

## Clinical Study

# Self-medication of irritable bowel syndrome and dyspepsia: How appropriate is it?

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## ABSTRACT

**Objective:** Self-medication is common among patients with gastrointestinal (GI) symptoms. This study was performed to evaluate self-medication among patients who fulfilled irritable bowel syndrome (IBS) and dyspepsia diagnostic criteria and to investigate the appropriateness of self-medication with chemical and herbal drugs.

**Methods:** A prospective, descriptive cross-sectional study was conducted in outpatient's GI clinics at Shiraz from November 2011 to May 2012. A GI specialist visited the patients and recruited those who had IBS (base on Rome III adapted criteria) or functional dyspepsia. We surveyed self-medication among these patients, using a questionnaire containing specific questions about self-medication.

**Findings:** One thousand four hundred and forty-seven patients visited by the GI specialist during the study period. Seven hundred and forty-seven patients had the inclusion criteria, 337 of them fulfilled criteria for IBS, with IBS-mixed (52%) being the most prevalent subtype, and 410 patients had dyspepsia. Overall, 78.8% of the total participants had recently sought medical attention for their GI complaint. Twenty-eight percent of patients selected inappropriate medication for their GI complaints. The H2-blockers class were most common medicines reportedly used. We did not find any significant relationship between age, gender, level of education, marital status, and self-medication frequency.

**Conclusion:** Patients who fulfilled criteria for IBS had a high tendency to self-treat their GI symptoms, use of acid-suppressive agents was common among patients. Around one-third of patients self-treated GI symptoms inappropriately. Consequently, the concept of self-medication among patients has to be revised. We recommend conduction of educational programs to improve self-medication selection and attitude among patients to reduce the burden on other health care resources.

**Keywords:** Dyspepsia; Iran; irritable bowel syndrome; self-medication

## INTRODUCTION

Self-medication is defined as the use of drugs for the treatment of disorders or symptoms without physician prescriptions. It is also the intermittent or

continued use of a drug prescribed by a physician for chronic or recurrent symptoms.<sup>[1]</sup>

Inappropriate use of drugs is a global problem that commonly observed in healthcare systems especially

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in developing countries. The estimated per capita drug consumption in Iran is higher than the reported figures in many countries of the world.<sup>[2]</sup> Self-medication was introduced as one of the important precipitating factors for such a drug consumption pattern. Its prevalence was reported to be 7.83%<sup>[3]</sup> among the medical and engineering students and 57.7%<sup>[4]</sup> among the elderly people of Tehran. Other studies reported a mean rate of 65–86% of self-medication in different population.<sup>[5,6]</sup> Self-medication is associated with several factors including availability of drugs, especially over-the-counter (OTC), storage of drugs at home, increase of health care fee for services, using previously drugs for similar illness or conditions, and some social and cultural factors.<sup>[7]</sup>

Several studies report a high rate of self-treatment in gastrointestinal (GI) disorders<sup>[8]</sup> which acid-suppressive agents commonly used by patients regardless of the typology of GI complaints. Irritable bowel syndrome (IBS) is a complex disease which psychological, social, and biological factors may all play a role on patient's symptoms; therefore, the majority of disease management is based on symptoms control. Many pharmacological treatments including antispasmodics, laxatives, antidiarrheal, or antidepressants are used alone or in combination for treatment of IBS.<sup>[9]</sup> Because of the chronic course of the IBS and sometimes patient's dissatisfaction or unresponsiveness to drugs, the patients may seek self-medication. Furthermore, dyspepsia frequently presents symptoms which are often self-treated.<sup>[10]</sup> As far as we know there are no reports on self-medication in GI disorders in Iran.

This study aimed to determine the rate of self-medication among patients who fulfilled IBS and functional dyspepsia diagnostic criteria and to evaluate the appropriateness of their self-medication.

