

Chemical Veterans' use of Complementary and Alternative Medicines and Quality of Life: a Survey in Southeast Iran

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Abstract

Background: Chemical veterans are commonly faced with physical, psychological, occupational and social problems. These veterans use relatively high levels of complementary and alternative medicine.

Purpose: The current study aimed to investigate the relationship between complementary and alternative medicines (CAM) usage and quality of life of chemical warfare veterans.

Material and methods: Three hundred and sixty chemical veterans were assessed using a cross-sectional correlational study design. The study was conducted in infirmaries affiliated to the Kerman Foundation of Martyrs and Veterans Affairs, in southeast Iran, from 20 April to 20 July 2019. A questionnaire developed by researchers on the use of CAM, and SF-36 to assess the quality of life were used for data collection.

Results: At least one type of CAM was used by 90% of the samples in the past year. The most common were prayer and herbal medicines. The mean quality of life in chemical veterans was 47.17 ± 18.36 . The quality of life score was not significantly different between CAM and non-CAM users ($P > 0.05$).

Conclusion: Chemical veterans have a poor quality of life. Although they use a variety of CAM methods along with other treatments, they do not have a significant effect on their quality of life.

Keywords: complementary and alternative medicines (CAM); quality of life; veteran; chemical substance

Introduction

Approximately 50 000 Iranian soldiers and civilians were exposed to sulfur mustard during the Iraq–Iran war (1980–1988).¹ A study on chemical warfare veterans during the Iran–Iraq War shows that most veterans have additional problems to pulmonary disease, the most common of which are ocular, dermal and neurological in nature.² Many veterans have symptoms such as fatigue, pain, cognitive and memory problems, itchy skin, gastroenteritis and respiratory problems, the most common of which is fatigue. Furthermore, posttraumatic stress disorders (PTSD) and other psychiatric conditions are also the general results of warfare in veterans'.^{3–6} In addition, exposure to sulfur mustard in combat may have long-lasting fertility effects on soldiers and their spouses.¹

In addition to the use of chemical drugs, veterans use complementary and alternative medicine (CAM) to reduce their symptoms and improve their quality

of life.^{7, 8} According to the definition of the World Health Organization in 2016, complementary and alternative medicine is a set of knowledge, skills and practices based on theories, beliefs and experiences of different cultures used to maintain health and prevent, diagnose, improve, and treat physical and mental illnesses.^{9–11} Study results have shown that more than half of veterans reported having used CAM practice. Many also reported interest in trying at least one practice or learning more about at least one practice either on their own or with an instructor.⁹ In another study, most participants were receptive to trying at least one CAM technique if suggested by their counsellor.¹¹ According to the 2012 reports on Iraqi and Afghan troops in the US, about 30% had PTSD, which was reduced after using one of the CAM methods.¹²

Concerning extensive and varied studies on the effects of CAM on disease control and recovery, there are many people in the world who use a variety of CAM practices to cure disease and control physical

and mental symptoms. Since the effects of war and the resulting damage have led to disruption in the current lives of veterans, this study aimed to investigate the relationship between the use of CAM and the quality of life of chemical warfare veterans in southeast Iran.

Materials and methods

Study design and setting

The present study had a cross-sectional and correlational design. Subjects in this study were male chemical veterans with mean ages of 46–78 years in infirmaries affiliated to the Kerman Foundation of Martyrs and Veterans Affairs in southeast Iran.

Sampling and sample size

Inclusion criteria were male veterans exposed to 5–75% of the chemical warfare agents (according to their medical records), with a good physical condition, the ability to speak and hear, and complete consciousness. The exclusion criterion was incomplete questionnaires. The convenience method was used for sampling.

Morgan's table was used to select the sample size due to the limited population. The number of Kermani veterans was 19 000, of whom 4200 were chemical warfare veterans. According to Morgan's table, 351 samples were needed; however, 400 subjects were selected because of the dropout probability. Forty questionnaires were excluded from the study due to very large amounts of missing data. The effective response rate was 90%.

