The Prevalence of Complementary and Alternative Medicine amongst Multiple Sclerosis Patients in Iran

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Research

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Abstract

Objective

The aim of this study was to determine the prevalence and patterns of complementary and alternative medicine (CAM) usage amongst multiple sclerosis (MS) patients in Iran and to evaluate the perceived effectiveness and factors affecting these therapies.

Methods

This is a descriptive and cross-sectional study. Data were collected from 194 patients with MS at the neurology clinics affiliated with Shiraz University of Medical Sciences by a semi-structured questionnaire.

Results

The prevalence of CAM usage was 67.9%. Herbs were the most common among patients (64.2%). Cupping therapy, relaxation therapies, acupuncture, leech therapy were the other common CAM modalities. Yoga had the highest perceived effectiveness.

Conclusions

Due to high prevalence of CAM usage, physicians should inform their patients about the advantages and disadvantages of CAM in order to make them aware of their choices.

Introduction

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system. Currently, 2.5 million people suffer from MS, worldwide. The prevalence of MS was 219.5 per 100,000 in the U.S.A. in 2018. (1). In Iran, the prevalence of MS is estimated at 29.3 per 100,000. Also, static studies showed an increase in the prevalence of MS in Iran from 2011 until 2016, and Fars is one of the high-risk provinces, with the incidence rate sharply increasing in the last decade (2–4). The incidence of MS is two to three times higher in women, and the average age for its presentation is approximately 34 years of age. In other words, people between the ages of 20 and 50 years of age are more susceptible to MS (5).

The etiology of MS is linked to interactions genetic and environmental factors, such as geographical latitude, vitamin D deficiency, smoking, obesity, air pollution, and viral infections (6). Pathophysiology of MS is associated with the destruction of myelin sheath during the inflammatory process by weakening the neuronal transmission. MS is the most common cause of neurological disability, characterized by symptomatic episodes (7).

It can affect range of systems to a various degree and cause a myriad of neurological symptoms and comorbidities, which might significantly reduce the quality of life in the affected individuals. Paresthesia, muscle cramping, ataxia and impaired balance, dysarthria optic neuritis, nystagmus, unintentional tremor as well as bladder, bowel and sexual dysfunction, pain, fatigue, dizziness, depression, and sleep disorders are the classic symptoms of MS (8).

As far as we know, MS does not have a definite cure by the conventional treatments. The aim of these treatments is accelerating the recovery from attacks, preventing the disease progression and to control MS symptoms. Immunomodulatory therapies are the most important strategy in treating MS. These therapies suppress the inflammatory reaction in the CNS during the relapse phase and prevent inflammation. Interferon-beta (IFN-beta), glatiramer acetate, natalizumab, alemtuzumab, and fingolimod are common immune modulator treatment for MS (9). Various drugs can be useful in relieving MS symptoms, such as amantadine, methylphenidate, and modafinil for Fatigue (10), selective serotonin reuptake inhibitors are preferred choice for depression (11), and Tricyclic antidepressants and antiepileptics for the management of pain (12).

Over the last decades, the use of complementary and alternative medicine (CAM) has considerably increased amongst MS patients (13, 14). High costs, unpleasant side effects, apparent inability of conventional modalities to treat chronic diseases, and skepticism about or dissatisfaction are some of the reasons for turning into CAM (15).

Generally, CAM is categorized into natural products (such as herbs, botanicals, and probiotics) and mind and body interventions (such as massage therapy, meditation, relaxation techniques, exercises, and traditional Chinese medicine). CAM is mostly utilized to control a disease symptom. Also, several findings have indicated that some herbal compounds improve myelin repair that lead to the suppression of inflammation. (13).

The largest study in the U.S.A by Nayak et al. (n = 3140) showed that 64.9% of individuals with MS used at least one CAM. The most common CAM modality in this study are chiropractic, massage therapy, and nutrition therapy (14). Other similar studies in Germany (16), Italy (17), Australia (13), and Spain (18) reported that 67.4%, 35.7%, 64.7%, and 40.9% of MS respondents used at least one CAM, respectively. In Germany, reflexology, massage, yoga, relaxation, meditation, aromatherapy, and acupuncture are the six most used CAM therapies in MS (19). A study in eastern Turkey showed 61.5% of patients with MS used CAM. Herbs, relaxation therapies, and prayer are the most common modalities in the mentioned study (15).