## METHODS

A prospective, descriptive cross-sectional study was conducted among patients with IBS and dyspepsia referred to outpatients GI clinics from November 2011 to May 2012. The Ethic Committee of Shiraz University of Medical Sciences approved the study protocol. Patient's consent was obtained.

Eligible patients aged more than 12 years old who were diagnosed with IBS or functional dyspepsia according to Rome III criteria were enrolled to the study.<sup>[11]</sup> Diagnoses were made by a gastroenterologist specialist based on criteria. Patients who had two diseases (IBS and functional dyspepsia) simultaneously and reluctant to participation in the study were excluded. The questionnaire was filled

out for each patient by face to face interview after enrollment.

Based on two systematic reviews,<sup>[12,13]</sup> which estimated the prevalence of IBS between 1.1% and 25% and dyspepsia 2.2% and 29.2% in Iran, we calculated the sample size to be 706 participants ( $n = 318$  with dyspepsia and  $n = 288$  with IBS); However, to increase the study precision, we included 337 patients with IBS and 410 participants with functional dyspepsia.<sup>[14]</sup>

We developed a data collection form which was composed of the following: Demographic data (age, gender, level of education, and marital status), patient's symptoms, and self-treatment for GI complaints with chemical or herbal drugs.

We classified IBS according to predominant bowel symptoms: IBS with constipation-predominant features (IBS-C), IBS with diarrhea-predominant features (IBS-D), and IBS with alternating symptoms of diarrhea and constipation (IBS-mixed).<sup>[11]</sup> We also categorized chemical drugs to 14 groups and herbal drugs to 10 groups.

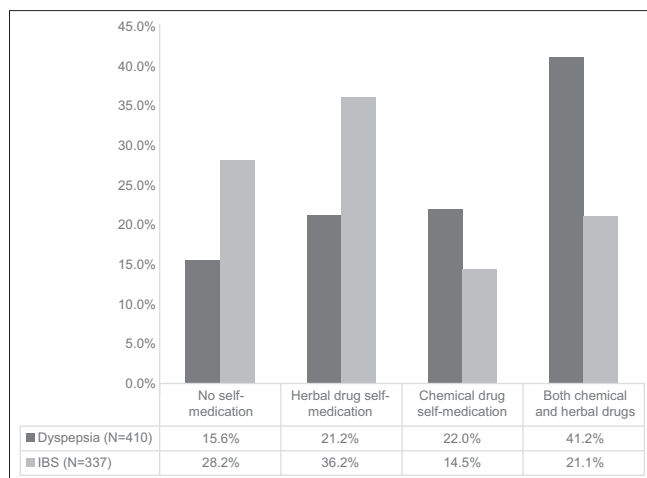
As we do not have a national guideline for IBS treatment in Iran, the appropriateness was evaluated based on the most referred guideline "UpToDate" section on the treatment of IBS in adults.<sup>[15]</sup> Unfortunately, we did not find any consensus guideline or reports for appropriate use of herbal medicine in IBS.

All data were expressed as mean  $\pm$  standard deviation of mean. Independent *t*-test was used for comparing quantitative variable. Categorical variables were compared by Chi-square test or Fisher's exact test when appropriate. The correlations of results were compared by Pearson correlation test. All statistical analyses were conducted using SPSS version 16 (SPSS Inc., Chicago, IL, USA) and significance was defined as  $P < 0.05$ .

## RESULTS

In this study, 1447 patients visited by the GI specialist during the study period. Among them, 747 patients had the inclusion criteria. A total of 337 patients fulfilled criteria for IBS with IBS-mixed (52%) being the most prevalent subtype, and 410 patients had functional dyspepsia. Seventy percent of included patients were female. More than 78% of patients ( $n = 583$ ) were from "Fars" ethnicity. Demographic characteristics of the participants are shown in Table 1.