Measures

Data were collected using a three-part questionnaire. The first part included items about sociodemographic information, such as age, marital status, living place, education level, occupation, insurance, income, opium addiction, smoking and alcohol addiction, months serving in war and mean months passed from exposure to chemical agents.

The second part was a questionnaire on chemical veterans' use of CAM during the recent year. The questionnaire was a minor modified version of the previous questionnaire used in similar studies.^{13–17} The questionnaire included nine items on the use of some types of CAM. It was scored using a yes/no answer. Further, if their answer had been yes, they would have answered the frequency of using CAM according to a six-point Likert scale (some times a year = 1, to daily = 6). The reasons for using each kind of CAM were measured using three items of

reducing physical symptoms, reducing stress and anxiety, and others. There was also a yes/no question about consulting a physician for the use of CAM. Ten faculty members of the Razi School of Nursing and Midwifery assessed the content validity index of the questionnaire, which was 0.96. The internal consistency of the questionnaire was checked in a sample of 20 chemical veterans. The Cronbach's alpha coefficient was 0.70. It is noteworthy that this pilot sample was included in the final analysis.

The third part of the questionnaire included different aspects of health related to quality of life. A 36-Item Short Form Survey (SF-36) was used to assess the quality of life of chemical veterans. The 36-Item Short Form Survey (SF-36) designed by Ware & Sherbourne assesses the quality of life and has 36 items and eight subscales. The eight subscales of this questionnaire are physical functioning, role limitations due to physical health, role limitations due to emotional problems, energy/fatigue, emotional wellbeing, social functioning, pain and general health. In addition, by merging the subscales, two subscales of physical and mental health are created. In this questionnaire, a low score indicates poor quality of life, and a high score indicates high quality of life (scores on each subscale are between 0 and 100). The validity and reliability of this questionnaire have been confirmed in the Iranian population.¹⁸ The questionnaire has also been used in other veteran populations.¹⁹

Data collection and analysis

The researchers started the sampling after obtaining the code of ethics from the ethics committee. After obtaining written consent from the participants, the self-administered questionnaire was completed when the clients were in good physical condition. In the case of illiteracy, questionnaires were completed by interview during participants attendance to infirmaries. The data were collected over three months (from 20 April to 20 July 2019).

SPSS 25 was used for data analysis. Frequency, mean, percentage and standard deviation were used to describe the sample characteristics, the use of CAM and the quality of life. A chi-squared test was used to check the association between CAM use (yes/no) and the qualitative variables. Independent t-test and Mann-Whitney U test was used to compare the quality of life between CAM users and non-users. The significance level was considered to be 0.05.

Ethics approval and consent to participate

The ethics committee of Kerman University of Medical Sciences approved the study protocol (IR.KMU.REC.1397.408). The authorities of the study

setting and all study participants were provided with a detailed explanation of the research method. After obtaining written informed consent, the participants were assured about voluntary participation in the research, their withdrawal and the confidentiality of the information and anonymity in the questionnaire.

Results

The mean age of the study participants was 57.50 ± 5.49 years. The mean months of serving in war were 20.14 ± 13.93 and the mean months passed from exposure to chemical substances were 402.90 ± 19.83 . The majority of the participants were married (90%) and residents of Kerman (73.3%). Only 10.6% of the samples were uneducated. Only 16.1% of the samples were unemployed. The majority of the samples had insurance. The income level of nearly half of the samples was <2 million tomans a month. Among the participants, 15.3% were addicted to opium, 40% were smokers, and 4.2% were addicted to alcohol (Table 1).

Overall, 90% of the samples ($n = 324$) used at least one type of CAM in the past year. As the study population live in a religious country, without considering prayer, 81.9% of the samples ($n = 295$) used at least one type of CAM in the past year. In addition, without considering the prayer, 58.9% of the samples ($n = 212$) used only one type of CAM, 17.8% ($n = 64$) used two types of CAM, 3.1% ($n = 11$) used three, and 2.3% used four to seven types of CAM during the last year. The samples primarily used medicinal herbs (78.6%), and the least used CAM method was homeopathy (1.1%) (Table 2). In addition, 54% ($n = 194$) of the samples used medicinal herbs at least once a week, 45.3% of the samples ($n = 163$) used prayer at least once a week.

