Contents lists available at ScienceDirect

Saudi Pharmaceutical Journal

journal homepage: www.sciencedirect.com

Original article

Quality of life and complementary and alternative medicine use among women with breast cancer

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ARTICLE INFO

ABSTRACT

Background: Complementary and Alternative Medication (CAM) is commonly used among women with breast cancer to improve their quality of life (QoL). However, few studies examine the prevalence of CAM and its' relation to the patients' QoL among women with breast cancer.
Methods: A cross-sectional study was conducted among 95 women with breast cancer at a tertiary hospital in Saudi Arabia. The outcome measure of interest was the QoL. The correlation was used to assess the association between CAM use and QoL. Bivariate and multivariate analyses were used to examine the factors that affect the use of CAM. The data was analysed using Statistical Package for the Social Sciences (SPSS) version 24.0.
Results: CAM use was reported by 81.1% of the study participants. The most commonly used CAM therapy was spiritual therapy 70.5%, followed by honey 36.8%, olive oil 24.2% and 23.2% herbal therapy. We found that those who were undergoing cancer treatment had a significantly higher percentage of CAM usage as compared to those not undergoing cancer therapy (72.6% vs. 8.4%, P=0.008). With regards to QoL, there was a statistically significant difference between CAM users and non-CAM users in global health status (73.2% vs. 64.8%, P = 0.049).
Conclusions: CAM therapy was commonly used among women in our study sample which was correlated with higher overall global QoL. As CAM is widely used, health care providers may need to discuss the use of CAM with breast cancer women and be up to date on the benefits and risk of CAM use through well-equipped training programs and workshops.

1. Introduction

Cancer is a highly prevalent chronic condition that is one of the leading causes of morbidity and mortality worldwide (Globocan, 2012; Laronga, 2016). However, mortality rates have declined due to early diagnosis, enhanced surgical and radiotherapy techniques and improved systemic therapies (Laronga, 2016). Aside from these developments, breast cancer is still the second most common cause of death from cancer in women (Yeo et al., 2014). In Saudi Arabia, breast cancer is the most common cancer type among women; accounting for 27.3% of cancer cases among women (Laronga, 2016; Saudi, 2012; Cancer.org, 2016). Cancer diagnosis and treatment has shown to exhibit substantial impact on women's functional, mental and emotional well-being and overall quality of life (Almutairi et al., 2015). Women with breast cancer commonly use complementary and alternative medicine (CAM); an estimated 44.7% of women with breast cancer reported using CAM (Molassiotis et al., 2005a,b). CAM is defined by the National Centre for Complementary and Alternative Medicine (NCCAM) as "a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine" (Ernst, 2015).

There is an increasing demand for complementary therapies by cancer patients during their disease to reduce the side-effects of cancer therapy (Rossi et al., 2017). Women with breast cancer use CAM to boost their immunity (Almousa et al., 2015), prevent disease progression (Hwang et al., 2015), cure cancer (Oyunchimeg et al., 2017), or improve their quality of life (Naja et al., 2015). The Quality of Life (QoL) may be described as the sense of well-being involving physical, mental, social and spiritual characteristics of an individual (Almutairi et al., 2015). There is mixed evidence regarding the association between CAM and QoL. A Lebanese study reported no significant relation between CAM consumption and the patient's QoL (Naja et al., 2015) that was consistent with the findings of a Malaysian study published in the

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same year (Chui et al., 2015). On the other hand, a Korean study found a significant relationship between high CAM consumption and low QoL in breast cancer patients (Hwang et al., 2015).

The most common types of CAM used among women with breast cancer include spiritual therapy, a study using the National Health Interview Survey (NHIS) documented that yoga, chiropractic, and osteopathic manipulation are the most common CAM therapies used by cancer patients (NCCIH, 2015). In Saudi Arabia, a cross-sectional study among 1,408 individuals reported that 62.5% of the participants used the Holy Quran (Al-Rowais et al., 2010). Another was conducted among 518 participants, were prayers accounted for almost 54.0% of CAM, Hijama (wet cupping) 35.7% and cauterization or massage therapy 22% (Elolemy and Albedah, 2012).

There are few studies conducted in Saudi Arabia concerning CAM use among cancer patients (Elolemy and Albedah, 2012; Sait et al., 2014; Aldahash and Marwa 2012). In addition, there are no studies that examined the association between CAM and QoL among women with breast cancer in Saudi Arabia. Therefore, the purpose of this study was to examine the prevalence of CAM use and its' relation to the patients' quality of life among breast cancer women at a tertiary hospital in Saudi Arabia.

