

Introduction

There is a high prevalence of (IBD: Inflammatory Bowel Disease) patients using CAM (complementary and alternative medications) ranging between 21% and 60% [1]. IBD or Inflammatory bowel disease is a chronic intestinal disease, which has two types: Crohn's disease (CD) and Ulcerative Colitis (UC). Many factors can cause the etiology as microbiome, genetic, environmental, and immunological factors [2]. Diarrhea, vomiting, rectal bleeding, abdominal pain, malnutrition, and weight loss are the general symptoms of (IBD) Inflammatory bowel Disease [3]. Also, the exhaustive symptoms of unexpected relapses course of the disease, psychological distress caused by potential complications, and adverse effects of the medications [4]. Medications are effective in treating disease activity and are required to help maintain remission [3, 5]. (CAM) is a term that includes a group of healthcare practices that are not part of traditional medical practices and the dominant healthcare system [4]. CAM can be classified into four main groups; 1) nutraceuticals, 2) mind-microbe balance, 3) dietetic management, and 4) microbiome-therapy [6]. commonly used CAM (complement and alternative medicine) are less or not based on valid scientific studies [2]. 30% to 56% of IBS (inflammatory bowel disease) usually use CAM (complement and alternative medication adverse effects, setting the reasons for using CAM are to have more sense of control over the disease, avoid medication adverse effects,

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more safety, and desire for holistic treatment. So, many IBD patients prefer a complementary and alternative approach to managing their disease [3, 5]. There are published data about long-term complications and side effects of CAM (complement and alternative medicine such as nausea, vomiting, hepatotoxicity, and drug interactions) [7].

In previous studies, most IBD patients reported a high satisfaction rate with CAM use (67%–83%), improvement in well-being and IBD symptoms (30%–45%), and few relapses 16%-22%, In another study most IBD patients using CAM (63%) did not observe results [8]. 40% of IBD (inflammatory bowel disease) are not complain with medications, as a result, there are suboptimal disease control and significant challenges for physicians [9]. No clear demographic data are predicting the use of CAM (complementary and alternative medicine), but some studies have found it increases among single, higher-income persons, while others found it high in females, higher education, and anxiety [8]. A high-interest rate in CAM (complementary and alternative medicine) use increases the rate of investigations in this field worldwide [10]. This study aims to determine the prevalence and effects of CAM use in patients with IBD in the Saudi Arabian population.

Materials and Methods

Study Design

A cross-sectional study was done to assess the prevalence of complementary and alternative medicine among the age group of more than or equal to 18 years old with inflammatory bowel disease in the Saudi Arabian population. they were collected through the public (malls, relatives, friends to friends, and all social media).

Sample Size

The size of the sample was calculated by using the formula: $n=P(1-P) * Z\alpha 2 / d 2$ with a 95 % confidence level. n: Calculated sample size Z: The z-value for the selected level of confidence (1-a) = 1.96. P: An estimated prevalence of knowledge Q: (1-0.50) = 50%, i.e., 0.50 D: The maximum acceptable error = 0.05. So, the calculated minimum sample size was: $n = (1.96)2 \times 0.50 \times 0.50 / (0.05) 2 = 384$

Method for Data Collection and Instrument (Data Collection Technique and Tools)

An electronic questionnaire written in Arabic was distributed via multiple social media applications (though mainly Twitter and WhatsApp). Information was kept private per Google's privacy policies. A structured questionnaire was used as a study tool. This tool was developed after consulting relevant studies conducted in Saudi Arabia and elsewhere (cite). The final version of the questionnaire consisted of 23 questions categorized into four main sections. Section one contained demographic background characteristics questions. The second section includes measuring knowledge about inflammatory bowel diseases

Analyzes and Entry Method

Data was entered on the computer using the "Microsoft Office Excel Software" program (2016) for Windows. Data was then transferred to the Statistical Package of Social Science Software (SPSS) program, to be statistically analyzed. We used to visualize a term map analyzing keywords from the data obtained.