Table 2 shows participants' reasons for using each type of CAM and if they have consulted with a physician to use CAM.

There were no differences between CAM and non-CAM users in qualitative demographic characteristics except for job (Table 1). In addition, CAM users were significantly older than non-CAM users ($t = -2.17$, $P = 0.03$).

The mean quality of life of the chemical veterans was 47.17. Among the QOL dimensions, the highest mean was allocated to physical functioning and the lowest mean to role limitations due to physical health (Table 3).

The results showed no significant difference between CAM and non-CAM users in the quality of life score and its dimensions ($P > 0.05$) (Table 4).

Discussion

The present study results showed that, in general, 90% of the samples used at least one type of CAM in the past year. Regardless of the prayer, 81.9% of the samples used at least one type of CAM in the past year. In addition to pharmaceutical drugs, veterans use CAM to reduce their symptoms and improve their quality of life. CAM is considered an alternative method among veterans because of their increasing healthcare problems, and using CAM as an additional therapy can be helpful.^{8, 20, 21} The reason and motivation for using CAM among military personnel may be even greater; for example, it can be used as part of a fitness regimen,²² for stress reduction, or relief of the symptoms of a particular psychological problem.^{11, 23} Since no study addressed CAM in chemical warfare veterans, similar studies on other veterans were mentioned. The result of a study on veterans in the USA showed that among the 278 participants diagnosed with depression, generalised anxiety disorders, and/or PTSD, 239 reported willingness to participate in at least one CAM technique. Veterans were willing to engage in yoga, acupuncture, and/or massage and have thought about exploring therapies such as acupressure, and/or aromatherapy to ease physical discomfort.¹¹ The mentioned study investigated the willingness to participate in at least one CAM technique, while we assessed the use of at least one CAM technique among chemical warfare veterans. A review study showed that among active duty and reserve military, CAM use ranged between 37% and 46%.²⁴ However, CAM use prevalence in Davis et al. is less than in our study.²⁴ Different study populations, questionnaires and participants' medical conditions may be the reasons for the differences.

In the present study, the most commonly used CAM method was medicinal herbs (78.6%), and homeopathy was rarely used (1.1%). People most frequently use medicinal herbs compared with other CAM methods because they are readily available, and they are more familiar, especially native ones.²⁵

So far, few studies have examined the quality of life of survivors of the Iraq-Iran War, especially chemical warfare veterans.²⁶ In the present study, the mean quality of life of the chemical warfare veterans was 47.17 ± 18.36 , showing their poor quality of life in Kerman province. Jafari et al. studied the quality of life of chemical warfare veterans with pulmonary diseases and showed that in all aspects, the mean score of quality of life of veterans with severe pulmonary diseases was lower than that of the general population of Iran.²⁶ Gholipour et al. studied the type of injury and quality of life of veterans in

Table 1. Demographic characteristics of the participants and their differences between CAM and non-CAM users

