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Use of herbal medicine related to anxiety and depression in the general population of southeast Iran during the COVID-19 pandemic

Hossein Yarmohammadi,[1] Maryam Iranzadasl,[2] Mohammad Mostafa Ansari Ramandi,[3,4] Mohammad Gholami Fesharaki,[5] Fereshteh Ghorat[6]

[1]Medical Students Research Committee, Shahed University, Tehran, Iran; [2]Department of Traditional Medicine, School of Persian Medicine, Shahed University, Tehran, Iran; [3]Department of Cardiology, University of Groningen, Netherlands; [4]Center for Congenital Heart Disease, University Medical Center Groningen, Netherlands; [5]Department of Biostatistics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran; [6]Non-Communicable Diseases Research Center, Sabzevar University of Medical Sciences, Iran

Correspondence: Maryam Iranzadasl, Department of Traditional Medicine, School of Persian Medicine, Shahed University, opposite Holy shrine of Imam Khomeini, Khalij Fars Expressway, Tehran, Iran. Tel: +98 9122042539. E-mail: m.iranzad@shahed.ac.ir

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Abstract

The COVID-19 pandemic has led to increased anxiety/depression and changes in people's health behaviors. This study aimed to investigate health beliefs regarding using herbal medicine and its associated factors among Iranians. A cross-sectional study on the general population in Birjand (southeast Iran) was conducted using a survey questionnaire (an online platform for creating questionnaires, available at https://porsline.ir/) consisting of demographic characteristics and beliefs toward herbal medicine use, as well as a telehealth and hospital anxiety and depression scale questionnaire to address anxiety and depression disorders. All statistical analysis was done with SPSS software version 18, and a p-value of 0.05 or less was considered significant. The study included 619 participants with a mean age of 36.58±10.74 and a female rate of 61%. The overall use of herbal medicine was 385 (62%), 170 (28%) for prevention, 12 (2%) for treatment, 170 (28%) for relaxation, and 191 (31%) for other reasons. Using herbal medicine for relaxation ($p=0.010$) and prevention ($p=0.02$) was significantly associated with less anxiety, while using herbs for the treatment of COVID-19 had an association with no family history of Coronavirus infection ($p<0.001$). The majority of participants used herbal medicine for different purposes for COVID-19, and this health behavior had a relationship with anxiety/depression and family history of COVID-19. This study's findings would be useful to researchers and policymakers in improving health beliefs and behaviors during the other pandemic in Iran.

Key words: COVID-19, anxiety, herbal medicine, Persian medicine, health behavior, health belief.

Introduction

The infectious pandemics like COVID-19 are a major factor for psychological disturbances and have put the population at risk for anxiety and depression disorders, [1]. On the other hand, the mass misinformation worsens the general panic and makes decision-making for healthcare providers difficult since there were false expectations regarding COVID-19 management [2]. The use of herbal medicine for COVID-19 had been an interest since the beginning of the pandemic and there may have been some eagerness toward herbal interventions [3].

Herbal medicine has a long history between Iranians and in Persian Medicine (PM) there are some general instructions that currently used by people to prevent getting infected [4]. Due to its historical geographical location, Iran is home to many species of medicinal plants. There are over 7,500 plant species in Iran, with approximately 1,800 of these recognized for their medicinal properties. Recently, the use of medicinal herbs has gained popularity among Iranians [5]. Rezaei conducted a study on socioeconomic inequalities in the use of medicinal herbs among Iranian households. The study found that the use of these herbs is more common among households with higher socioeconomic status in Iran and its provinces. Specifically, urban households, those led by females, and households headed by older individuals were more likely to utilize medicinal herbs. This finding contrasts with the common belief that wealthier and socioeconomically advantaged populations tend to seek modern medical treatments and medications more than those from lower socioeconomic backgrounds [5].