Overall, 78.8% of the total participants had recently (in past 6 months) sought medical attention for their GI complaints [Figure 1]. Patients with functional dyspepsia reported more self-medication compare to



**Figure 1:** Percentage of self-medication with chemical or herbal drugs

IBS group, the difference was significant ( $P < 0.001$ ). Among the IBS categories, the IBS-C had the least self-medication ( $P = 0.74$ ).

About 28% of patients sought inappropriate medications for their GI complaints, and the H2-blockers class were most common medicines reportedly used ( $n = 267$ , 35.7%). Table 2 shows the frequency of most chemical drugs which used by patients in IBS and functional dyspepsia. After H2-blockers, antispasmodics/anticholinergics (7.4%) had the most prevalent use in IBS patients, but proton pump inhibitors (PPI) (18.8%) were used more in functional dyspepsia. Thymus vulgaris was more commonly used in both diseases (37.8%).

Patients with IBS sought inappropriate medication more than patients with functional dyspepsia, the difference was significant ( $P < 0.001$ ). Among the IBS categories, patients with IBS-C had the most inappropriate selection (80%), but the difference between categories was not significant ( $P = 0.8$ ).

No significant differences were found concerning age ( $P = 0.1$ ), gender ( $P = 0.9$ ), marital status ( $P = 0.8$ ), or educational level ( $P = 0.1$ ) with self-medication frequency. Furthermore, there were no significant differences between appropriate selection of medications with age, level of education, or marital status.

## DISCUSSION

Over 78% of our study participants used nonprescription drugs for their GI complaint, about one-third of them selected inappropriate medications for their problems. The data from this study support the high rate of self-medication from other studies in Iran;<sup>[5,6]</sup> however, the current study only included patients with IBS or functional dyspepsia. Other

**Table 1: Demographic variables of study participants**

Variables	Value (N = 747)
Age (years)	40.1 ± 15.3
Level of education	
Illiterate	150 (20.1)
Under high school diploma	343 (45.9)
High school diploma	170 (22.7)
Academic	84 (11.3)
Marital status	
Single	121 (16.2)
Married	600 (80.3)
Divorced	1 (0.2)
Widow/widower	25 (3.3)

Data are presented as Mean ± SD, or N (%) of participants. SD: standard deviation

**Table 2: Frequency of drug usage for self-treatment in irritable bowel syndrome and dyspepsia**

Pharmacological drug group	Number of patients (%)	IBS (%)	Dyspepsia (%)
H2-blockers	267 (35.7)	15.4	52.4
Proton pump inhibitors	97 (12.9)	4.7	19.8
Antacids	57 (7.6)	3.3	11.2
Antispasmodics, anticholinergics	37 (4.9)	7.4	2.9
Dimethicone	28 (3.7)	5.6	2.2
Antibiotics	14 (1.8)	3	1
Analgesics	11 (1.4)	0.9	2
Anti-depressants: TCAs	5 (0.6)	0.9	0.5
Anti-emetics	4 (0.5)	0.6	0.5
Others*	4 (0.5)	0	1
Laxatives, mineral oil	4 (0.5)	1.2	0
Benzodiazepines	2 (0.2)	0.6	0
Anti-depressants: SSRIs	0	0	0
Anti-diarrheal remedies	0	0	0

\*Other remedies such as bismuth subsalicylate, sucralfate, and prokinetic agents. IBS=Irritable bowel syndrome, TCAs=Tricyclic antidepressant, SSRIs=Selective serotonin reuptake inhibitors

developing countries such as Pakistan (76%)<sup>[16]</sup> and Vietnam<sup>[17]</sup> also reported a high rate of self-medication among the general population; although we did not evaluate the reasons of self-medication in our study, but it seems that economical reasons (such as high fee for health services) were the most obstacle that makes patients to seek OTC medications.<sup>[1]</sup> Inappropriate drug selections result in the increase of disease severity, delay in initiation of appropriate treatment, and also increasing the risk of exposure to adverse drug reactions.<sup>[7]</sup> As we mentioned earlier, because of high fee for health services in Iran, also lack of knowledge about the disease, lack of time for doctor visits, and easy access to nonprescription drugs, patients usually sought self-medication for their medical problems<sup>[18]</sup> and continue these drugs for a long time without physician visiting; therefore, this kind of behavior could be hazardous for patients.

