



COMPLEMENTARY AND ALTERNATIVE MEDICINE USAGE AND ITS DETERMINANT FACTORS AMONG IRANIAN PATIENTS WITH CANCER

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Abstract – Objective: *The aim of this study was to investigate the application of some Complementary and Alternative Medicine (CAM) techniques among cancer patients in Kerman, Southeast of Iran.*

Patients and Methods: *This is a descriptive-analytic study. The statistical population consisted of patients referring to the Cancer Clinic and Yas Association of Kerman in 2016-2017. Data were collected using a two-part researcher-made questionnaire. Data were analyzed using descriptive and analytical statistics (chi-square test and logistic regression test) with SPSS version 18.*

Results: *According to the present study, 45.9% of participants used at least one of the CAM methods except for prayer in the past year. 37.5% of the people consulted with their doctor for the use of CAMs. Regarding the number of used methods, the result of the study showed that 88% of the subjects used one of the methods, 3.6% used two, 7.2% used 3, and 1.2% used 4 CAM methods during the last year. The multifactor logistic regression showed that gender was the only factor which had a significant association with being or not being a user of CAMs.*

Conclusions: *The results showed that almost one out of two cancer patients uses CAMs for cancer treatment indicating high prevalence of these treatments in cancer. Women were more willing to use CAM methods than men. Therefore, health care providers must pay more attention to this group during cancer treatment to reduce treatment interactions and increase the quality of care.*

KEYWORDS: CAMs: Complementary and Alternative Medicines. ASR: Age standardized incidence rate.

INTRODUCTION

Cancer is one of the chronic diseases that have afflicted millions of people worldwide. In 2008, about 13% of the population throughout the world died of cancer, and 72% of mortalities were reported in low- and middle-income countries¹. According to one of the recent reports in 2014, 1.66 million new cases with cancer were identified in the US, and it has been estimated that about 585,000 of these people will die because of cancer². A study in Kerman (Iran) showed that the most common cancers in

men were bladder (ASR: 24.70), skin (ASR: 16.80), lung (ASR: 14.6), leukemia (ASR: 14.50), and stomach (ASR: 10.8), and the most common cancers in women were breast (ASR: 26.4), skin (ASR: 13.0), thyroid (ASR: 9.2), leukemia (ASR: 8.0) and colorectal (ASR: 7.70). Although the incidence of cancer is increasing, there have been significant advances in the diagnosis and treatment of the disease that have decreased the mortality over the past 40 years^{3,4}. Approximately 11.1 million people survive in the US after cancer and related treatments, and the number of survivors is growing⁵.



One of the treatments commonly used by cancer patients is Complementary and Alternative Medicine (CAM). CAM is a group of diverse medical and health care systems, practices, and products that are not generally considered a part of conventional medicine. Complementary medicine is used together with conventional medicine. Alternative medicine is used in place of conventional medicine. Integrative medicine combines conventional medicine with proven CAM therapies⁶. These treatments include different medical healthcare practices, products, and systems that are not considered as a part of conventional treatments⁷. A systematic review study in 2016 showed that the most common reason for using herbal medicine had been the improvement of physical symptoms, promotion of mental status, stimulation of the immune system, improvement of the quality of life, and relief of complications from conventional treatments⁸. Another study in Turkey showed that the most common use of herbal medicines in cancer patients was due to the increased level of immunity⁹. On the other hand, the complications and limitations of conventional cancer treatments, extensive media coverage of CAM, and the use of holistic treatments increasingly have enhanced the use of such treatments¹⁰. Evidence suggests that the use of CAM is being increased globally. A study in 2009 showed that the prevalence of CAM increased from 33.8% to 42.1% in the US from 1990 to 1997¹⁰.

Several studies have been conducted on the prevalence of the use of various CAM therapies. The study of Ali-Shtayeh et al¹¹ on the prevalence of CAM use in cancer patients in Palestine showed that herbal medicines were the most commonly used treatment. In the study of Hajimahmoodi et al¹², CAMs were used mostly in energy therapy, homeopathy, and herbalism, and the highest rate of CAM use was observed among women with breast cancer. There is a significant relationship between education level and the use of different methods of CAMs. A study in 2006 showed that 44.7% of women with breast cancer in Europe used at least one of CAMs and the most commonly used treatment was herbal medicines¹³.