Results and Discussion

As shown in **Table 1** 386 people participated in the current study including 67.1% female and 32.9% male. More than 60% were aged below 39 years old, and around 60% were married. 40.9% were employed, so the majority of them had low monthly income, and 55.4% got bachelor's degrees (**Table 1**).

De	mographic factor	Frequency	Percent
Condon	Male	127	32.9
Genuer —	Female	259	67.1
	18-29	139	36.0
Age	30-39	119	30.8
	40-49	72	18.7
-	50 and more	56	14.5
Marital status	Single	132	34.2
wiai itai status —	Married	231	59.8

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	Divorced	18	4.7
	Widower	5	1.3
	Student	86	22.3
Level of education	Unemployed	142	36.8
	Employed	158	40.9
	None	85	22.0
	Less than 3000 SAR	89	23.1
Monthly income	3000-8000 SAR	60	15.5
	8001-13000 SAR	78	20.2
	More than 13000 SAR	74	19.2
	High school or less	114	29.6
Education	Diploma	40	10.4
Education	Bachelor	214	55.4
	Postgraduate degree	18	4.7

As shown in Table 2 73.8% reported a very well health status and 12.3% were slightly below par, in general, the health status of the sample is very well. More than 60% reported mild and moderate of having abdominal pain, 35.6% reported no 31.4% reported having one time of liquid stool per day, while 16.5% had two times, and 38.4% reported none.

			D (
Disease		Frequency	Percent
	Very well	240	73.8
	Slightly below par	40	12.3
- Vour general health status	Poor	10	3.1
1 our general neatth status –	Very poor	3	.9
-	Terrible	8	2.5
-	Not sure	24	7.4
 Abdominal pain	None	117	35.6
	Mild	95	28.9
	Moderate	94	28.6
	Severe	10	3.0
-	Not sure	13	4.0
	None	126	38.4
-	Once time or less	103	31.4
Number of liquid stools per day	Two times	54	16.5
	Three times	27	8.2
-	More than 3 times	18	5.5

As shown in Table 2 74.6% did not have IBD, while 22% had Ulcerative colitis, and 3.4% had Crohn's disease (CD). 58.8% did not know when they were diagnosed with IBD, while 14% reported it as (1-3 years). 38.3% expressed compliance to their hospital medications, and 36.8% reported it as "sometimes".66.3% did not use any Complementary and alternative medicine for the disease.

Table 3. Inflammatory bowel disease (IBD) information					
Statement		Frequency	Percent		
	Ulcerative colitis	85	22.0		
Which type of inflammatory bowel disease (IBD) do you have	Crohn's disease (CD)	13	3.4		
	I don't know	288	74.6		
	Less than one year	25	6.5		
When were you diagnosed with IBD?	1-3 years	54	14.0		
	More than 3-7 years	37	9.6		

Fable 3. Inflammatory b	owel disease	(IBD) informatio
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	More than 7 years	43	11.1	
	I do not know	227	58.8	
Are you compliant with your hospital medications?	Yes	148	38.3	
	No	96	24.9	
	Sometimes	142	36.8	
	Yes	64	16.6	
Did you use any Complementary and alternative medicine for your disease?	No	256	66.3	
	Sometimes	66	17.1	

As shown in Table 2 40.9% reported that used other types of CAM, 31.8% did use Microbiome-therapy as probiotics, 26.2% did use Dietetic management, 21% used Nutraceuticals as (curcumin, prebiotics, calcium, and zinc), and only 8.4% used Mindmicrobe balance. 29.7% used CAM while you can have a medication prescribed by your doctor, 58.6% were satisfied with using CAM in their treatment, 52.6% did know that CAM can interact with their current medications, 24.8% did discuss the CAM use with their doctor, and only 8.3% had side effects because of CAM use.