In Iran, traditional, complementary and alternative medicine is a core component of Iranian culture. Traditional Persian Medicine (TPM) is popular amongst people and its usage is common in the treatment of chronic and non-communicable diseases (20, 21). A study in the west of Iran showed that 79.8% of the participants used at least one complementary medicine. Herbal medicine and prayers had the highest usage amongst the participants (22). However, the prevalence and patterns of CAM usage amongst

Hence, the aims of this study were to determine the prevalence of CAM usage amongst patients with MS, to list specific CAM amongst them, describe their sociodemographic and disease characteristics of those who used CAM, and to find the perceived effectiveness.

Method

Population and sampling: This is a cross-sectional and descriptive study. The study population was patients with MS who referred to Imam Reza clinic in Shiraz between April 2018 and August 2019. In total, 194 patients were selected through convenience sampling. Inclusion criteria were age 18 years or older, documented MS according to the McDonald diagnostic criteria (23), the one year or more elapsed time since diagnosis, ability to speak, understand and ability to communicate verbally in Persian, willingness to participate in this research.

Questionnaire preparation and data collection: semi-structured questionnaire including sociodemographic variables, disease variables, and aspects of CAM usage was designed by the researchers according to the related literature (13, 14, 16, 17, 24, 25). Face validity, the time needed to administer and clarity and logical flow of the questionnaire was determined by the researchers and was piloted on 30 MS patients. No changes were required after the pilot study.

The questionnaire was divided into three sections, the first part was related to patients' sociodemographic characteristics, including age, gender and education. The second part covered disease related characteristics, such as type of MS and duration of illness. MS type was based on patients' records and medical files. The third section asked question on the use of CAM, level of information about CAM, History of CAM usage, type of CAM used (including acupuncture, aromatherapy, leech therapy, bee therapy, herbal medicine, massage therapy, homeopathy, yoga, and biofeedback or other CAM methods mentioned by the participants.), source of information about CAM, the perceived effectiveness uses of CAM, their belief about the effect of foods with cold temperament and dairy on symptoms of MS, and the serving of daily dairy consumption.

Static analysis: Questionnaires were analyzed, using SPSS software, version 21.0. Frequency, percentage and other descriptive statistics were used to describe and summarized data. Chi-square tests and independent t-test were used to examine the relationship between participants' demographics/health-related factors and use of CAM. $P < 0.05$ was accepted as the level of statistical significance.

Result

In this study, a total of 194 patients with a confirmed diagnosis of MS were identified. The mean age of participants was 35 years (SD 7, range 17–58). Females comprised of 76.8% and males 23.2% of the participants. The education level was as follows: 43.4% academic education, 37.8% diploma, and 18% under diploma. Incidence of Relapsing-Remitting MS, Primary-Progressive MS, Secondary-Progressive MS, Progressive-Relapsing MS in participants respectively was 95.1%, 3.5%, 2.2%, 0%. Rituximab and

interferon were the most common used medication amongst the participants. Comparison of socio-demographic and disease characteristics of CAM users and non-CAM users showed that there were no significant differences between the two groups in terms of age, gender, and education level. However, differences in duration of disease between users and non-users of CAM was significant ($P = .0001$). Demographic and disease characteristics are shown in Table 1.

Table 1 Demographic characteristics			
Characteristic	Users of CAM/dietary interventions, n (%)	Non-users of CAM/dietary interventions, n (%)	Statistical significance (Chi-square)
Demographic factors			
Sex			
Male	28 (63.6%)	16 (36.4%)	$\chi^2 = .470$; 1 df; p = .493
Female	103 (69.1%)	46 (30.9%)	
Age			
18–24	6 (50%)	6 (50%)	$\chi^2 = 4.824$; 3df; p = .185
25–34	62 (75.6%)	20 (24.4%)	
35–49	56 (63.6%)	32 (36.4%)	
50+	7 (63.6%)	4 (36.4%)	
Education			
under diploma	21 (60%)	14 (40%)	$\chi^2 = 1.388$; 2df; p = .5
diploma	51 (68%)	24 (32%)	
academic education	59 (71%)	24 (23%)	
Health-related factors			
Duration of disease			
< 2 years	10 (38.5%)	16 (61.5%)	$\chi^2 = 19.148$; 3df; p = .0001
3–7 years	71 (81.6%)	16 (18.3%)	
8–12 years	36 (63.2%)	21 (36.8%)	
> 12 years	13 (59.1%)	9 (40.9%)	