Globally number of herbal Randomized Clinical Trials (RCTs) has had an increasing trend [4,5]. Yet there is a gap of evidence regarding health belief and behaviour of general population toward using herbal medicine during COVID-19 pandemic in Iran. Therefore, this study aimed to determine the rate and purpose of herbal medicine use and its association with demographic characteristics, anxiety/depression, and telehealth among Iranians.

Materials and Methods

Design and population

This was a cross-sectional study based on the results of an online questionnaire completed during 29th to 31st June 2021 in the Eastern province in Iran. The method of this study was similar to the previously published article [6]. The online questionnaire was made by the Porsline platform (an online platform for creating questionnaires, available at https://porsline.ir/) then spread in social media including Telegram and WhatsApp by snowball sampling, and only adults aged more than 18 years old and with no previous history of COVID-19 were asked to participate. The purpose of the study was elaborated at the beginning of the

questionnaire. All individuals took part in the study with their consent. They were assured of the confidentiality and anonymity of the information. The online questionnaire was anonymous and all gathered information remained confidential. The protocol of the study was reviewed and approved by research ethical committee of Birjand University of Medical Sciences (IR.BUMS.REC.1399.002).

Questionnaire

The questionnaire consisted of two main parts; first demographic data including gender, age, BMI, marital, educational, job and smoking status, family history of COVID-19, residency and distance to the nearest healthcare facility were asked. Also, in this part question addressing herbal medicine use asked participants whether they use herbal medicine during the COVID-19 pandemic, and if they do, for what purpose they use such interventions? It was possible for participants to mark more than one choice from the following answers: "yes, for prevention", "yes, for treatment", "yes, for relaxation", and "yes, for other reasons". Then they asked what kind of telehealth patients should seek during the pandemic? The possible answers were as follows: "doctor calls patients", "doctor get connected with patients through social media", "patients call the doctor", "patients get connected with the doctor through the social media", "other ways of telehealth", "patients should visit the doctor in person", "patients should wait until the pandemic ends".

The second part of the questionnaire was the Hospital Anxiety and Depression Scale (HADS) which has 14 questions and three possible results based on the total score: "normal", "borderline" and "abnormal" [7]. The HADS questionnaire has been translated and validated in Persian by Montazeri et al for Iranian population [8].

Statistical analysis

Statistical analysis was performed by SPSS version 18 (Chicago, IL, USA). The Chi square test or Fisher Exact test were used to analysis of data. The result presented as frequency of percent. The P-value less than 5% considered as statistical significance.

Results

This study included 619 participants out of 788 responses that 243 (39%) were male and 376 (61%) were female. The mean age± SD was 36.58±10.74. Most of participant were married (512 (83%)), had academic education (399 (64%)), were non-smoker (560 (91%)), and were resident in urban area (585 (95%)). The result of this study showed that 385 (62%) person used herbal medicine that the purpose was for prevention in 170 (28%), for relaxation in 146 (24%),

for treatment in 12 (2%) and finally for other reasons in 191(31%) participants. In Table 1, the relationship between demographical variables with herbal medicine use is shown. Participants with borderline anxiety were more likely to use herbal medicine for prevention and relaxation, as evidenced by significant associations (p-value: 0.035 and 0.01, respectively). In contrast, participants with borderline depression were less inclined to use herbal medicine for other purposes (p-value: 0.031) (Table 2). In addition, telehealth had significant relationship with herbal use for prevention (p-value: 0.02), treatment (p-value: 0.045) and relaxation (p-value: 0.010) while the absence of COVID-19 history in family members were significantly associated with herbal medicine use for treatment (p-value: <0.001) (Table 3).

Discussion

This study reported a high rate of herbal medicine use among the population of study in the southeast of Iran during the COVID-19 pandemic. It showed that beliefs toward telehealth, anxiety/depression, and the absence history of COVID-19 in the family had a significant relationship with herbal medicine use.