	Statement		Frequency	Percent
	NUTEDACEUTICALS as (autouning prohiotics, aslained sing)	Yes	60	21.0
	NOTRACEO TICALS as (curcumin, prebiotics, calcium, zinc)	No	226	79.0
	Mind migraha halanga	Yes	24	8.4
	wind-incrose balance	No	262	91.6
Used CAM true	Used CAM terrs	Yes	75	26.2
Used CAM type Dietetic management	No	211	73.8	
Microbiome-therapy as probiotics	Yes	91	31.8	
	Microbiome-merapy as problomes	No	195	68.2
Other	Yes	117	40.9	
Other		No	169	59.1
Do you use CAM while you can have medications prescribed by your destar?		Yes	100	29.7
Do you use CAM while you can have medications prescribed by your doctor?	No	237	70.3	
		Yes	191	58.6
AI	e you saushed with using CAM in your treatment?	No	135	41.4
De veu la	out that CAM conjutances with your our ment medications?	Yes	174	52.6
Do you ki	low that CAM can interact with your current medications?	No	157	47.4
	in the second CAM and with second second	Yes	82	24.8
Ha	ive you ever discussed CAM use with your doctor?	No	249	75.2
11.	we you good had side offects because of CAM use?	Yes	27	8.3
Ha	ive you ever had side effects because of CAM use?	No	300	91.7

As shown in Table 5 some complications were reported. 37.6% suffered from Joint pain (arthralgia), and 35.2% reported "other". 13.2% suffered from Ulcers in the mouth (aphthous ulcers), 8.5% suffered from tears in the tissue that lines the anus (anal fissure), and Inflammation of the middle layer of the eye (uveitis) by 5.7%. The rest complications were reported as below 5%.

Table 5. Complications				
Statement		Frequency	Percent	
T • (, (, 1 , 1 •)		145	37.6	
Joint pain (arthraigia) -	No	241	62.4	
Inflammation of the middle layer of the eye (uveitis)	Yes	22	5.7	
	No	364	94.3	
Inflammation of fat cells that results in tender red nodules on shins (erythema	Yes	7	1.8	
nodosum)	No	379	98.2	
Ulcers in the mouth (aphthous ulcers)	Yes	51	13.2	
	No	335	86.8	

Table 4 Used CAM t

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		4	1.0	
A condition that causes ussue to become necroit (pyodernia gangrenosum)	No	382	99.0	
		33	8.5	
Lear in the tissue that lines the anus (anal fissure)	No	353	91.5	
A newly formed channel between the end of the bowel and the skin around the anus		13	3.4	
(fistula)	No	373	96.6	
Swallon tiggue with an accumulation of mus (abases)	Yes	13	3.4	
Swohen ussue with an accumulation of pus (abscess)	No	373	96.6	
T. 1. 1/1		136	35.2	
i uon t Know	No	250	64.8	

As shown in Table 6, 61.2% reported a normal number of stools, and 79.5% had no blood seen.

Table 6. ulcerative colitis outcomes				
		Frequency	Percent	
	The normal number of stools	208	61.2	
-	1-2 stools more than normal	49	14.4	
Stool Frequency (based on the nast 3 days)	3-4 stools more than normal	12	3.5	
	5 or more stools more than normal	7	2.1	
	I don't know	64	18.8	
	No blood seen	272	79.5	
-	Streaks of blood with stool less than half the time	17	5.0	
Rectal Bleeding (based on the	Obvious blood with stool most of the time	3	0.9	
pust c duys)	Blood alone passed	8	2.3	
-	I don't know	42	12.3	

28.5% reported other reasons behind choosing CAM for IBS, while 23.6% Feared conventional drugs' adverse reaction, 12.2% Felt a ''more natural ''approach, and only 9.8% had failed conventional therapy.

Table 7. The purpose of choosing CAM for IBS				
Disease		Frequency	Percent	
Four of conventional drugs' advance reaction	Yes	91	23.6	
rear of conventional drugs adverse reaction	Frequency Percent reaction Yes 91 23.6 No 295 76.4 proach Yes 47 12.2 No 339 87.8 y Yes 38 9.8 y No 348 90.2 Yes 80 20.7 No 306 79.3 Yes 110 28.5	76.4		
The facing of a limous naturally approach	Yes	47	12.2	
The feeling of a 'more natural' approach	No	339	87.8	
Foilure of conventional thereasy	Yes	38	9.8	
ranure of conventional therapy	No	348	90.2	
I don't imore	Yes	80	20.7	
	No	306	79.3	
Other reasons	Yes	110	28.5	
Other reasons	No 2'	276	71.5	

The relationship between sociodemographics, clinical variables, and the use of CAM therapy: Binary logistic regression analysis was conducted to test the prediction of sociodemographics and variables on the use of CAM therapy.