Table 2
Types of CAM used and perception of CAM benefit

Types of CAM	Use of this type CAM n (%)	Perception of CAM Benefit				Average of score
		Very effective (score 4) n (%)	Moderate effective (score 3) n (%)	Low effective (score 2) n (%)	Ineffective (score 1) n (%)	
Herbal therapy	115 (64.2%)	11 (9.6%)	44 (38.2%)	49 (42.6%)	11 (9.6%)	2.5
Cupping therapy	19 (10.6%)	1 (5.2%)	6 (31.6%)	10 (52.6%)	2 (10.5%)	2.3
yoga	16 (8.9%)	6 (37.5%)	6 (37.5%)	3 (18.8%)	1 (6.2%)	3.1
acupuncture	14 (7.8%)	1 (7.1%)	5 (35.7%)	8 (57.1%)	0	2.5
leech therapy	9 (5%)	1 (11.1%)	4 (44.4%)	4 (44.4%)	0	2.6
massage therapy	3 (1.6%)	0	2 (66.6%)	1 (33.3%)	0	-
bee therapy	1 (.5%)	0	0	1	0	-
homeopathy	1 (.5%)	0	1	0	0	-
psymontology methods	1 (.5%)	0	0	1	0	-

In this study, the prevalence of CAM usage was 67.9% (n = 131). 10.2% of patients used CAM to control disease symptoms, such as to reduce fatigue, improved sleep, reduced depression, improved memory, 3.9% to prevent exacerbation of MS, 85.9% for both of them.

Herbs were the most common used CAM among patients, 64.2% (n = 115) of them used herbal therapies. Cupping therapy was used in 10.6% (n = 19) of patients, yoga in 8.9% (n = 16), acupuncture in 7.8% (n = 14), leech therapy in 5% (n = 9), massage therapies in 1.6% (n = 3). Less than 1% of patients used bee therapy, homeopathy or psymontology methods. The use of aromatherapy and biofeedback was not reported. 29.1% of the patients used more than one type of CAM. The high perceived efficacy of CAM was reported in 10.9% of the patients. 42.6% of them believed perceived efficacy to be moderate, and 37.2% believed that it had little effect. 9.3% reported that it was ineffective. The dissatisfaction with CAM resulted in 11% of patients to quit using it. The highest perceived efficacy was related to yoga (average of scores: 3.2), herbal therapies (average of scores: 2.6), leech therapy (average of scores: 2.3), and acupuncture had the lowest perceived efficacy (average of scores: 1.7). Data of CAM used and perception of CAM benefit are summarized in Table 2.

Patients' estimation of their information about the use of CAM in the treatment of MS showed that 10.9% of them thought that they had a lot of information, 29.5% moderate information, 39.9% low, 19.7 none. The source of their information was a family member or friend in 42.3%, social media or internet reports in 30.45%, TV programs in 13.6%, other MS patients in 9%, and health professionals in 4.5%. The use of CAM in 4.8% of patients resulted in irregular use of medication. 4% of patients stopped their MS medication after initiating CAM. The median duration of stopped taking medication was 7 months. 90.2% of them continued their treatment as before starting CAM. 70% of patients had tendency to continue using the current CMA. 41.8% of them were interested in using other types of CMA. 61.5% of patient's recommended CMA to other patients.

In total, 81.7% of patients believed that foods with cold temperament and dairy exacerbated the symptoms of MS. The serving of daily dairy consumption was reported less than one serving in 8.8% of patients, one serving in 43%, two serving in 40.9%, and three or more serving in 7.7%. daily dairy consumption is shown in Table 6.

Discussion

The result of this study showed that more than half of MS patients used CAM (67.9%), which was similar to the result of previous studies in the U.S.A, Germany, Australia, and Turkey in the last two decades (13–16, 24). In the current study, there were no statistically significant differences in age, gender, type of MS, and level of education. The differences for duration of MS among CAM user and non-user was significant. The prevalence of CAM was higher in MS patients with long duration, similar to previous studies (14–16). However, according to the literature, the high rate of CAM usage is associated with being middle-aged, high income, high education level, long duration of diseases, and female gender (14, 15, 26). This conflicting finding might be due to the differences in the beliefs, values, cultural features of the communities, and public health system.

Our findings showed that herbal therapy, cupping therapy, yoga, acupuncture, and leech therapy were the five most common used CAM modalities. Herbal therapy, chiropractor, massage therapy were the most commonly CAM methods used in the USA (14, 24), herbal therapy and relaxation therapies in Eastern Turkey (15), and Exercise therapy in Germany (16). The CAM methods might be associated with the geographical area and culture. In this study, herbal therapy was the most common used CAM, which is similar to the study by Nayak et al. in the USA with the rate of 27% (14), and Dayapoglu and TAN in Eastern Turkey with the rate of 55.5% (15). However, the rate of herbal therapy (64.2%) in this study was significantly higher compared to similar studies. The high rate of herbal therapy might be due to the frequent use of herbs in TPM, due to the rich variety of herbs and easy access in Iran, and believing in the safety of herbs. Cupping therapy was the second most common CAM method, where as its usage was not report in any previous studies amongst MS patient. This contradiction can be justified by the fact that Iranian people use cupping therapy as part of their religious beliefs (27).

