



Ethnomedicine Knowledge Among Iranian Patients With Gastrointestinal And Liver Disorders: A Cross-Sectional Study

Fatemeh Sadat Hasheminasab, MD,Ph.D^{1,7}, Yasaman Zamanian, MD²,
Saiedeh Haji-Maghsoodi, Ph.D³, Alireza Bakhshipour, MD⁴, Maryam Azimi, MD,Ph.D^{5,6,*}

¹ Pharmacology Research Center, Zahedan University of Medical Sciences, Zahedan, Iran

² Student research committee, Kerman University of Medical Sciences, Kerman, Iran

³ Research Center for Modeling in Health, Institute for Futures Studies in Health, Biostatistics and Epidemiology Department, Health School, Kerman University of Medical Sciences, Kerman, Iran

⁴ Infectious Disease and Tropical Medicine Research Center, Research Institute of Cellular and Molecular Science in Infectious Diseases, Zahedan University of Medical Sciences, Zahedan, Iran

⁵ Gastroenterology and Hepatology Research Center, Kerman University of Medical Sciences, Kerman, Iran

⁶ Department of traditional medicine, School of Persian medicine, Kerman University of Medical Sciences, Kerman, Iran

⁷ Department of Genetic, School of Medicine, Zahedan University of Medical Sciences

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ABSTRACT

Introduction: The role of complementary and alternative medicine (CAM) in healthcare is substantial and frequently overlooked, with widespread use in both developed and developing countries. This study aimed to explore the ethnomedicinal knowledge including prevalence, socio-demographic, and health related characteristics related to gastroenterology and hepatology disorders in Kerman province.

Materials and methods: This study included 400 eligible patients attending gastroenterology and hepatology outpatient clinic. Data collection was conducted using various assessment tools, that is, a self-administered demographic and ethnomedicine questionnaire, and quality of life questionnaire.

Results: The findings of the present study revealed that 40.3% of the patients surveyed commonly used CAM. Among the participants, 63.4% did not alter their medication intake while using CAM, and 85.7% were satisfied with its effectiveness. The majority of consumers relied on friends and family, making up 41.6% of the sources of information on CAM, with only 14.9% disclosing their CAM usage to physicians. Furthermore, CAM users have a significantly higher level of education, with the physical functioning being a key aspect of QOL.

Conclusion: Although the results of this study may not be broadly generalizable, specific points in the findings are still significant. The utilization of CAM treating for gastrointestinal and liver issues is becoming more prevalent among patients in the area. It is essential to educate patients about the real effects of CAM in disease prevention and treatment, particularly considering patient concerns about side effects, and untrustworthy information sources.

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Introduction

Complementary and alternative medicine (CAM) play a significant and often underestimated role in healthcare, being widely uti-

Abbreviations: CAM, Complementary and alternative medicine; FD, Functional dyspepsia; FGID, Functional gastrointestinal disorders; GERD, Gastroesophageal reflux disease; IBS, Irritable bowel syndrome; PUD, Peptic ulcer disease; QOL, Quality of life.

* Address correspondence to: Maryam Azimi, MD, PhD, Address: Kerman University of Medical Sciences, Kerman, Iran

E-mail address: dr.azimm@gmail.com (M. Azimi).

lized in both developing and developed countries. Practices of CAM are valued for various reasons, including their quality, safety, and effectiveness. Many countries have their unique CAM deeply embedded in their culture and history

In recent decades, numerous studies have assessed the prevalence of CAM use and its associated factors. These studies highlight the substantial utilization of CAM services by patients with different diseases as a complementary, or alternative option. Research has identified correlations between CAM usage and factors such as age, race, socio-economic status, educational level, disease severity, and patients' access to these services.^{1–5}

Review of researches related to ethnomedicine in gastrointestinal and liver diseases reveals that over 40% of patients utilize CAM to alleviate their symptoms, with variations based on the specific disease. The highest usage rates are observed among patients with functional gastrointestinal disorders (FGID), commonly involving herbal remedies, meditation, and diverse manual therapy that differ across geographic locations.^{6–12} Iran, as a middle eastern country, encompasses over 15 distinct ethnic groups. Kerman, located in the southeastern region of Iran, stands as the largest province in the country, characterized by a deep historical background and strong cultural legacy. The predominant ethnic group in Kerman is Persian.^{13,14} This study aimed to explore the ethnomedicinal knowledge including prevalence, socio-demographic, and health related characteristics related to gastroenterology and hepatology disorders in Kerman province.