We observed a high use of acid-suppressive drugs including H2-blockers, PPIs, and antacids in both diseases; nevertheless, antacids use seems rational in functional dyspepsia, but it is against the recommended pharmaceutical treatment of IBS involving fiber and bulking laxatives, antidiarrheal, and anti-flatulent drugs.<sup>[15]</sup> The use of H2-blocker drugs by patient with IBS may reflect dissatisfaction with current IBS therapies or the existence of GI comorbidities.

Study by Kua *et al.*,<sup>[19]</sup> among patients with IBS, also showed that around one in five patients self-medicated GI symptoms inappropriately and the antacid class had the highest incidence of inappropriate medication use. A similar study on 374 patients in Sweden showed that acid-suppressive agents were the most commonly used drugs for abdominal complaints by IBS patients, for nonabdominal complaints, 13.3% of IBS patients self-medicated with antidepressants.<sup>[20]</sup> In our study after H2-blockers, anticholinergics/antispasmodics drugs were used more by IBS patients (7.4%), <1% of our patients used antidepressants. Considering the pathophysiology of IBS and the role of brain-gut axis and different neurotransmitters and receptors in this disease, several drugs including new serotonergic agents and antidepressants have been introduced for the control of IBS symptoms. Low rates of antidepressants use by our patients and inappropriate use of antacids may be reflect that primary care physicians are not aware of these new drugs, and they were not included antidepressants in the common set of pharmaceuticals used for patients with IBS; consequently, patients seek inappropriate medication for their GI complaints.

About 36% of patients with IBS and 21.2% of dyspeptic patients used herbal drugs for self-treatment which is a considerable rate. Generally, Iranian patients believed that herbal drugs are safer than chemical drugs.<sup>[6]</sup> Therefore, this type of treatment commonly chose by patients, especially in rural area. Chronic course of IBS and inappropriate selection of chemical drugs for self-treatment could be a reason of higher usage of herbal medicines in IBS patients.

On the other hand, the percentage of inappropriate medication was higher in IBS patients than functional dyspepsia. Patients lack of knowledge of IBS disease course, ineffectiveness of treatment, and availability of the upper GI disorder OTC therapy could be a reason of the difference between self-medication selection in upper and lower GI disorders.

We did not found any significant relation between the level of education, age, gender, or marital status with self-medication frequency. However, the results of other studies showed the higher level of education will reduce the rate of self-medication.<sup>[18]</sup> Some researchers also found a higher rate of self-medication

in women,<sup>[8]</sup> but our results did not confirm this. Kua *et al.*<sup>[19]</sup> found that younger and high leveled education patients seek more self-medication, although we expect that this group had more knowledge about the adverse effects of self-medication.

Patients who fulfilled criteria for IBS and functional dyspepsia had a high tendency of self-treat their GI symptoms. While not recommended for the treatment of IBS symptoms, use of acid-suppressive agents was common among patients. Furthermore, self-treatment with herbal drugs was frequent in both diseases. Consequently, the concept of self-medication among patients has to be revised. It is necessary to conduct educational programs to improve self-medication selection and attitude among patients to reduce the burden on other health care resources and also it is necessary for authorities to plan education programs, established facilities to enable easier visits to physicians and prevent the sale of nonprescription medications.

## AUTHORS' CONTRIBUTION

Ramin Niknam and Alireza Safarpour designed the study and served as scientific advisors. Laleh Mahmoudi designed and performed the study. Paria Mahmoudi analyzed the data. Sarah Mousavi draft the manuscript and critically review it.

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## Conflicts of interest

There are no conflicts of interest.

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