About 62% of participants responded to use herbal medicine during the COVID-19 pandemic, and mostly for preventive and relaxation purposes. As mentioned before, Iran's historical geographical location makes it home to many species of medicinal plants, enhancing the use of herbal medicine. Comprehensive studies on the prevalence of medicinal plant use in Iran during the pre-COVID-19 period are lacking. Heidarifar et al. conducted a study in 2013 involving 372 people in central Iran to investigate the use of medicinal plants. The results revealed that 11.5% of participants used medicinal plants for preventive purposes, while 35% used them for treatment [9]. A study derived from the National Stepwise Approach to Chronic Disease Risk Factor Surveillance (STEPs), conducted in Iran from 2005 to 2011, revealed data on 3,095 Iranian diabetic individuals. The results indicated that the use of traditional herbal medicines among the Iranian adult population increased from 11.1% in 2005 to 23.5% in 2011 [10]. Rezaei conducted a study on socioeconomic inequalities in the use of medicinal herbs among Iranian households. The study found that the use of these herbs is more common among households with higher socioeconomic status in Iran and its provinces. Specifically, urban households, those led by females, and households headed by older individuals were more likely to utilize medicinal herbs. This finding contrasts with the common belief that wealthier and socioeconomically advantaged populations tend to seek modern medical treatments and medications more than those from lower socioeconomic backgrounds [5]. In the study of Alyami et al in Saudi Arabia, 22.1% of participants reported having used herbal medicine or multivitamins [11].

The study found that using herbal medicine for the prevention of COVID-19 or relaxation was associated with less anxiety, while only other uses of herbal medicine were associated with depression. This finding is in concordant with literature that suggests using herbal medicine is related to psychological problems such as anxiety/depression [12]. Interestingly, using herbs for treatment was not significantly related to normal or borderline anxiety.

Despite the significant use of herbal medicine among participants, there was a low reported percentage of its use for treatment. This likely stems from the uncertain nature of the disease and its unpredictable progression at the onset of the pandemic, along with the absence of scientific documentation in this area. As a result, many people choose to avoid using herbal medicine during their illness.

Although the number of participants that have answered they would use herbs for treating COVID-19 was very low, further research needs to pay attention on this relationship since there are many ongoing trials of herbal interventions for COVID-19 treatment [5]. Altogether results of this study suggest that Iranian people consider herbal medicine more as a component of Complementary and Alternative Medicine (CAM) to reduce their anxiety than treating the disease, therefore future studies need to investigate Iranian's knowledge and attitude toward CAM during the pandemic. Additionally, those who had reported the history of COVID-19 in their family, responded to use herbs for treatment less frequently. Since the number of these participants was low, there should be cautious to draw a relationship but it may seem possible that the self-experience of COVID-19 or been involved in the care of infected family members, impact general belief toward using herbs. This study included healthy population only and to address such impact, other studies should investigate herbal medicine use among infected population. Despite the result of this study, the previous articles have concluded that people with chronic diseases such as cancer, diabetes, cardiovascular diseases, and HTN tend to use herbal medicine more frequently [13,14]. The published RCTs of Chines medicine, indicate that herbs could be beneficial as adjuvant therapy to decrease COVID-19 symptoms [15-17] but these findings are yet under investigation and there is limited evidence of herbal medicine efficacy to decrease anxiety and improve quality of life in COVID-19 patients and survivors which could be an interesting topic of research along the change of beliefs toward herbal medicine after experience of this disease.

One of the most interesting findings of this study was the significant relationship between telehealth and herbal medicine use during COVID-19 pandemic that may shed light on the structure of Iranian health belief and behaviour both in traditional and modern ways of healthcare. Although this relationship has not been addressed in the literature properly, some efforts have been made to enhance herbal medicine delivery during pandemics. For instance,

the center of Korean medicine registered an increasing trend of calls to consult about traditional Korean medicine use including medicinal herbs during the pandemic [18]. In Iran too, a similar center has been established to respond question phone calls regarding the use of Traditional Persian Medicine (TPM) for COVID-19. Since the majority of the population in this study reported using herbal medicine during the pandemic one hand, and the influence of rumours and misinformation about TPM in social media [19], highlight the importance of taking attention to TMP, herbal medicine and even other CAM modalities by policymakers and researchers to provide the proper scientific evidence and health delivery in the society. Also, investigating the association between belief toward telehealth and herbal medicine use, is an interesting topic for future research.