2. Methods

2.1. Study Design

A cross-sectional study was conducted among 140 women with breast cancer; 95 of women completed the questionnaire (Response rate 68%); 10 women did not complete the questionnaire, and 35 refused to participate.

2.2. Study Setting

The study was conducted in the females' Oncology ward among patients who attend their therapy from July 1st to December 30th, 2016 at the Oncology Unit at a tertiary hospital in Saud Arabia.

2.3. Participants

Women who participated in this study had the following inclusion criteria: females, eighteen years or older, diagnosed with breast cancer, and willing to take part in the study.

2.4. Procedures

A structured questionnaire was developed to measure CAM use and the factors that affect CAM use based on various studies (Hwang et al., 2015; Naja et al., 2015; Chui et al., 2015; Molassiotis et al. 2005a,b). The questionnaire was composed of three main sections (socio-demographic data, CAM use, and QoL). The questionnaire was approved by the Institutional Review Board (Ref.No. 16/0328/IRB). After receiving the IRB approval, the research assistant approached the eligible participants and began to explain the purpose of the study, reassured them about the flexibility of withdrawing and then obtained consent to start the interview. The interviewer then conducted a one to one interview using a structured questionnaire by reading the questions one by one and recording the participants' response.

2.5. Sample size

Based on previous studies (Almutairi et al., 2015; Gerber et al., 2014; Saibul et al., 2012) we calculated the required sample size to be 76 patients through Jacob Cohens' table (Jacob Cohen, 1992) with an estimated power of 0.8, an alpha error of 0.05 and a medium effect size.

3. Measures

3.1. Dependent variable

The dependent variable was CAM use since breast cancer diagnosis. Since diagnosis is described as the period from cancer diagnosis until the current date (Molassiotis et al., 2005a,b). If patients did not use CAM, they were asked about the possible reasons for not using CAM. Patients who reported CAM use were asked about the reasons for CAM use, the frequency of CAM use, benefits and risks of CAM used, the cost of CAM, and the source of information about CAM. Participants were also asked if they have consulted their health care provider before using CAM, and the reasons for not consulting their healthcare provider.

3.2. Independent Variables

Independent variables include socio-demographic data (e.g. age, gender, marital status, occupation, education, and income level), Clinical data (e.g. ongoing cancer treatments), and Quality of life (QoL). QoL was assessed using a validated (Huijer et al., 2013; Alawadhi and Ohaeri, 2010; Awad et al., 2008) Arabic version of the European Organization for Research and Treatment of Cancer (EORTC) (Aaronson et al., 1993). We used the generic EORTC-QLQ-C30 and cancer specific EORTC QLQ-BR23 QoL questionnaires. The generic QoL scale consists of 30-items that contain both multi and single-item scales that measure the cancer patient's QoL (Aaronson et al., 1993). The breast cancer QoL scale, on the other hand, consists of 23 items that measure the breast cancer patient's QoL using five subscales (treatment side effects, arm symptoms, breast symptoms, body image, and sexual function).

The EORTC questionnaire scale scores range from 0 to 100; greater scores in the functional scale and QoL indicate a superior degree of performance and QoL. However, greater scores on a symptom scale refer to a critical degree of symptoms (Aaronson et al., 1993).

4. Analysis Plan

Descriptive and inferential statistics were used to describe our sample. The correlation was used to assess the association between CAM use and QoL. Adjusted binary logistic regression was used to examine the factors affecting CAM use. Statistical Package for the Social Sciences (SPSS) version 24.0 was used for the analysis.

5. Results

5.1. Description of the study sample

The characteristics of the study participants are summarized in Table 1. All participants were women; almost half of the study sample was between 40-59 years of age. The majority of the patients were Saudi, 70% resided in Riyadh, 76% were married, 84% were unemployed, and 57% reported low income (i.e., income level below 5000 Saudi Riyals). Furthermore, 89% of study participants were undergoing cancer treatment.

5.2. Description of the study sample by CAM use

Current CAM use was reported by 81.1% of study participants (Table 2). Our study found that there is a statistically significant difference between CAM users and non-users in employment. A

significantly higher percentage of CAM users were employed as compared to non-CAM users (80% vs. 20%). We did not find statistically significant differences between CAM users and non-CAM users in age, nationality, residence, educational status and other variables. We found that women who underwent cancer treatment had a significantly higher percentage of CAM use as compared to those who did not undergo cancer therapy (72.6% vs. 8.4%, p=0.008).