 Table 8. Binary logistic regression analysis of sociodemographic and clinical variables as predictors of the use of CAM therapy

Variabla	odds ratio	S.E.	P value	95% C.I.	
variable				Lower	Upper
Gender	0.24	0.46	0.61	0.52	3.11
Age	-0.19	0.20	0.33	0.56	1.22
MS	-0.30	0.39	0.44	0.35	1.59

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Employment	0.60	0.34	0.08	0.93	3 55
Income	-0.06	0.18	0.76	0.67	1.34
Education	-0.67	0.25	0.01**	0.32	0.83
NUTRACEUTICALS as (curcumin, prebiotics, calcium, zinc)	1.27	0.61	0.04**	1.08	11.68
Mind-microbe balance	3.93	1.25	0.00**	4.43	585.40
Dietetic management	-0.43	0.56	0.44	0.22	1.93
Microbiome-therapy as probiotics	-0.34	0.54	0.53	0.25	2.04
Other	-1.41	0.58	0.01**	0.08	0.76
joint pain (arthralgia)	0.09	0.57	0.88	0.36	3.34
inflammation of the middle layer of the eye (uveitis)	2.49	0.79	0.00**	2.56	56.83
inflammation of fat cells that results in tender red nodules on shins (erythema nodosum)	-0.32	1.24	0.80	0.06	8.26
ulcers in the mouth (aphthous ulcers)	0.35	0.61	0.57	0.43	4.72
condition that causes tissue to become necrotic (pyoderma gangrenosum)	5.14	1.35	0.00**	12.02	1835.40
tear in the tissue that lines the anus (anal fissure)	-0.34	0.79	0.67	0.15	3.34
a newly formed channel between the end of the bowel and the skin around the anus (fistula)	1.83	1.31	0.16	0.47	81.55
swollen tissue with an accumulation of pus (abscess)	0.01	1.11	0.99	0.12	8.84
I don't know	1.26	0.60	0.04	1.08	11.50
Fear of conventional drugs' adverse reaction	3.19	1.03	0.00**	3.19	183.69
The feeling of a "more natural" approach	4.70	1.17	0.00**	11.02	1101.29
Failure of conventional therapy	4.95	1.27	0.00**	11.65	1716.40
I don't know	2.36	0.99	0.02**	1.53	73.11
Other reasons	3.07	1.03	0.00**	2.88	161.47
Do you use CAM while you can have medications prescribed by your doctor?	0.10	0.43	0.82	0.47	2.58
Are you satisfied with using CAM in your treatment?	0.88	0.44	0.04**	1.03	5.67
Do you know that CAM can interact with your current medications?	0.51	0.41	0.22	0.74	3.72
Have you ever discussed CAM use with your doctor?	-0.89	0.48	0.06	0.16	1.05
Have you ever had side effects because of CAM use?	0.83	0.59	0.16	0.72	7.27
Dependent variable = Complementary and alternative medicine (CAM) ** $p < 0.05$					

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IBD is a group of inflammatory gastrointestinal (GI) disorders that are categorized into two major types which are ulcerative colitis (UC) and Crohn's disease (CD). Biologics and immunosuppressants are common conventional IBD treatments that aim to reduce inflammation but have been linked to serious side effects. Moreover, up to 50% of patients have been observed to not respond to biologics. As a result, patients may choose nontraditional treatment modalities like complementary and alternative medicine (CAM) [1]. This study aims to determine the prevalence and effects of CAM use in patients with IBD in the Saudi Arabian population.