Limitations

There were some limitations for this study. First, the study focuses a specific region of Iran, possibly ignoring the cultural diversity across provinces, which could differently influence health behaviors, and cultural beliefs in herbal medicine . Second, the design of the study was cross-sectional that is not suitable to draw causality between variables. Third, the snowball sampling method likely introduces selection bias, making the sample unrepresentative of the broader Iranian population. However, this approach was necessary due to the limitations imposed during the COVID-19 pandemic. In addition, this study aimed to effectively disseminate the questionnaire through a popular online platform to reach the target population; however, some individuals do not use virtual spaces, which limited access to the target group. Finally, the connection between herbal medicine and psychosocial factors, such as socioeconomic status, education, and religious beliefs, has not been thoroughly examined. Exploring these factors could provide valuable insights for future studies. Despite these limitations, to the best of our knowledge this study provided evidence of herbal medicine use in Iran during the pandemic and its relationship with telehealth for the first time.

Conclusions

The findings of this study highlight the significant reliance on herbal medicine among the population of Southeast Iran during the COVID-19 pandemic, primarily for preventive and relaxation purposes. This behavior was notably associated with lower levels of anxiety, beliefs regarding telehealth, and the absence of a family history of COVID-19. Despite the widespread use of herbal medicine, its role in treatment was minimal, reflecting uncertainty about its efficacy in the early stages of the pandemic and a preference for its use as a complementary method rather than a primary treatment.

These results underline the need for public health interventions aimed at addressing misinformation about herbal medicine and promoting its evidence-based use. Policymakers and researchers should focus on integrating herbal medicine into a structured healthcare framework, ensuring its safe and effective application during pandemics. Future studies are encouraged to explore the efficacy and safety of herbal interventions through rigorous clinical trials, as well as investigate the broader psychosocial factors influencing health behaviors related to complementary and alternative medicine. This study serves as a step toward understanding the role of herbal medicine in public health crises and offers insights for shaping health policies to address the needs of diverse populations in future pandemics.

References

1. Salari N, Hosseinian-Far A, Jalali R, et al. Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. Global Health 2020;16:57.
2. Islam MS, Sarkar T, Khan SH, et al. COVID-19–related infodemic and its impact on public health: a global social media analysis. Am J Trop Med Hyg 2020;103:1621-9.
3. Panyod S, Ho CT, Sheen LY. Dietary therapy and herbal medicine for COVID-19 prevention: a review and perspective. J Tradit Complement Med 2020;10:420-7.
4. Iranzadasl M, Karimi Y, Moadeli F, Pasalar M. Persian medicine recommendations for the prevention of pandemics related to the respiratory system: a narrative literature review. Integr Med Res 2021;10:100483.
5. Rezaei S, Ahmadi S, Mohamadi-Bolbanabad A, Khanijahani A. Exploring socioeconomic inequalities in the use of medicinal herbs among Iranian households: evidence from a national cross-sectional survey. BMC Complement Med Ther 2020;20:336.
6. Ansari Ramandi MM, Yarmohammadi H, Beikmohammadi S, et al. Factors associated with the psychological status during the Coronavirus pandemic, baseline data from an Iranian Province. Caspian J Intern Med 2020;11:484-94.
7. Herrmann C. International experiences with the hospital anxiety and depression scale--a review of validation data and clinical results. J Psychosom Res 1997;42:17-41.
8. Montazeri A, Vahdaninia M, Ebrahimi M, Jarvandi S. The hospital anxiety and depression scale (HADS): translation and validation study of the Iranian version. Health Qual Life Outcomes 2003;1:14.
9. Heidarifar R, Mehran N, Momenian S, et al. A study of the status of use of drug plants and its related factors in Qom City, Iran. Qom Univ Med Sci J 2013;7:95-100