Although, patients do not generally consult with the healthcare professionals about the use of CAM, and they usually obtain their information through the media and families; further, nurses can provide appropriate services for patients¹⁴. Combining CAM with conventional treatments, nurses can play an important role in the use of these therapies by consulting and educating patients. The prevalence of these treatments must be studied in patients because of the high prevalence of CAM use and the increased risk of their complications (including side effects or unwanted interactions resulting from treatment, inadequate physician or therapist skills), which can be due to lack of information of patients

in this field^{15,16}. Therefore, our aim was to investigate the application of some CAM techniques in cancer patients in Kerman, Iran.

MATERIALS AND METHODS

Study Design and Setting

This was a cross-sectional study conducted in the cancer clinics in Kerman, Iran. Kerman is the largest city in the southeast of Iran, with a population of more than 722,000 people.

Sampling and Sample Size

Convenience sampling was used to select the participants. The questionnaire was provided for 300 patients, 90 of them refused to participate in the study. Thus the response rate was 70%. In addition, 29 questionnaires had lots of missing values, so that we did not include them in the analysis. Therefore, the data of 181 patients were used for data analysis.

Instrument

A 3-part questionnaire was used for gathering information: (a) demographic data form (including age, sex, education, occupation, income, living place, having other chronic diseases, cancer history, type of cancer, the grade of the cancer, and cancer treatment); (b) a researcher-made questionnaire for studying types and usage of some CAM methods, the rate of using such methods, and whether patients have consulted with the doctor while using these methods¹⁷⁻¹⁹; and (c) a researcher-made questionnaire for studying satisfaction using CAM¹⁷⁻¹⁹. The second part of the questionnaire includes types of complementary medicines (herbal medicine, wet cupping [hijamat], dry cupping, massage, hydrotherapy, leech therapy, prayer, nazr [a vow or serious commitment in Islam to do a special task], acupuncture, and homeopathy). The level of usage was estimated based on the patient's answer to the number of times each technique was used in the past year. Besides, an 8-item scale was used to measure the level of satisfaction with accessibility, harmlessness, ease of use, problem relief, no interference with daily activities, no concern for interfering with other therapeutic methods, feeling well after using CAMs, and suggesting the method to others. This scale was scored on a 5-point Likert-type scale (4 = very satisfied, 3 = satisfied, 2 = dissatisfied, 1 = very dissatisfied, and 0 = no idea). Face and content validity and internal consistency of this scale were confirmed in the previous studies¹⁶⁻¹⁸.

Data collection and analysis

In the present study, the target population was all cancer patients referring to the cancer clinics in Kerman. People older than 18 years who were mentally and physically able to reply to the questions were eligible to participate in the study. The questionnaires were given to participants to be completed in the form of self-report. In the case of an illiterate participant, the questionnaire was completed by the help of a researcher. Sampling was done from the beginning of the April 2016 to the late January 2017. Data were analyzed by SPSS version 18 (SPSS Inc., Chicago, IL, USA). Descriptive statistics (frequency distribution tables, percentage, mean, and standard deviation) were applied to describe the level of CAMs usage. χ^2 and multivariate logistic regression analysis tests were used to determine the correlation between socio-demographic characteristics and being a user of CAMs. The significance level of the p -value was considered to be 0.05.

Ethical approval and consent to participate

The Kerman University of Medical Sciences approved this project (No.13950166). After approval, permission was issued to the management of the cancer clinics. The researcher provided some oral information, including the goals and objectives of the study, the confidentiality and anonymity of the data, and that the participants were free to withdraw from the study at any time. Then verbal consent was taken individually.

RESULTS

Socio-demographic characteristics

In total, 181 participants were assessed. 51.4% of participants were female. The mean age of the participants was 49.64 ± 16.91 years (range 18-87). The mean duration of cancer was 18.90 ± 31.95 months (Max = 1, Min = 240). 74.6% of the participants were married, 13.8% were single, and 11.6% got divorced or widowed(er). 33% of the participants were illiterate, 54.1% were unemployed, and 55.8 had below 500,000- Toman (115 \$) income per month. 42.5% of the participants had no other chronic diseases. 23.2% had leukemia. 86.7% were under chemotherapy and the rest had been treated with both chemotherapy and radiotherapy. 47% of the participants had a positive history of surgery for their cancer (Table 1).

TABLE 1. Socio-demographic characteristics of the study sample (n = 181).