5.3. Factors that affect CAM Use

Table 3 displays the reasons for CAM use among study participants. The commonly reported source of information about CAM was family and friends (54.7%) followed by the Media (20%). Around 42% of the participant's self-chosen their CAM and 37.9% chose it according to the recommendations of family or friends. Family and friends were reported to be the common CAM providers (45.3%). CAM usage was reported to be more than once per month (65.3%), and 78.9% of the consumers spent approximately less than 500 SR per month on CAM.

The frequently cited reasons for using CAM was to improve physical & psychological well-being (38.9%), strengthen the immune system (36.8%) and directly eliminate cancer (29.5%). The benefits reported from CAM usage were to improve physical & psychological well-being (58.9%) and increase immunity (22.1%).

The majority of CAM users (72.6%) did not experience side effects, 37.9% stated that they were satisfied with their CAM use and 45.3% reported CAM to be effective. Higher proportions (46.3%) of CAM users did not discuss their use of CAM with their physicians. The main reason for not discussing CAM consumption with their physicians was because they did not think it was important to consult their physician (33.7%), and others feared to receive negative input (4.2%). Table 4 illustrated the most common types of CAM used after cancer diagnosis as follow: Spiritual therapy 70.5%, followed by Honey 36.8%, Olive oil 24.2% and 23.2% used Herbal therapy.

Table 1
Description of the study sample.

	N	%
Age		
25-39	25	26.3
40-59	45	47.4
60 and above	25	26.3
Nationality		
Saudi	77	81.1
None-Saudi	18	18.9
Residence		
Riyadh	67	70.5
Other	28	29.5
Level of education		
Uneducated	19	20.0
<High school level	49	51.6
>High school level	27	28.4
Social status		
Married	72	75.8
Unmarried	23	24.2
Job Status		
Employed	15	15.8
Unemployed	80	84.2
Average monthly income		
< 5000 SR	55	57.9
5000-10000 SR	24	25.3
>10000 SR	16	16.8
Ongoing cancer treatment		
Yes	85	89.5
No	10	10.5

Note: Based on 95 Women, 18 years and above with breast cancer.
N: Number,%: Percentage.

Table 2
Description of the study sample by CAM use.

		CAM Use N	No CAM Use %	N	%	Sig
Total	95	77	81.1	18	18.9	
Age						
25-39	25	20	80.0	5	20.0	0.192
40-59	45	36	80.0	9	20.0	
60 and above	25	21	84.0	4	16.0	
Nationality						
Saudi	77	64	83.1	13	16.9	1.128
None-Saudi	18	13	72.2	5	27.8	
Residence						
Riyadh	67	53	79.1	14	20.9	0.562
Other	28	24	85.7	4	14.3	
Which area						
Middle	30	27	90.0	3	10.0	2.286
Other regions	65	50	76.9	15	23.1	
Level of education						
Uneducated	19	16	84.2	3	15.8	0.323
<high school level	49	40	81.6	9	18.4	
>high school level	27	21	77.8	6	22.2	
Social status						
Married	72	57	79.2	15	20.8	0.689
Single / Divorced / Widowed	23	20	87.0	3	13.0	
Job Status						
Employed	15	12	80.0	3	20.0	0.013**
Unemployed	80	65	81.3	15	18.8	
Average monthly income						
< 5000 SR	55	45	81.8	10	18.2	0.077**
5000-10000 SR	24	19	79.2	5	20.8	
>10000 SR	16	13	81.3	3	18.8	
Ongoing cancer treatment						
Yes	85	69	72.6	16	16.8	0.008**
No	10	8	8.40	2	2.1	

Note: Based on 95 Women, 18 years and above with breast cancer.
N: Number,%: Percentage, Sig: Significance, CAM: Complementary Alternative Medicine.

Table 3
Prevalence and characteristics of CAM use.