Materials and Methods

Study design and setting

This cross-sectional study was carried out in gastroenterology and hepatology outpatient clinics affiliated with medical sciences university in Kerman province located in the southeastern region of Iran. Upon diagnosis by a gastroenterologist, patients were referred to the researcher, who interviewed them to fill out the questionnaires for eligible participants. The process of collecting data took place over a 6-month period, beginning in January 2023 and ending in February 2024.

Participants, and eligibility criteria

The research involved outpatients aged 18 to 65 who were attending appointments at gastroenterology and hepatology outpatient clinics and had given their written informed consent. Patients who declined to participate were excluded from the study.

Data sources/measurement

Demographic, and ethnomedicine questionnaire

The study collected data using a self-administrated questionnaire, which was created by drawing from the literature review and aligning it with the study's goals. The questionnaire underwent face validity evaluation by 5 experts in traditional Persian medicine before the study began. The completed questionnaire included a mix of open-ended and close-ended questions, divided into 3 main sections. The first part of the questionnaire focused on gathering demographic details and the medical background of the participants. This section covered variables like age, gender, marital status, level of education, place of residence, duration of the current illness, and frequency of visits to the gastroenterology and hepatology clinic in the past year. In the second section, participants were asked about their understanding of side effects linked to CAM, the risk of interactions with other treatments, where they sought information on CAM, and if they shared their usage of these therapies with their physicians. This section was designed to evaluate patients' attitudes and understanding of CAM. The main focus of section 3 of the questionnaire was on the patient's recent CAM utilization. Those patients who stated they used CAM were subsequently inquired about the specific purpose for its use, how it affected their concurrent conventional medication use, the specific type of CAM they used, how they administered herbal remedies, and their overall satisfaction with CAM.

Patients who indicated a positive response to the question regarding CAM usage were subsequently asked about the specific purpose for which they used CAM, its impact on their concurrent use of conventional medications, the specific type of CAM

employed, the method of administration for herbal remedies, and their overall satisfaction level with the use of CAM. Investigations were conducted to understand why patients who did not opt for CAM chose not to use it.

SF-12 questionnaire

The 12-question quality of life questionnaire is a condensed form of the 36-question quality of life (QOL) questionnaire. There are 8 subscales in total, covering general health perception, physical functioning, role-physical, role-emotional, bodily pain, social functioning, vitality, and mental health. A score within the range of 37 to 48 is indicative of a good QOL while a score within the range of 25 to 35 indicates a moderate QOL. QOL is considered poor when scores range from 12 to 24. The mental summary evaluation involves assessing role-emotional, social functioning, vitality, and mental health scores. The assessment of physical summary includes evaluation of general health perception, role in activities, functioning, and pain levels.¹⁵

Study size

The study size was decided upon based on findings from an internal pilot study. The final sample size was calculated to be 394 participants, considering a ratio of traditional and complementary medicine use of 0.40, type 1 error (α) of 5%, and a study power ($1-\beta$) of 0.90. a total of 400 participants were ultimately chosen for the study to ensure robust statistical power and representativeness of the population being examined.

$$n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2 (p \times (1 - p))}{d^2}$$

$$n = \frac{(1.96 + 1.28)^2 (0.4 \times (1 - 0.4))}{(0.08)^2} \cong 394$$

Statistical methods

Frequency and percentage were utilized to describe qualitative variables, while central and dispersion indices were employed to describe quantitative variables. The normality of quantitative variables was assessed using Kolmogorov-Smirnov test. Independence samples t-test was conducted to compare normal quantitative variables between the groups, whereas the Man-Whitney test was utilized for non-normal variables. The relationship between qualitative variables was examined using Chi-square test. A significance level of 0.05 was set for all statistical tests. The statistical software IBM SPSS Statistics version 26 was used for data analysis.

Results

Demographic data, medical history

The study found that 62% of its participants were female, with the remaining 38% being male. Additionally, 66.3% of the participants were located in urban areas, whereas 33.8% resided in rural areas. Less than 6 months was the most common duration for contracting the disease. The comparison between CAM users and non-users revealed a significantly higher level of education among CAM users ($P=0.016$). Other demographic characteristics did not show any significant differences (Table 1).

Prevalence of CAM use

In the study, 40.3% of the participants used CAM. Herbal medicine was the most common form of CAM used, followed by wet cupping. The majority of individuals who use CAM opt

Table 1
Demographic data, and medical history.