Variable	Frequency	Valid %
Age (yr)		
18-30	29	16.0
31-40	26	14.4
41-50	41	22.7
51-60	32	17.7
> 60	53	29.3
Gender		
Male	88	48.6
Female	93	51.4
Marital Status		
Single	25	13.8
Married	135	74.6
Divorced/Widowed	21	11.6
Education		
Illiterate	60	33.2
Middle/high school	58	32.0
Diploma	37	20.4
Academic education	26	14.4
Job		
Unemployed (housewife/student)	98	54.1
Worker/Clerk/ Self-employed	69	38.1
Retired	14	7.7
Income (Tomans)		
< 500,000	101	55.8
500,000-1,000,000	45	24.9
1,000,000-1,500,000	19	10.5
> 1,500,000	16	8.8
Living place		
Kerman city	51	28.2
Villages of Kerman Province	42	23.2
Other cities	88	48.6
Diseases		
No	77	42.5
Yes	104	57.5
Duration of cancer (mo)		
1-12	131	72.4
13-24	17	9.4
≥ 25	33	18.2
Cancer type		
Gastrointestinal cancers	27	14.9
Leukemia	42	23.2
Genital cancers	25	13.8
Bone marrow	27	14.9
Others	60	33.2
Treatment		
Chemotherapy	156	86.7
Radiotherapy/ Chemoradiotherapy	24	13.3
Surgery		
Yes	85	47.0
No	96	53.0



FINDING

45.9 % of the participants (n = 83, CI=38.1-53%) had used at least one of the CAMs except prayer and nazr during the previous year. By including prayer and nazr, 96.1% (n = 174, CI = 92.8-98.9%) had used at least one of the CAMs during the previous year. Among those, who have used the CAMs, 88% (n = 73) used only one kind, 3.6% (n = 3) used two kinds, 7.2% (n = 6) used three kinds, and 1.2% (n = 1) used four kinds of the CAMs.

According to different methods of the CAMs, a totally of 44.2% (n = 80) of the participants used herbal medicine, 2.8% (n = 5) used dry cupping, 3.3% used (n = 6) wet cupping, 2.2% used (n = 4) massage, 2.2% (n = 4) used leech therapy, 0.6% (n = 1) used acupressure and acupuncture, 92.3% (n = 167) used prayer, and 85.1% (n = 154) used nazr (Table 2). In addition, none of the participants used homeopathy or hydrotherapy in the previous year.

Among those participants who used herbal medicine, 13.8% (n = 11) used this method every day, 25%

(n = 20) 2-3 times a week, 21.2% (n = 17) once a week, 13.8% (n = 11) once a month, and 26.2% (n = 21) several times a year. 62.5% of the participants used herbal medicine for treatment, 27.5% for reducing complications of treatment, 12.5% for reducing stress and anxiety, and 46.3% for other reasons. 62.5% (n = 50) of the participants did not consult with their physicians while using herbal medicine.

Among those participants who used prayer, 83.2% (n = 139) always, 17.2% (n = 10) often, 3.6% (n = 6) sometimes, and 3% (n = 5) rarely did it during the previous year. 89.2% of the participants prayed for treatment, 16.2% prayed for reducing treatment complication, 8.4% prayed for reducing stress and anxiety, and 25.7% prayed for other reasons. Among those participants who used nazr, 79.9% (n = 123) always, 3.9% (n = 6) often, 10.4% (n = 16) sometimes, and 5.8% (n = 9) rarely used nazr during the previous year. 75.3% used nazr for treatment, 12.3% used it for reducing treatment complication, 8.4% used it for reducing stress and anxiety, and 42.2% used it for other reasons.

According to χ^2 , gender and living place had a significant association with being a user of CAMs (Table 3).

TABLE 2. The frequency of using different methods of the CAMs.

Variable	Frequency	%	Confidence interval	
			Lower	Upper
Herbal medicine				
Yes	80	44.2	48.6	63.0
No	101	55.8	37.0	51.4
Dry cupping				
Yes	5	2.8	.6	5.5
No	176	97.2	94.5	99.4
Wet cupping (Hijama)				
Yes	6	3.3	1.1	6.1
No	175	96.7	93.9	98.9
Massage				
Yes	4	2.2	.6	4.4
No	177	97.8	95.6	99.4
Leech therapy				
Yes	4	2.2	.6	4.4
No	177	97.8	95.6	99.4
Acupuncture				
Yes	1	.6	.0	1.7
No	180	99.4	98.3	100.0
Acupressure				
Yes	1	.6	.0	1.7
No	180	99.4	98.3	100.0
Prayer				
Yes	167	92.3	87.8	96.1
No	14	7.7	3.9	12.2
Vow (nazr)				
Yes	154	85.1	79.6	90.1
No	27	14.9	9.9	20.4

TABLE 3. The association between socio-demographic variables and being/not being the user of the CAMs.

