بسم الله الرحمن الرحيم

University of Dongola

Faculty of Medicine and Health Sciences

Department of Community Medicine

Proposal:

Knowledge, Attitude, and Practice Toward Irritable Bowel Syndrome Among Adults in Maraga, Dongola City, Northern State, Sudan, 2026.

Submitted by:

Mohammed Albashier Alobied Mohammed Ahmed

Montasir Mohammed Mohammed Ahmed Kalifa

Supervisor:

Prof: Abdulgadir Ali Bashir

CONTENTS:

No	Subject	Page
1.	**INTRODUCTION**	**3**
1	**BACKGROUND**	**3**
2	**PROBLEM STATEMENT**	**4**
3	**RATIONALE**	**4**
4	**RESEARCH QUESTIONS**	**5**
5	**RESEARCH HYPOTHESES**	**5**
6	**OBJECTIVES** **1. GENERAL OBJECTIVES** **2. SPECIFIC OBJECTIVES**	**6**
2.	**LITERATURE REVIEW**	**6**
1	**PREVIOUS STUDIES** ❖ **INTERNATIONAL** ❖ **REGIONAL** ❖ **LOCAL**	**6**
2	**SUMMARY**	**7**
3.	**MATERIALS AND METHOD**	**8**
1	**STUDY DESIGN**	**8**
2	**STUDY AREA**	**8**
3	**STUDY POPULATION** ❖ **INCLUSION CRITERIA** ❖ **EXCLUSION CRITERIA**	**8**
4	**SAMPLE SIZE AND TECHNIQUE**	**9**
5	**DATA COLLECTION TOOL**	**10**
6	**STUDY VARIABLES** ❖ **DEPENDENT VARIABLES** ❖ **INDEPENDENT VARIABLES**	**11**
7	**DATA ANALYSIS**	**12**
8	**ETHICAL CLEARANCE**	**13**
4.	**RESEARCH PLAN AND TIMELINE**	**14**
5.	**BUDGET**	**14**
6.	**REFERENCES**	**15**

1. Introduction

1.1 Background:

Irritable bowel syndrome (IBS) is a chronic disease and one of the main disorders of the brain-gut axis, previously considered a functional disorder. It affects quality of life and work capacity. According to the Rome IV criteria (2016), IBS is characterized by recurrent abdominal pain at least 1 day a week, associated with changes in bowel movements. [1,2]

Regarding its epidemiology, worldwide, using the Rome IV criteria, the prevalence of IBS is 4.1% (higher in women and young adults). [4,9]

Evidence from previous studies shows persistent gaps in IBS knowledge and health-seeking behavior. Internationally, a German national survey found very low public knowledge: only 3.7% correctly recognized IBS from a symptom vignette, and recognition was higher among women and those with higher education [10]. Regionally, a study in Al-Baha, Saudi Arabia, found that most participants (71.0%) had a medium level of knowledge and only 20.2% had high knowledge. Awareness was high (96.9% had heard of IBS), but misconceptions about complications persisted, and only 42.8% had consulted a physician for recurrent bowel symptoms. Social media was the main source of information (50.8%) [3]. Locally, focused on medical workers in certain areas. good knowledge in 58%, a good attitude in 55% and good practice in 63%. Knowledge of medications and lifestyle modification was relatively poor, and 61% asked for further courses on IBS [8].

1.2 Problem Statement

Irritable bowel syndrome (IBS) is a common gastrointestinal disorder characterized by recurrent abdominal pain associated with changes in bowel habits. Although IBS is not associated with structural abnormalities of the gastrointestinal tract, its symptoms can significantly interfere with daily activities, quality of life, and healthcare utilization. Appropriate management requires adequate understanding of the condition, its symptoms, possible triggers, and available treatment options. [1,3]

In the community, inadequate knowledge and misconceptions about IBS may influence how individuals interpret gastrointestinal symptoms, seek medical care, use medications, and adopt dietary or other self-management practices. However, the extent of these knowledge gaps, attitudes, and practices may vary between populations according to cultural, socioeconomic, and educational factors. [2,5]

Despite the clinical and public-health relevance of IBS, there is limited information regarding knowledge, attitudes, and practices related to IBS among adults in Maraga. The absence of local data makes it difficult to determine the existing level of awareness and identify specific areas where health education may be needed.