According to our study results, 16.6% use complementary and alternative medicine for disease while 17.1% use it sometimes. This was lower than reported in previous literature. A previous study reported that half of the IBD patients (50.7%) had used CAM at least once [2]. This is in accordance with other publications from Western countries reporting prevalences of CAM use from 20 to 65% [3-6]. According to recent research of 1,286 IBD patients in Austria, 50.7% of them employed CAM at some point during their illness [2]. Alrowais *et al.* (2017) systematic review indicated that 90% of Saudi Arabian patients used CAMs [7]. in their studies. According to the findings of a Saudi study, 90% of patients with IBD in Saudi Arabia use CAM [8].

Herbal treatments, dietary supplements, probiotics, and other physical or spiritual mind-body practices are examples of complementary and alternative medicine (CAM) [11]. Although the majority of people believe these treatments to be safe and natural, it is important to be aware of any potential side effects and drug combinations with other treatments. Unlike traditional medical medicines used in the management of IBD, which must pass a rigorous approval procedure, the majority of these therapies and practices have a weak body of evidence supporting their efficacy and safety, and they are not supported by

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regulatory agencies [2, 3]. 31.8% of our study sample use microbiome therapy as probiotics, 26.2% use Dietetic management, 21% use nutraceuticals (curcumin, prebiotics, calcium, and zinc), and only 8.4% use mind-microbe balance. Herbal medication was the most often utilized CAM in the previous cohort (55%) [9]. In another study, the two CAMs that IBD patients seemed to prefer the most were honey and Zamzam water. CAM has been mentioned in certain research as a possible treatment option for IBD [8]. A recent Cochrane systematic review examined alternative treatments for IBD and found that dietary changes, cannabis use, and naltrexone were ineffective [10]. The effectiveness of turmeric as an induction and maintenance adjunctive treatment in UC is, however, supported by some evidence from small and randomized controlled trials [11, 12]. (The usage of turmeric was acknowledged by 11% of another sample and was linked to both the prevalence of stomach pain and abstinence from smoking [8].

In our study, 28.5% of participants reported other reasons behind choosing CAM for IBS, while 23.6% Feared conventional drugs' adverse reaction, 12.2% felt a ''more natural ''approach, and only 9.8% had a failure of conventional therapy. In Europe and the USA, Most patients felt that CAM was effective and cited ''wish to feel generally better ''as the main reason for CAM use. Many also stated that CAM gave them a greater sense of physical well-being and improved their gastrointestinal symptoms. Interestingly, despite an increased sense of well-being and improved symptoms among users, there was no difference in number of hospitalizations, duration of GI symptoms, and perceived general health status among our two groups. It may be that CAM patients perceive a sense of satisfaction by using a more holistic health approach. Indeed, the second most common reason for CAM use was ''preference for more natural therapy/consistent with personal values ''(48 %). Similarly, other studies have shown that ''general wellness ''and ''mindfulness training ''have a substantial therapeutic effect on bowel symptom severity and quality of life [13, 14].

In our study, education had a significant relationship with CAM therapy users (High school or less) (OR=3919.16; CI:49.41-310856.26;p<0.05) and (Bachelor) (OR=69.66; CI:2.10-2311.62;p<0.05). There was a positive association between higher educational status and CAM—88 % of CAM users had at least a college degree compared with 82 % of non-CAM users—but the difference was not statistically significant. A majority of CAM users had symptoms for more than 1 year (68 %) and used CAM at least once during the last 24 months. According to a study by Koning *et al.*, which involved 1,370 IBD patients, oral CAM use in IBD patients was independently correlated with female gender, young age, high education level, high income, being a vegetarian, and belonging to the middle social class at birth [16].

Conclusion

CAMs are frequently utilized by IBD patients in Saudi Arabia. Patients tend to use CAM when their symptoms are severe. Hence, IBD experts should be aware that many IBD patients today also receive CAM therapies in addition to conventional treatment. So, discussing CAM treatment should be a regular part of IBD consultations.

Acknowledgments: None

Conflict of interest: None

Financial support: None

Ethics statement: This study was approved by the Research Committee of the Biomedical Ethics Unit, Faculty of Medicine, of Hail Reference No (H-2020-129).

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