	N	%
CAM use since diagnosis		
Yes	77	81.1
No	18	18.9
Source of Information about CAM		
No one	6	6.3
Media	19	20.0
Internet	18	18.9
Family / Friends	52	54.7
Doctor	1	1.1
Other	11	11.6
How CAM was chosen		
Self-choice	40	42.1
Family / Friends	36	37.9
Health Specialist	6	6.3
Social media	11	11.6
Frequency of CAM use		
Once a month	15	15.8
> Once month	62	65.3
CAM provider		
No one	22	23.2
Doctor	3	3.2
Family / Friends	43	45.3
Other	10	10.5
Approximate cost per month		
<500 SR	75	78.9
>500 SR	20	21.1
Reason for CAM use after diagnosis		
Directly eliminate cancer	28	29.5
Increase immunity	35	36.8
Improve physical & psychological well being	37	38.9
Benefit and no harm	24	25.3
Do everything they can to fight cancer	35	36.8
Benefits acquired from CAM usage		
No benefit	13	13.7
Direct decrease in cancer cells	17	17.9
Increased immunity	21	22.1
Improved physical & psychological well being	56	58.9
Decrease in treatment side effects	16	16.8
Other	1	1.1
CAM side effects		
Yes	8	8.4
No	69	72.6
Satisfaction with CAM		
Satisfied	36	37.9
Average	33	34.7
Dissatisfied	8	8.4
Extent of CAM effectiveness		
Effective	43	45.3
Average	28	29.5
Not effective	6	6.3
Consult Doctor about CAM use		
Yes	33	34.7
No	44	46.3
Reason for not consulting the doctor		
Did not think it was important	32	33.7
Fear of receiving negative input	4	4.2
Other	8	8.4

Note: Based on 95 Women, 18 years and above with breast cancer.
N: Number,%: Percentage, CAM: Complementary Alternative Medicine.

Table 4
Type of CAM use after diagnosis.

	N	%
None	1	1.1
Spiritual therapy	67	70.5
Herbal Therapy	22	23.2
Hojama	11	11.6
Black seed	16	16.8
Honey	35	36.8
Olive oil	23	24.2
Other	22	23.2

Note: Based on 95 Women, 18 years and above with breast cancer.
N: Number,%: Percentage, CAM: Complementary Alternative Medicine.

6. Association between CAM Use and Quality of Life

Tables 5 and 6 display the mean value for each subscale of both the EORTC QLQ-C30 and EORTC QLQ-BR23 questionnaires. In the EORTC QLQ-C30, statistical differences were found between CAM users and non-CAM users in the mean global health status (73.16 vs. 64.82, p-value 0.049), physical function (68.05 vs. 63.33, p-value 0.055), role function (78.14 vs. 62.96, p-value 0.002) and social function (83.33 vs. 72.22, p-value 0.047). Furthermore, only constipation (29.01 vs. 14.81, p-value 0.005) from the symptoms scale was significantly different between CAM users and non-CAM users.

For the EORTC QLQ-BR23 subscales, we only observed a significant variation between CAM users and non-CAM users in body image (80.63 vs. 66.67, p-value 0.049), as for the rest of the questionnaire subscales, there were no significant differences found.

7. Sociodemographic and cancer related factors affecting CAM use

Table 7 displays the adjusted analysis of CAM use. The sociodemographic factors have not been found to affect the patient's CAM consumption.

Table 5
Association between CAM Use and Quality of Life EORTC QLQ-C30.

	CAM Users	Non-CAM Users	
EORTC QLQ-C30	Mean ± SD	Mean ± SD	P-value
Global health status QoL	73.16 ± 20.26	64.82 ± 32.79	0.049**
Functional Scale			
Physical	68.05 ± 21.72	63.33 ± 28.02	0.055**
Role	78.14 ± 29.28	62.96 ± 42.23	0.002**
Emotional	70.78 ± 29.54	67.14 ± 32.39	0.733
Cognitive	79.22 ± 24.05	83.33 ± 25.56	0.934
Social	83.33 ± 26.35	72.22 ± 33.82	0.047**
Symptom Scale			
Fatigue	33.62 ± 29.13	41.97 ± 30.39	0.729
Nausea & Vomiting	19.70 ± 30.55	12.04 ± 26.07	0.200
Pain	33.99 ± 31.46	50.92 ± 28.85	0.424
Dyspnea	25.11 ± 30.19	24.07 ± 29.83	0.614
Insomnia	48.06 ± 41.01	40.74 ± 46.52	0.249
Appetite Loss	31.60 ± 34.59	29.63 ± 41.05	0.151
Constipation	29.01 ± 39.13	14.81 ± 28.52	0.005**
Diarrhea	12.99 ± 28.69	18.52 ± 38.30	0.133
Financial difficulties	13.42 ± 29.25	20.37 ± 34.56	0.264

Note: Based on 95 Women, 18 years and above with breast cancer.
EORTC QLQ-C30: The generic European Organization for Research and Treatment of Cancer questionnaire, SD: Standard Deviation, CAM: Complementary Alternative Medicine.

Table 6
Association between CAM Use and Quality of Life EORTC QLQ-BR23.