Variables	Subgroups	CAM use Mean \pm SD, Number (percent)	CAM non-use Mean \pm SD, Number (percent)	P value
Age		42.71 \pm 14.00	41.82 \pm 14.17	0.464*
Gender	Male	55 (34.4%)	97 (40.6%)	0.194**
	Female	106 (65.8%)	142 (59.4%)	
Marital status	Single	34 (21.1%)	36 (15.1%)	0.118*
	Married	127 (78.9%)	203 (84.9%)	
Educational level	Elementary	37 (23%)	87 (36.4%)	0.016**
	High school and diploma	64 (39.8%)	75 (31.4%)	
	University	60 (37.3%)	77 (32.2%)	
Place of residence	City	115 (71.4%)	150 (62.8%)	0.072**
	Village	46 (28.6%)	89 (37.2%)	
Duration of the current illness	< 6 mo	46 (28.6%)	79 (33.1%)	0.399**
	6-12 mo	35 (21.7%)	41 (17.2%)	
	1-3 y	33 (20.5%)	55 (23%)	
	3-6 y	21 (13%)	39 (16.3%)	
	6-10 y	8 (5%)	7 (2.9%)	
	>10 y	18 (11.2%)	18 (9%)	
Types of disorders	Functional	90 (42.9%)	120 (57.1%)	0.264*
	Non-functional	71 (37.4%)	119 (62.6%)	
Number of visits		2.25 \pm 2.10	2.44 \pm 2.50	0.490**

* Mann-Whitney test.

** Pearson Chi-Square test.

Table 2
Details of CAM use.

Variables	Subgroups	Number (percent)
Use of CAM	Negative	239 (59.8%)
	Positive	161 (40.3%)
Awareness of safety	Side effects	44 (11%)
	Interference with other treatments	111 (27.8%)
Purpose of using CAM	Improvement of symptoms	149 (92.5%)
	Reduction of side effects of conventional medicine	17 (10.6%)
Reasons for non-use	Lack of information	153 (38.3%)
	Lack of belief	69 (17.3%)
	Other	15 (6.3%)
Impact on their concurrent use of conventional medications	Without changing the conventional medicine dose	102 (63.4%)
	Reducing the conventional medicine dose	44 (27.3%)
	Stopping the conventional medicine	15 (9.3%)
Types of CAM	Herbal medicine	149 (92.5%)
	Wet cupping	36 (22.4%)
	Dry cupping	12 (7.5%)
	Leech therapy	12 (7.5%)
	Aromatherapy	4 (2.5%)
	Acupuncture	7 (4.3%)
Herbal medicine administration methods	Distillation	92 (57.1%)
	Powder	55 (34.2%)
	Decoction	77 (90%)
	Topical oil	22 (13.7%)
	Enema	4 (2.5%)
Overall satisfaction level	Completely satisfied	33 (20.5%)
	Somewhat satisfied	105 (65.2%)
	Dissatisfied	23 (14.3%)
Source of information	Friends and family	67 (41.6%)
	Physician	29 (18%)
	Media	23 (14.3%)
	Herbal shop	64 (14.9%)
Consult a doctor about CAM use		23 (14.9%)

for herbal medicine, with decoction (90%), distillation (57.1%), and powder (34.2%) being the most commonly used forms. It should be emphasized that most participants opted for various forms of consumption (Table 2). The most common gastrointestinal disorders were found to be constipation (68.9%), gastroesophageal reflux disease (GERD) (48.5%), irritable bowel syndrome (IBS) (42.05%), functional dyspepsia (FD) (41.50%), and peptic ulcer disease (PUD) (40%), with accompanying rates of CAM usage. Additionally, the

prevalence of liver disorders and the respective percentage of CAM usage were reported as follows: fatty liver disease (48.75%), gallstone (35.3%), and chronic hepatitis B (28.6%) (Table 3).

Patients attitudes and knowledge regarding CAM

The study participants' main goal in using CAM was to alleviate their disease symptoms. It is important to note that 59.8% of

Table 3
Details of disorders.

Disorders	Total (CAM use) (N, %)	Disorders	Total (CAM use) (N, %)
IBS	107 (45, 42%)	Nausea	2 (0, 0%)
FD	106 (44, 41.5%)	GOO	2 (0, 0%)
PUD	45 (18, 40%)	Fissure	2 (1, 50%)
GERD	35 (17, 48.5%)	Gastric polyp	2 (0, 0%)
Constipation	29 (20, 68.9%)	SRU	1 (1, 100%)
IBD	12 (6, 50%)	Achalasia	1 (0, 50%)
Bloating	9 (6, 66.7%)	FLD	35 (17, 48.5%)
Celiac	6 (4, 66.7%)	Gallstones	17 (6, 35.3%)
Hemorrhoid	6 (4, 66.7%)	Hepatitis B	14 (4, 28.6%)
Pancreatitis	4 (1, 25%)	Liver mass	4 (0, 0%)
Dysphasia	4 (2, 50%)	Liver cirrhosis	4 (0, 0%)
Inguinal hernia	4 (2, 25%)	Hepatitis C	2 (0, 0%)
Intestinal polyp	4 (0, 0%)	Liver cyst	2 (0, 0%)
Diarrhea	3 (3, 100%)	Liver hemangioma	1 (1, 100%)
Colon cancer	2 (0, 0%)	AIH	1 (1, 100%)