Variable	Complementary and alternative applicants				χ^2	p-value
	User		Non-user			
	Frequency	Valid %	Frequency	Valid %		
Age (yr)						
18-30	13	15.7	16	16.3	0.59	0.97
31-40	13	15.7	13	13.3		
41-50	19	22.8	22	22.4		
51-60	13	15.7	19	19.4		
> 60	25	30.1	28	28.6		
Gender						
Male	33	39.8	55	56.1	4.82	0.03
Female	50	60.2	43	43.9		
Marital Status						
Single	10	12	15	15.3	1.45	0.48
Married	61	73.5	74	75.5		
Divorced/Widowed	12	14.5	9	9.2		
Education						
Illiterate	23	27.7	37	37.8	4.57	0.21
Middle/high school	25	30.1	33	33.7		
Diploma	19	22.9	18	18.4		
Academic Education	16	19.3	10	10.1		
Job						
Unemployed(Housewife/student)	46	55.4	52	53	0.63	0.73
Worker/Clerk/Self-employed	32	38.6	37	37.8		
Retired	5	6	9	9.2		
Income (Tomans)						
< 500,000	44	53	57	58.2	6.34	0.1
500,000-1,000,000	20	24.1	25	25.5		
1,000,000-1,500,000	7	8.4	12	12.2		
> 1,500,000	12	14.5	4	4.1		
Living Place						
Kerman City	30	36.1	21	21.4	6.94	0.03
Villages of Kerman Province	21	25.3	21	21.4		
Other cities	32	38.6	56	57.2		
History of other chronic diseases						
No	29	34.9	48	49	3.62	0.06
Yes	54	65.1	50	51		
Duration of the Cancer (mo)						
1-12	62	74.7	69	70.4	3.35	0.19
13-24	10	12	7	7.2		
≥ 25	11	13.3	22	22.4		
Cancer Type						
Gastrointestinal cancers	14	16.9	13	13.3	0.82	0.94
Leukemia	19	22.9	23	23.4		
Genital cancers	10	12	15	15.3		
Bone marrow	13	15.7	14	14.3		
Others	27	32.5	33	33.7		
Treatment						
Chemotherapy	70	84.3	86	88.7	0.72	0.4
Raidiotherapy/Chemoradiotherapy	13	15.7	11	11.3		
Surgery						
Yes	34	41	51	52	2.21	0.14
No	49	59	47	48		

We included all variables that had p value of ≥ 0.25 into multifactor logistic regression for further analysis. The multifactor logistic regression show-

ed that only the gender had a significant association with being a user of CAMs. Women with cancer used CAMs 2.11 times more than men (Table 4).



TABLE 4. Multifactor logistic regression model for being a user of CAMs with some variables.

Variable	Multifactor logistic regression		
	Odds ratio	Confidence interval	p-value
Gender			
Male	1	—	
Female	2.11	1.01- 4.04	0.025
Education			
Illiterate	1	—	0.82
Middle/high school	1.07	0.47- 2.41	0.88
Diploma	1.41	0.55 – 3.66	0.48
Academic education	1.67	0.46 – 6.11	0.44
Income (Tomans)			
< 500,000	1	—	0.18
500,000-1,000,000	0.99	0.44 – 2.24	0.98
1,000,000-1,500,000	0.6	0.19 – 1.88	0.38
> 1,500,000	3.92	0.88 – 17.47	0.07
Living place			
Kerman city	1	—	0.25
Villages of Kerman Province	0.83	0.32 – 2.12	0.69
Other cities	0.53	0.23 – 1.19	0.12
History of other chronic diseases			
No	1	—	
Yes	1.66	0.84 – 3.28	0.14
Duration of cancer (mo)			
1-12	1	—	0.75
13-24	1.34	0.41 – 4.37	0.63
≥ 25	0.8	0.31 – 2.06	0.64
Surgery			
Yes	1	—	—
No	1.71	0.81 – 3.60	0.16