Variable		Frequency (%)	CAM user (without considering prayer)		Chi-squared test	P- value
			Yes (n/%)	No (n/%)		
Marital status	Single	8 (2.2)	6 (2.0)	2 (3.1)	2.64	0.27
	Married	324 (90.0)	263 (89.2)	61 (93.8)		
	Other	28 (7.8)	26 (8.8)	2 (3.1)		
Living place	Kerman	264 (73.3)	213 (72.2)	51 (78.5)	1.16	0.56
	Villages around Kerman	51 (14.2)	43 (14.6)	8 (12.3)		
	Other cities of Kerman	45 (12.5)	39 (13.2)	6 (9.2)		
Education level	Illiterate	38 (10.6)	34 (11.5)	4 (6.3)	8.28	0.22
	Primary school	25 (7)	22 (7.5)	3 (4.7)		
	Middle school	50 (13.9)	42 (14.2)	8 (12.5)		
	High school	40 (11.1)	32 (10.8)	8 (12.5)		
	Diploma	128 (35.7)	104 (35.3)	24 (37.5)		
	Bachelor	64 (17.8)	53 (18.0)	11 (17.2)		
	Above Bachelor	14 (3.9)	8 (2.7)	6 (9.4)		
Occupation	Employed	67 (15.8)	40 (13.6)	17 (26.2)	11.54	0.009
	Self-employed	108 (30.0)	98 (33.2)	10 (15.4)		
	Retired	137 (38.1)	109 (36.9)	28 (43.0)		
	Unemployed	58 (16.1)	48 (16.3)	10 (15.4)		
Insurance	Yes	319 (88.9)	260 (88.4)	59 (90.8)	0.29	0.67
	No	40 (11.1)	34 (11.6)	6 (9.2)		
Income (in tomans)	<1 million	49 (13.6)	39 (13.2)	10 (15.4)	1.42	0.49
	1–2 million	134 (37.2)	114 (38.6)	20 (30.8)		
	>2 million	177 (49.2)	142 (48.2)	35 (53.8)		
Opium addiction	Yes	55 (15.3)	46 (15.6)	9 (13.8)	0.13	0.85
	No	305 (84.7)	249 (84.4)	56 (86.2)		
Smoking	Yes	144 (40.0)	123 (41.7)	21 (32.3)	1.96	0.21
	No	216 (60.0)	172 (58.3)	44 (67.7)		
Alcohol addiction	Yes	15 (4.2)	13 (4.4)	2 (3.1)	0.24	0.75
	No	344 (95.8)	281 (95.6)	63 (96.9)		

Table 2. Chemical veterans' use of CAM and their reasons

Variable	Frequency of the users (%)	Confidence interval	Reason				Consulted physician (n/%)
			Reducing physical symptoms (n/%)	Reducing stress and anxiety (n/%)	Both* (n/%)	Others (n/%)	
Medicinal herbs	283 (78.6)	74.3-82.6	71 (27.3)	110 (42.3)	75 (28.8)	4 (1.6)	82 (31.5)
Prayer	238 (66.1)	61.1-70.8	6 (3.3)	171 (93.4)	4 (2.2)	2 (1.1)	2 (1.1)
Massage	48 (13.3)	10.0-16.9	25 (58.1)	11 (25.6)	5 (11.6)	2 (4.7)	27 (62.8)
Wet cupping	31 (9.2)	6.4-12.2	23 (74.2)	6 (19.4)	-	2 (6.5)	19 (61.3)
Dry cupping	18 (5.0)	2.8-7.5	13 (72.2)	3 (16.7)	2 (11.1)	-	9 (50.0)
Acupuncture	12 (3.3)	1.7-5.3	9 (75)	3 (25)	-	-	8 (66.7)
Acupressure	9 (2.5)	0.8-4.2	3 (33.3)	4 (44.4)	-	2 (22.2)	5 (55.6)
Meditation	6 (1.7)	0.6-3.1	1 (16.7)	2 (33.3)	3 (50)	-	2 (33.3)
Homeopathy	4 (1.1)	0.3-2.5	1 (25)	2 (50)	-	1 (25)	4 (100)

* Reducing physical symptoms and stress and anxiety

Table 3. The quality of life and its dimensions in haemodialysis patients

Quality of life	Mean	SD
Physical functioning	52.70	24.30
Role limitations due to physical health	38.89	37.07
Role limitations due to emotional problems	47.79	39.11
Energy/fatigue	45.47	18.76
Emotional well being	50.30	18.44
Social functioning	49.83	20.62
Pain	47.92	22.73
General health	40.94	20.35
Total	47.17	18.36