N: Number, IBS: Irritable bowel syndrome, FD: Functional dyspepsia, PUD: Peptic ulcer disease, GERD: Gastroesophageal reflux, IBD: Inflammatory bowel disease, GOO: Gastric outlet obstruction, SRU: Solitary rectal ulcer, FLD: Fatty liver disease, AIH: Autoimmune hepatitis.

Table 4
QOL comparison between CAM use, and CAM non-use.

Variables	CAM use Mean \pm SD, Number (percent)	CAM non-use Mean \pm SD, Number (percent)	P value*
General health	2.65 \pm 0.74	2.60 \pm 0.70	0.562
Physical functioning	4.48 \pm 1.36	4.00 \pm 1.58	0.019
Role-physical	2.91 \pm 0.94	2.78 \pm 0.95	0.176
Role-emotional	2.86 \pm 0.92	2.78 \pm 0.92	0.368
Bodily pain	3.22 \pm 1.12	3.20 \pm 1.20	0.707
Social functioning	4.10 \pm 1.43	4.10 \pm 1.60	0.755
Vitality	3.26 \pm 1.15	3.29 \pm 1.15	0.889
Physical summary	13.26 \pm 3.25	12.65 \pm 3.83	0.080
Mental summary	17.44 \pm 4.65	17.64 \pm 4.67	0.685
SE-12 total	30.70 \pm 7.39	30.29 \pm 7.76	0.554

* Mann-Whitney test.

the participants decided against using CAM because of reasons like lack of information and skepticism about its effectiveness. Moreover, 11% of consumers were worried about potential side effects linked to CAM, and 27.8% were nervous about the possibility of drug interactions. The majority of users (63.4%) noted that using CAM did not cause any alterations in their current medication consumption. Conversely, 27.3% experienced a decrease in the amount of current medication they were taking while 9.3% stopped using current medications altogether.

A total of 14.3% of consumers reported dissatisfaction with the use of CAM, whereas 85.7% expressed either partial or complete satisfaction with its usage. The primary sources of consumer information regarding CAM were friends and family (41.6%), physicians (18%), herbal shop (14.9%) and media (14.3%), in that order. The study revealed that just 14.9% of patients had shared their CAM usage with their physicians (Table 2).

Quality of life

Among CAM users, quality of life (QOL) scores varied from poor (23%), moderate (54%), to good (23%), whereas non-users showed similar scores of poor (24.7%), moderate (53.1%), and good (22.2%). Nonetheless, there was no significant difference noted between the 2 groups. Nonetheless, there was no significant difference noted between the 2 groups. Additionally, the overall QOL score indicated no significant variation between users and non-users. A comparison of the sub-branches of QOL revealed that, apart from physical functioning being significantly higher in CAM users, there was no notable correlations between QOL and CAM use ($P > 0.05$) (Table 4).

Discussion

The results of the present study show that 40.3% of individuals in Kerman province with gastroenterology and hepatology disorders use CAM to relieve symptoms or reduced the side effects of current medicine. In order of prevalence, the top 5 gastrointestinal disorders were IBS, FD, PUD, GERD, and constipation. Upon comparing CAM users and non-users, it was evident that those who use CAM generally have higher level of education. Herbal medicine was the most commonly used form of CAM, with decoction being the most popular method of administration. Lack of information was the primary reason for not using CAM. Despite CAM not resulting in a significant impact on the consumption of current medications, more than 80% of patients expressed satisfaction with using CAM. Friends and family emerged as the primary sources of information regarding CAM. Furthermore, a closer look at various aspects of QOL indicated that CAM users exhibited superior physical functioning.