Yoga has had the highest perceived efficacy. In similar studies, highest perceived efficacy was associated with relaxation and mind-body therapies, such as prayer, exercise, yoga, relaxation techniques, and massage (14, 15). The effect of relaxation and mind-body therapies may have been simply at the psychological or emotional levels, by reducing stress, a known factor that exacerbates MS symptoms. Various studies suggested the positive impact of yoga on reducing MS related symptoms, such as depression, pain, fatigue, neurogenic bladder dysfunction and improvement in quality of life and strength (28–30). Despite high perceived efficacy and safety of relaxation and mind-body therapies, in this study, using yoga was the least frequent. This might be attributable to the fact that some of the therapies that were perceived as effective may not be easily available or affordable; hence, are not as frequently used.

More than half of the patients in this study did not have adequate information about CAM. Family members or friends and social media or the internet were the most frequent used sources, like the studies by Leong et al.(13) and Dayapoglu and TAN(15). Physician and health professionals were the source of information only in 4.5% of the cases. This finding is in line with similar studies (31, 32). In Nayak's study, physicians recommended CAM treatment in 15.3% of patients (14).

Our results showed that most participants had tendency to use CAM modalities with uncertain safety and efficiency, such as herbal therapy, cupping therapy, and leech therapy. Herbal remedies without suitable quality control and adequate labeling are easily available in the market.(33) The general population considers herbal remedies as very safe and devoid of adverse effects, while studies showed that the use of herbal therapy might be associated with hepatotoxicity, nephrotoxicity, cardiotoxicity, neurotoxicity, and allergic reactions. Also, herbal supplements might adversely interact with the commonly used prescription drugs in MS (34, 35). Also, the status of temperaments and traditional Iranian medicine in the culture and beliefs of the Iranian people caused a large percentage of patients to limit the consumption of cold foods, such as dairy products. Furthermore, the use of CAM in several patients led to stop or irregular usage of their conventional treatment. These challenges and problems, coupled with the high prevalence of CAM usage and the willingness of patients to continue using CAM, is the reason for the necessity to ask patients about CAM usage during their routine visits. Physicians should discuss the type of CAM therapies and their advantages and disadvantages, to help their patients make informed and safe choices.

There were several limitations in this study. First, a small sample led to a difficult statistical interpretation of the results. Second, this sample reflects only on one region of Iran; hence, the results cannot be generalized to all MS patients in Iran. Therefore, future studies should include larger samples from different regions. Next, the sample was selected from patients who had referred to neurology clinics, and we are likely to have missed patients that only use unconventional therapy; however, previous studies showed very low numbers of patients who only use unconventional therapies. Another limitation was the method for evaluating the efficacy, which was self-reporting, since it does not constitute clinical evidence.

This study provides a general overview of the pattern of CAM usage, but further studies are warranted to explore the details of CAM usage, in particular herbal therapy, including the type of herbal remedies,

consumption and their adverse effect. The accurate evaluation of the efficacy of CAM to determine the utility of specific CAM for distinct MS symptoms and the efficacy of CAM to decrease exacerbation of MS are other issues that should be considered in the future studies. In addition, studies should determine the physicians and health professionals' level of information on CAM.

In conclusion, many patients with MS in Iran use CAM therapies. The use of these interventions was higher amongst patients who had primary or low level of education. Herbal medicine is the most common CAM therapy among patients with MS. Yoga is the most effective CAM therapy according to patient's opinions. Family members, friends, social media and the internet are significant sources of information about CAM. Restrictions on the use of certain essential food groups, including dairy products, and a reduction in their adherence to the mainstream treatment of MS are some of the problems that complementary medicine can bring about. According to the high prevalence of CAM therapies usage amongst patients with MS, physicians should routinely ask their patients about CAM utilization and informed them about the pros and cons of CAM.

Abbreviations

CAM
complementary and alternative medicine
MS
multiple sclerosis

Declarations

Ethics approval and consent to participate

This study had been approved by the Research Ethical Committee of Shiraz university of medical sciences on 24 September 2017 (ref: 1396-01-94-15231).

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Authors' contributions

SI designed the study and data collection sheet and edited manuscript. AR collected, analyzed and interpreted the patient data and wrote the manuscript. All authors read and approved the final manuscript.

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