10. Ahmadi S, Rafiey H, Sajjadi H, et al. Trend and pattern of using herbal medicines among people who are aware of their diabetes mellitus: results from National STEPs Surveys in 2005 to 2011 in Iran. J Diabetes Metab Disord 2021;20:1319-25.
11 Alyami HS, Orabi MAA, Aldhabbah FM, et al. Knowledge about COVID-19 and beliefs about and use of herbal products during the COVID-19 pandemic: a cross-sectional study in Saudi Arabia. Saudi Pharm J 2020;28:1326-32.
12. McIntyre E, Saliba AJ, Wiener KK, Sarris J. Herbal medicine use behaviour in Australian adults who experience anxiety: a descriptive study. BMC Complement Altern Med 2016;16:60.
13. Sabery M, Adib-Hajbaghery M, Rafiee S. Satisfaction with and factors related to medicinal herb consumption in older Iranian adults. Eur J Integr Med 2019;25:100-5.
14. Ghorat F, Ghafarzadeh R, Jafarzadeh Esfehani R. Perinatal mortality and its associated risk factors: a study in the north-east of Iran. Iran J Neonatol 2016;7:47-51.
15. Liu M, Gao Y, Yuan Y, et al. Efficacy and Safety of integrated traditional chinese and western medicine for corona virus disease 2019 (COVID-19): a systematic review and meta-analysis. Pharmacol Res 2020;158:104896.
16. Azizkhani M, Dastjerdi MV, Arani MT, et al. Traditional dry cupping therapy versus medroxyprogesterone acetate in the treatment of idiopathic menorrhagia: a randomized controlled trial. Iran Red Crescent Med J 2018;20:1-8.
17. Gholami A, Tabaraei Y, Ghorat F, Khalili. The effect of inhalation of Matricaria chamomile essential oil on patients' anxiety before esophagogastroduodenoscopy. Govaresh 2018;22:232-7.
18. Kim DS, Chu H, Min BK, et al. Telemedicine center of Korean medicine for treating patients with COVID-19: a retrospective analysis. Integr Med Res 2020;9:100492.
19. Vardanjani HM, Heydari ST, Dowran B, Pasalar M. A cross-sectional study of Persian medicine and the COVID-19 pandemic in Iran: rumors and recommendations. Integr Med Res 2020;9:100482.

Table 1. The relationship between demographic variables, herbal medicine use and the its different types of use.

Variable	Status	Herbal Medicine	Type of use of Herbal Medicine			
		Yes	Prevention	Treatment	Relaxation	Other
		N(%)	N(%)	N(%)	N(%)	N(%)
Gender	Male	162(%67)	67(%28)	6(%2)	59(%24)	83(%34)
	Female	223(%59)	103(%27)	6(%2)	87(%23)	108(%29)
	P-value	0.075	0.999	0.553	0.772	0.155
Age	18-30	115(%61)	50(%27)	3(%2)	43(%23)	55(%29)
	31 – 40	168(%61)	80(%29)	6(%2)	63(%23)	82(%30)
	41 – 50	57(%66)	23(%26)	3(%3)	26(%30)	25(%29)
	51-88	45(%63)	17(%24)	0(%0)	14(%20)	29(%41)
	P-value	0.901	0.813	0.449	0.458	0.284
Smoking Status	Yes	38(%64)	20(%34)	0(%0)	12(%20)	15(%25)
	No	347(%62)	150(%27)	12(%2)	134(%24)	176(%31)
	P-value	0.779	0.283	0.617	0.630	0.377
BMI	25.00	161(%59)	69(%25)	6(%2)	62(%23)	75(%28)
	25.01>	224(%64)	101(%29)	6(%2)	84(%24)	116(%33)
	P-value	0.211	0.364	0.772	0.775	0.137
Marriage	Single	45(%53)	19(%22)	2(%2)	18(%21)	23(%27)
	Married	325(%63)	146(%29)	10(%2)	120(%23)	159(%31)
	Other	15(%68)	5(%23)	0(%0)	8(%36)	9(%41)
	P-value	0.150	0.439	0.742	0.321	0.444
Education	Non Academic	143(%65)	67(%30)	3(%1)	52(%24)	71(%32)
	Academic	242(%61)	103(%26)	9(%2)	94(%24)	120(%30)
	P-value	0.300	0.222	0.553	0.999	0.586
Job Status	Jobless	140(%63)	68(%31)	4(%2)	56(%25)	65(%29)
	Student	16(%57)	3(%11)	1(%4)	6(%21)	12(%43)
	Healthcare	52(%55)	23(%24)	2(%2)	15(%16)	30(%32)
	Others	177(%64)	76(%28)	5(%2)	69(%25)	84(%31)
	P-value	0.358	0.129	0.930	0.262	0.543
Residence	Urban	366(%63)	160(%27)	11(%2)	142(%24)	183(%31)
	Rural	19(%56)	10(%29)	1(%3)	4(%12)	8(%24)
	P-value	0.469	0.844	0.496	0.143	0.445
Distance	Less than 1 Km	178(%64)	81(%29)	4(%1)	73(%26)	84(%30)
	1-5 Km	186(%62)	77(%25)	7(%2)	66(%22)	99(%33)
	5 or Upper	21(%53)	12(%30)	1(%3)	7(%18)	8(%20)
	P-value	0.538	0.227	0.829	0.474	0.339