Therefore, this study will assess the knowledge, attitudes, and practices regarding IBS among adults in Maraga, Dongola City, Northern State, Sudan, and will examine selected factors associated with these KAP levels.

1.3 Rationale:

This study is important because it will:

- Determine the level of community knowledge regarding IBS.
- Identify misconceptions about the causes, symptoms, diagnosis, and management of IBS.
- Assess attitudes toward IBS and healthcare seeking.

- Identify common practices related to symptom management.
- Identify factors associated with differences in knowledge, attitude, and practice.
- Provide baseline information for future health-education programs and further research.

1.4 Research Question:

What are the levels of knowledge, attitudes, and practices regarding irritable bowel syndrome among adults in Maraga?

1.5 Hypotheses:

H^0 = No relationship between knowledge and level of education.

H^1 = There is a relationship between knowledge and level of education.

H^0 = No relationship between knowledge and practice.

H^1 = There is a relationship between knowledge and practice.

H^0 = No relationship between attitude and Family history of IBS.

H^1 = There is a relationship between attitude and Family history of IBS.

H^0 = No relationship between the age and practice.

H^1 = There is relationship between the age and practice.

H^0 = No relationship between Occupation and attitude.

H^1 = There is relationship between Occupation and attitude.

1.6 Objectives:

1.6.1 General Objective

To assess the knowledge, attitudes, and practices regarding irritable bowel syndrome among adults in Maraga.

1.6.2 Specific Objectives

1. To assess the level of knowledge regarding IBS among adults in Maraga.
2. To assess attitudes toward IBS among adults in Maraga.
3. To determine practices related to IBS symptom management and healthcare seeking.
4. To identify the main sources of information about IBS among the study population.
5. To determine the association between selected sociodemographic characteristics and KAP regarding IBS.
6. To determine the association between previous exposure to IBS-related information and KAP levels.

2. Literature review

2.1. Previous studies:

International:

A 2024 German national population survey of 1,205 adults found very low public knowledge of IBS: only 3.7% correctly recognized IBS from a vignette describing typical symptoms, while 30.7% reported having good knowledge about IBS symptoms. Recognition was higher among women and individuals with higher education. These findings indicate substantial gaps in public IBS literacy and support the need for educational interventions targeting knowledge of IBS symptoms, causes, and treatment. [10]

Regional:

Alghamdi et al. (2026) conducted a cross-sectional study among 421 adults in the Al-Baha region of Saudi Arabia to assess knowledge, awareness, and practices regarding IBS. Most participants (71.0%) demonstrated a medium level of knowledge, while 20.2% had high knowledge and 8.8% had low knowledge. Although awareness of IBS was high, with 96.9% having heard of the condition, important misconceptions remained regarding its complications and health risks. In terms of practice, 76.0% had modified their dietary habits because of gastrointestinal symptoms and 70.8% avoided trigger foods; however, only 42.8% had consulted a physician for recurrent bowel symptoms. Social media was the main source of IBS information (50.8%). The study highlighted significant gaps in IBS knowledge and health-seeking practices and recommended targeted health-education and awareness programs to improve public understanding and management of IBS.[3]

Local:

Knowledge, Attitude and Practice of Community Pharmacists Toward Irritable Bowel Syndrome, Sudan
Hummaida and colleagues conducted a descriptive cross-sectional study among registered community pharmacists working in Khartoum locality.
The study found that 58% of participants had good knowledge of IBS. Most participants recognized the common symptoms, and 86% reported that IBS diagnosis was based on symptoms. However, knowledge regarding medications and lifestyle modification was relatively poor.
Regarding attitude, 55% demonstrated a good attitude. In addition, 61% agreed that they needed further courses concerning IBS. Regarding practice, 63% demonstrated good practice.[8]

2.2 Summary:

the available evidence identified for this proposal provides limited information about what adults in the general Sudanese community know about IBS, how they perceive the condition, and how they respond to IBS-like symptoms.

In particular, there is limited published evidence concerning adults in Dongola City and Northern State. Assessing KAP in this population may therefore provide locally relevant information that can guide health education, improve awareness and identify inappropriate practices related to IBS.