DISCUSSION

In the present study, out of 181 patients with cancer, 83 (45.9%) of them used at least one of the CAM methods except for prayer in the past year. This result is similar to that of Alfano et al²⁰ in Brazil, Chow et al [21] in Singapore and Farooqui et al²² in Malaysia. Our result shows lower frequency compared with some other studies. The results of a study in rural regions of Australia showed that 68% used CAMs²³. A study by John et al²⁴ also indicated that 68% of cancer patients and 79% of cancer survivors reported the use of at least one CAM method over the past year. Berretta et al²⁵ demonstrated that CAM use among cancer patients in Italy was fairly widespread, with nearly half of those interviewed (48.9%) reporting an ongoing or recent use of CAM. Such a difference can be attributed to cultural, economic, and social conditions of different regions of the world affecting the use of CAMs, because the use of CAMs in Western countries has been reported to be lower than that in the Eastern countries²⁶. In addition, the use of CAMs can be affected by the stage of the disease.

Based on the results of this study, the number of methods used by the participants varied from 1 to 4 methods, and more than half of them used CAMs for cancer treatment, 37.5% consulted with their physician for using CAM. Naja et al²⁷ also showed in their study that only 27.4% of the subjects consulted with their physician for the use of CAM, and only 20% received the encouraging feedback. Therefore, it seems that one reason for not consulting with a physician in this regard is the lack of appropriate attitudes toward CAMs. According to the results of Mirzai et al²⁸, only 5% of general practitioners had a positive attitude toward CAMs. Also, Hooshangi et al²⁹ reported 22.1% of Gonabad medical students with positive attitude. However, in a study by Feshaakinia et al³⁰ the negative attitudes of senior students were significantly higher than that of the freshmen.

In the present study, homeopathy and hydrotherapy were not used by any of the participants due to the lack of sufficient information, knowledge, and inaccessibility, and the CAM techniques were mostly used for vow and prayer which can be related to the religious and cultural conditions of the Iranian society. In other studies, the CAMs techniques were mostly used for vitamin supplements and medicinal herbs^{24,31,32}.

The results of this study showed that among the demographic characteristics, there is a statistically significant difference in gender and living place between users and non-users of CAMs and the women living in the city are more willing to use CAM. A study in Malaysia shows that the women with a moderate education and low-income jobs are more willing to use CAM²². A Thai study also reports that the use of CAM is more common among low-income and breast cancer patients than others³³. The difference in the demographic characteristics of people using CAM techniques can be observed in the cultural differences and different individuals' knowledge on CAM, as well as the extent to which different classes access to these methods. This study had some limitations. Since the participants in the study were the ones who referred to Cancer Care Centers for receiving common cancer treatments, the study did not include those who did not refer to Cancer Care Centers and only were seeking CAMs. Also, due to the non-randomness of the samples, it is not possible to generalize the results. In addition, the data were collected using a self-report questionnaire, thus the validity of the results can be affected. There was also the possibility of recall bias in the results because the samples were asked to report the extent and type of CAM method used during a recent year.

CONCLUSIONS

The results showed that approximately one out of two cancer patients uses CAM for cancer treatment, indicating a high prevalence of these treatments in cancer. Women are more willing to use CAM methods than men. Therefore, healthcare providers must pay more attention to this group during cancer treatment so as to reduce the treatment interferences and increase the quality of care. By training practical methods of CAMs to the medical and paramedical community, it is also possible to use CAMs more practically in the management of patients with cancer and avoid dangerous complications and the interference of CAM therapies with modern medicine³⁴. Further studies are suggested to determine the impact of each complementary medicine in treating, reducing, and controlling the symptoms and complications of chemotherapy and radiotherapy in cancer patients.

CONSENT FOR PUBLICATION:

Not applicable.

AVAILABILITY OF DATA AND MATERIALS:

The raw data would not be provided for the reason of protecting patients' confidentiality. But, the summary data are available in the main document.

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AUTHOR CONTRIBUTIONS:

AS designed the study, wrote the protocol and managed the literature searches, collected data, and wrote the first draft of the manuscript. MD performed the statistical analysis, provided advice for the study design, and helped in writing the manuscript. FG provided advice for the study design and helped in writing the manuscript. All authors read and approved the final draft of the manuscript.

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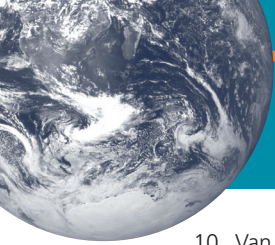
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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interests.

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