Kermanshah province and concluded that 53% had a poor quality of life.²⁷ In addition, the quality of life of chemical warfare veterans was lower than that of other war veterans (with amputated, special, combined, neurological and psychiatric conditions).²⁷ Ghanei et al. (2017) examined the quality of life of the Iranian veterans in a systematic review and analysed 19 selected articles with a sample size of 2575 people. They showed that the lowest mean score of quality of life was related to chemical warfare veterans, and the highest mean quality of life was related to the veterans with amputated hands/legs.²⁸ The above studies are consistent with the results of the present study. Concerning the chronic pulmonary complications and diseases that occur following chemical damage, poor quality of life

is expected, especially in the subscale of physical health.²⁶ In the present study, the role limitations due to physical health had the lowest score among the measured variables. In other words, it has the highest share in the low score of the overall quality of life of chemical warfare veterans. Khoshnevis also reported the negative effects of physical function and role limitations due to physical health on the quality of life of chemical warfare veterans,²⁹ supporting the present study.

The results of the present study showed no significant difference between CAM and non-CAM users in quality of life. In addition, the scores of the dimensions of quality of life were not significantly different between CAM and non-CAM users.

Table 4. Relationship between chemical veterans' use of CAM and quality of life

Variable	Quality of life		Statistical test	P value
	Mean	SD		
Medicinal herbs	Yes	46.90	t = 0.28	0.78
	No	47.57		
Prayer	Yes	46.65	t = 0.58	0.56
	No	47.83		
Massage	Yes	46.66	t = 0.16	0.87
	No	47.11		
Wet cupping	Yes	46.91	t = 0.04	0.96
	No	47.06		
Dry cupping	Yes	41.93	Z = -1.16	0.24
	No	47.32		
Acupuncture	Yes	46.11	t = 0.18	0.86
	No	47.08		
Acupressure	Yes	46.10	t = 0.16	0.88
	No	47.07		
Meditation	Yes	47.13	0.65	0.52
	No	42.20		
Homeopathy	Yes	47.99	t = -1.02	0.92
	No	47.04		
CAM users	Yes	46.72	t = 1.01	0.31
	No	49.99		
CAM users (without considering prayer)	Yes	47.11	Z = -0.33	0.75
	No	46.76		

t = Independent sample t-test, Z = Mann-Whitney test

Mahmoudian et al. showed that although adding homeopathy to the treatment of veterans with chronic depression improved their quality of life, no statistically significant difference was found between those who received homeopathy and those who did not receive homeopathy.³⁰ However, a 2012 report on Iraqi and Afghan troops in the USA found that approximately 30% had PTSD, which decreased after using one of the CAM methods. In general, the results suggest that CAM intervention may benefit family members as well as veterans with PTSD symptoms.¹² Another study by Hull et al. showed veterans who participated in complementary and integrative health services, reported significant improvements in their most salient symptoms of concern (primarily pain or mental health symptoms), physical quality of

life, wellbeing and the ability to participate in valued activities at follow-up assessments.⁷ The reasons for different results can be due to a long time since exposure to chemicals and disease, and this duration of the disease can impair quality of life. According to a review study, little is known about the reasons for using CAM and the conditions for which it is used.²⁴ Therefore, future surveys of CAM should include military status variables.

Concerning the high number of veterans in Iran, one of the limitations of this project is the low number of samples that might have affected the generalisation of results. Due to the involvement of the veteran's families, it is suggested that the quality of life of veteran's families be examined in future studies.

Conclusion

The results of this study showed that the quality of life of the chemical veterans was lower than the average. Although the veterans used a variety of CAM methods along with other treatments, they did not have a significant effect on their quality of life. According to these results, further studies and efforts are required to improve the quality of life of chemical warfare veterans.

Abbreviations

CAM: Complementary and Alternative Medicines

PTSD: Posttraumatic stress disorders

QOL: Quality of Life

SF-36: Short Form Survey-36

Availability of data and material

The datasets used for the current study are available from the corresponding author upon request.

Competing interests

None to be declared.

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Authors' contributions

MD: Conceptualization, Supervision, Methodology, Data analysis, Writing- Reviewing and Editing.

HRR, FM, SMHM, AK, and FRSN: Conceptualization, Data curation, Software, Writing- Original draft preparation.

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