3. Materials & Methods:

3.1 Study Design:

Descriptive cross-sectional community-based study.

3.2 Study Area:

- Maraga, Dongola City, Northern State, Sudan.
- Maraga is a rural area located approximately **6** km north of the Dongola city center. It comprises over 500 houses, two health centers, and several schools at various educational levels, with the majority of the residents working in agriculture.

3.3 Study Population:

Adults aged ≥18 years residing in Maraga, Dongola City.

According to observation, IBS is more common in adults, and adults are more capable of giving and sharing information about the disease.

- **Inclusion Criteria:**

1. Adults aged 18 years or older.
2. Individuals who agree to participate.
3. Individuals able to understand and respond to the questionnaire.

- **Exclusion Criteria:**

1. People who are not residents of Maraga.
2. Individuals who decline participation.
3. Individuals who have already participated in the study.

3.4 Sample Size:

The sample size will be calculated using the single unknown population proportion formula:

$$\mathbf{n = Z^2pq / d^2}$$

Where:

n = required sample size

Z = standard normal value at 95% confidence level = 1.96

p = estimated proportion

q = 1 − p

d = margin of error = 0.05

Because there is insufficient local evidence regarding the proportion of adults with adequate KAP toward IBS in Maraga, p = 50% will be used to obtain the maximum sample size.

Therefore:

$n = (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2$

$n \approx 384$

Adding 5% to compensate for possible non-response:

$384 + 19.2 \approx$ **403**

Therefore, the proposed minimum sample size will be approximately 403 participants.

A multistage sampling technique will be used.

3.5 Data Collection Tool:

An interviewer-administered questionnaire using the **KoboCollect** application, we will collect data in assistance of group classmates and we will train them to use the application.

The questionnaire consists of:

1. **Section A — Sociodemographic Data**

- Age
- Sex
- Marital status
- Education
- Occupation
- Other relevant characteristics

2. **Section B — Knowledge**

- Awareness of IBS.
- Symptoms.
- Possible contributing factors.
- Diagnosis.
- Management.
- Misconceptions.
- Alarm symptoms.

3. **Section C — Attitudes**

- IBS as a medical condition.
- Seeking medical care.
- Dietary modification.

- Medical treatment.
- Self-management.
- Psychological factors associated with IBS.
- Responses can use a Likert scale, for example:
- Strongly agree / Agree / Neutral / Disagree / Strongly disagree.

4. **Section D — Practices**

- Healthcare seeking.
- Self-medication.
- Dietary modification.
- Use of traditional remedies.
- Following medical advice.
- Use of over-the-counter medications.

5. **Section E — Sources of Information**

- Healthcare professionals.
- Internet/social media.
- Family or friends.
- Television/radio.
- Books or educational materials.

3.6 Study Variables:

3.6.1 Dependent Variables

- Knowledge level regarding IBS.
- Attitude toward IBS.

- Practice regarding IBS.

3.6.2 Independent Variables

- Age
- Sex
- Education
- Occupation
- Marital status
- Income
- Previous diagnosis of IBS.
- Family history of IBS.
- Previous consultation for gastrointestinal symptoms.
- Source of information.
- Previous exposure to health education concerning IBS.

3.7 Data Analysis:

Data will be entered, cleaned and analyzed using **SPSS(2026)**.

Descriptive statistics will include:

- Frequencies
- Percentages
- Means
- Standard deviations
- Medians where appropriate

Knowledge, attitude and practice scores will be calculated.

For analytical statistics:

Chi-square (Fisher's test) will be used to assess associations between categorical variables. Student's t-test or appropriate non-parametric tests will be used for comparisons of continuous variables where applicable.

Logistic regression may be used to identify independent factors associated with adequate knowledge, positive attitude or appropriate practice.

A **p-value** of <0.05 will be considered statistically significant.

3.8 Ethical Clearance:

- Ethical approval will be obtained from the appropriate ethical committee of the Faculty of Medicine, University of Dongola, before commencement of data collection.
- Permission will also be obtained from the relevant local authorities.
- Participation will be voluntary.
- Participants will receive adequate information about:
- The purpose of the study.
- The procedures involved.
- Their right to refuse participation.
- Their right to withdraw at any time.
- Informed consent will be obtained before participation.
- No participant's name will be required on the questionnaire. Data will be kept confidential and used exclusively for research purposes.