Table 2. The relationship between COVID-19 history in the family, depression, anxiety and history of chronic diseases with herbal medicine use.

Variable	Status	Herbal Medicine	Type of use of Herbal Medicine			
		Yes	Prevention	Treatment	Relaxation	Other
		N(%)	N(%)	N(%)	N(%)	N(%)
COVID19 History in Family	No	375(%62)	164(%27)	7(%1)	141(%23)	186(%31)
	Yes	10(%83)	6(%50)	5(%42)	5(%42)	5(%42)
	P-value	0.147	0.077	<0.001	0.166	0.528
Depression	Normal	235(%64)	104(%28)	7(%2)	83(%22)	125(%34)
	Borderline	88(%56)	43(%28)	2(%1)	40(%26)	35(%22)
	Abnormal	62(%67)	23(%25)	3(%3)	23(%25)	31(%33)
	P-value	0.194	0.808	0.558	0.702	0.031
Anxiety	Normal	207(%59)	84(%24)	5(%1)	68(%20)	117(%34)
	Borderline	120(%66)	63(%35)	5(%3)	57(%31)	45(%25)
	Abnormal	58(%65)	23(%26)	2(%2)	21(%24)	29(%33)
	P-value	0.286	0.035	0.568	0.01	0.101

Table 3. The relationship between telehealth and herbal medicine use, and its different types of use.

Variable	Status	Herbal Medicine	Type of use of Herbal Medicine			
		Yes	Prevention	Treatment	Relaxation	Other
		N(%)	N(%)	N(%)	N(%)	N(%)
Telehealth	Doctor phone	101(%63)	49(%31)	3(%2)	49(%31)	54(%34)
	Doctor internet	89(%67)	44(%33)	3(%2)	34(%26)	39(%29)
	Patient phone	101(%58)	37(%21)	3(%2)	43(%25)	48(%27)
	Patient internet	49(%64)	21(%28)	2(%3)	10(%13)	26(%34)
	Other	4(%100)	2(%50)	1(%25)	2(%50)	2(%50)
	Visit	12(%41)	2(%7)	0(%0)	3(%10)	8(%28)
	None	29(%69)	15(%36)	0(%0)	5(%12)	14(%33)
	P-value	0.072	**0.02**	**0.045**	**0.010**	0.797
	Spearman's Rho	0.039	0.061	**0.03**	**0.0138**	0.010
	CI	(-0.195,0.086)	**(0.002.0.095)**	**(0.01,0.201)**	**(0.007,0.027)**	(-0.085,0.092)