The study conducted in Izmir, Turkey, found that patients suffering from constipation, diarrhea and gastritis had the highest levels of CAM usage.¹⁶ The Eastern Himalayan study also found that CAM was most commonly used for constipation, gastritis, and diarrhea.¹⁷ CAM was predominantly used in Israel to address bloating, abdominal pain, IBS, and GERD, which is consistent with the findings of the present study⁷. The variations noted seem to arise not just from regional differences in disease pattern but also from the attention given to either the primary complaint or the diagnosis of its root cause. The present study's findings on CAM use align with prevalence rates of 35% to 44% seen in comparable research.^{7,16–18}

A pattern observed in studies on ethnopharmacology and gastrointestinal issues shows that patients who use CAM frequently opt for herbal remedies. For example, in the United States, 85.5% of CAM users use herbal supplements.¹⁹ The predominant form of CAM among gastrointestinal patients in the Himalayas was herbal medicine, as revealed in the present study¹⁷. Similarly, findings from a study conducted in Urmia. In the northeast region of Iran, indicated a preference for herbal medicine over other CAM modalities, which parallel the results our research.¹⁸

Nonetheless, there are studies that have shown different results. In Israel, massage therapy and meditation were the most common types of CAM used by patients with gastrointestinal disorders⁷. Spiritual CAM techniques and prayer were the modalities most commonly employed in Saudi Arabia.¹⁹ According to some studies, the decoction form is the preferred method of consuming herbal medicines for many gastrointestinal patients.^{17,18} Further studies in the field of CAM use in Shiraz, Fasa, and Qom indicate that patients predominantly turn to family and friends for information and are hesitate to approach their physicians or other healthcare providers for advice on using CAM.^{20–22} In the ethnomedicine researches on infant jaundice in Qom, only 9% of parents had mentioned their CAM practices to the physicians.²² Likewise, in Shiraz around 24% of parents had consulted medical professionals for children with gastrointestinal issues.²³ In a study conducted in Shiraz with adult patients suffering from gastrointestinal disorders, 21% of patients had disclosed their use of CAM to their physicians.²⁴ These results are consistent with our study outcomes. Conversely, in Israel, 70% of patients with gastrointestinal disorders had seen their healthcare provider,⁷ a deviation from our findings.

An Indian study on patient satisfaction with CAM treatments revealed that over 60% of individuals with chronic disorders were satisfied with the results.²⁵ Another study conducted in Italy showed a satisfaction rate of around 70% for the use of herbal medicine in chronic illnesses.²⁶ It seems that the satisfaction levels in both studies are lower compared to the results we obtained

Limitations

Although the study yielded valuable insights, it is important to note the limitations outlined below. The research was confined to patients attending outpatient clinics specializing in gastroenterology and hepatology in Kerman, a province in southeast Iran. Hence, it is possible that the results do not completely reflect the viewpoints and encounters of all individuals with gastrointestinal disorders in all areas. The sample size, determined by a specific formula, may not be sufficient for conducting subgroup analyses or for generalizing the findings to a broader population of individuals with gastroenterology and hepatology disorders in Iran, or globally. Consequently, more research is needed with a larger sample size. Trusting self-reported information from patients can create biases, including recall and social desirability, where patients may either understate or overstate their use of CAM in comparison to the real usage. In addition, patients could be using herbs as cooking spices or dietary enhancements, which may not fit the standard CAM classification. Also, the study didn't investigate the specific names of the herbs being used, which is another limitation to evaluate the details of each herbal medicine including therapeutic effects, adverse effects, or drug interactions.

Conclusion

This study is the first concentrated analysis of patients receiving care in gastroenterology and hepatology outpatient clinics in Kerman, found in southeast Iran. Although the findings of this study may not be widely generalizable due to the specific limitations, some key points in the results are still significant. It is remarkable

to see the high rate of CAM utilization among patients with gastrointestinal and liver ailments in the region. Educating physicians and patients on the true impact of CAM in preventing and treating disease is crucial, given patient attitudes toward side effects, reliance on unreliable sources for information, and the small number of patients who share their CAM usage with their physician.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Author Contribution

In this research mentioned, the conception and design of the study were contributed by Azimi M, and Hasheminasab FS. The data collection, analysis, and interpretation were performed by Azimi M, Zamanian Y, Haji-Maghsoudi S, Bakhshipour A, and Hasheminasab FS. All authors equally contributed in the writing of the manuscript and have approved the final version.

Ethical considerations

The Medical Research Ethics Committee at Zahedan University of Medical Sciences granted approval for this study (approval code: IR.ZAUMS.REC.1400.177). Participants were enrolled in the research after providing informed consent through signing a consent form. The consent of the participants was obtained for publication in the article with assuring that their information would be published with confidentiality, and their identities would be kept anonymous.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.curtheres.2024.100774](https://doi.org/10.1016/j.curtheres.2024.100774).

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