4. Research Plan:

No	Activity	Time Period
1	Submission of Research Proposals	24 Sep 2026
2	Presentation of Research Proposals	27 Sep–1 Oct 2026
3	Data Collection	2–22 Oct 2026
4	Data Analysis	25 Oct–1 Nov 2026
5	Writing and Discussion of Results	8–19 Nov 2026
6	Writing the Final Report	20 Nov–7 Dec 2026
7	Electronic Submission of Research Projects to the Department of Community Medicine	9 Dec 2026
8	Evaluation/Review of Research Projects	13–24 Dec 2026
9	Revision of Research Projects	27–31 Dec 2026
10	Discussion/Defense of Research Projects	3–4 Jan 2027

5. Research Budget:

No	Item	Estimated Cost (SDG)
1	Transportation	150,000
2	Internet/data	50,000
3	Printing research	30,000
4	Data analysis	300,000
5	Meals	400,000
6	Miscellaneous	25,000
	Total	955,000

6. Reference

1. Issa LF, Sonbul Y, Alzahrani S, Bajunaid R, Alqefari O, Alahmadi Y, Alharbi K, Alzahrani KT. Knowledge, attitude and practice towards irritable bowel syndrome among young adults in Jeddah, Saudi Arabia. Med Sci. 2022;26:1-8.

2. Penman ID, Ralston SH, Strachan MWJ, Hobson RP, editors. Davidson's Principles and Practice of Medicine. 24th ed. London: Elsevier; 2023. p. 847–848.

3. Alghamdi F, Alqarni AM, Alzahrani MA, Alzahrani OM, Alghamdi R, Alalyani A, Alghamdi SSA, Alghamdi S, Alghamdi A, Alghamdi M, Alzahrani AA. Knowledge, Awareness, and Practices Toward Irritable Bowel Syndrome (IBS) Among the General Population in the Al-Baha Region, Saudi Arabia. Cureus. 2026 May 3;18(5):e108208. doi: 10.7759/cureus.108208. PMID: 42245896; PMCID: PMC13231024.

4. Lovell RM, Ford AC. Global prevalence of and risk factors for irritable bowel syndrome: a meta-analysis. Clin Gastroenterol Hepatol. 2012 Jul;10(7):712-721.e4. doi: 10.1016/j.cgh.2012.02.029. Epub 2012 Mar 15. PMID: 22426087.

5.Patients' Knowledge, Attitudes, and Practices Regarding Non-pharmacological Treatments for Irritable Bowel Syndrome. Journal of Neurogastroenterology and Motility. 2026.

6. Ringström G, Agerforz P, Lindh A, Jerlstad P, Wallin J, Simrén M. What do patients with irritable bowel syndrome know about their disorder and how do they use their knowledge? Gastroenterol Nurs. 2009 Jul-Aug;32(4):284-92. doi: 10.1097/SGA.0b013e3181b0e81d. PMID: 19696605.

7. Shimaa Mahmoud El Sharawy, Ibrahim Fathi Amer, Mahmoud Zaki Elkadeem. Irritable bowel syndrome in Egyptian medical students, prevalence and associated factors: a cross-sectional study. Pan Afr Med Jrnl [Internet]. 2022 Apr

8. Hummaida TEA, Daf-Elseed AM, Ali SAA, et al. Knowledge, attitude and practice of community pharmacists toward irritable bowel syndrome, Sudan. Scientific African. 2024;23:e02023. doi:10.1016/j.sciaf.2023.e02023.

9. Algabr GA, Alotaibi TK, Alshaikh AM, Maimani YT, AlShehri MS. Assessment of knowledge, attitude and practice towards irritable bowel syndrome and risk factors in Riyadh City, 2017. Egyptian Journal of Hospital Medicine. 2018;70(8):1377–1380. doi:10.12816/0044652.

10. von dem Knesebeck O, Löwe B, Lüdecke D, Bobardt JS, Barbek R. Public knowledge and beliefs about the irritable bowel syndrome - results from the SOMA.SOC study. BMC Public Health. 2024;24:219. doi:10.1186/s12889-024-17784-8.