	CAM Users	Non-CAM Users	
EORTC QLQ-BR23	Mean ± SD	Mean ± SD	P-value
Functional Scale			
Body Image	80.63 ± 23.40	66.67 ± 34.78	0.005**
Sexual Functioning	19.26 ± 25.23	25.93 ± 31.43	0.213
Sexual Enjoyment	21.33 ± 28.81	24.08 ± 33.94	0.211
Future Perspective	64.07 ± 38.53	55.55 ± 41.23	0.541
Symptom Scale			
Systemic therapy Side Effects	25.98 ± 19.67	26.14 ± 27.41	0.119
Breast Symptoms	22.73 ± 21.62	23.15 ± 23.33	1.000
Arm Symptoms	37.36 ± 28.39	36.42 ± 29.97	0.760
Upset by hair loss	34.85 ± 41.89	51.86 ± 44.45	0.790

Note: Based on 95 Women, 18 years and above with breast cancer.
EORTC QLQ-BR23: Cancer specific European Organization for Research and Treatment of Cancer questionnaire, SD: Standard Deviation, CAM: Complementary Alternative Medicine.

Table 7
Sociodemographic and cancer related factors affecting CAM use.

	B	S.E.	Sig.	95% C.I.	
				Lower	Upper
Age	0.01	0.46	0.98	0.41	2.48
Nationality	0.08	0.72	0.91	0.27	4.42
Residence	-0.60	0.69	0.39	0.14	2.16
Level of education	0.05	0.52	0.93	0.38	2.92
Social status	-0.45	0.75	0.55	0.15	2.78
Job Status	-0.07	0.87	0.94	0.17	5.15
Average monthly income	-0.01	0.41	0.98	0.44	2.21
Ongoing cancer therapy	-0.05	0.89	0.90	0.17	5.43

Note: Based on of 95 Women, 18 years and above with breast cancer
CAM: Complementary Alternative Medicine, B: Beta coefficient, S.E: Standard Error,
Sig: Significance, C.I: Confidence Interval.

8. Discussion

In this cross-sectional study, breast cancer women from various backgrounds were examined for their CAM use and its' relation to the patients' QoL. The higher rate of CAM use among women with breast cancer in our study sample (81%) is consistent with other studies conducted in Korea 67% (Hwang et al., 2015), Saudi Arabia 74% (AlBedah et al., 2013), and Ethiopia 79% (Erku, 2016). Other studies have reported a lower rate of CAM use, 40% in a Lebanese study (Naja et al., 2015), 51% in Malaysian study (Saibul et al., 2012) and approximately 57% in a Turkish study (Yildiz et al., 2013).

CAM use in our study population was affected by many factors such as employment, average monthly income, and ongoing anti-cancer therapy. These findings are consistent with published studies in the wider literature (Gerber et al., 2014; AlBedah et al., 2013; Chui et al., 2014; Al-momani and Al-tawalbeh, 2015). The high prevalence of CAM usage found in our study could be justified by the strong religious and cultural beliefs among our population. Also, many women in this study reported using CAM to improve their physical & psychological wellbeing, and immune function were the commonly listed reasons, which was in agreement with other studies conducted by Almousa et al. (Hwang et al., 2015) and Saibul et al. (Saibul et al., 2012). Other studies reported other reasons for using CAM such as perceived benefits of CAM (Erku, 2016), to improve their functional and emotional well-being (Chui et al., 2014).

Furthermore, women in this study may have used CAM to improve their QoL. In fact, this study found that CAM users have a higher QoL as compared to non-users. The study findings displayed significantly enhanced physical, role and social functions among CAM users, yet, they were more likely to suffer from constipation and were found to be more concerned about their body image as compared to non-CAM users. In earlier studies (Yildiz et al., 2013), significant differences were only noted in terms of role and emotional functioning in addition to dyspnea and appetite loss. However, studies conducted in Ethiopia, Turkey, and Malaysia found no difference in QoL between CAM users and non-users (Chui et al., 2015; Erku, 2016; Yildiz et al., 2013).

The commonly reported source of information about CAM was "family and friends", which was consistent with various studies (Almousa et al., 2015; Hwang et al., 2015; Erku, 2016; Al-momani and Al-tawalbeh, 2015). CAM users in our study did not experience side effects of CAM (Almousa et al., 2015; Naja et al., 2015; Erku, 2016; Al-momani and Al-tawalbeh, 2015), and CAM users were satisfied with their CAM use (Almousa et al., 2015; Naja et al., 2015; Yildiz et al., 2013). As mentioned in earlier findings (Hwang et al., 2015; Naja et al., 2015; Erku, 2016; Bahall, 2017), higher proportions of CAM users in our study did not discuss CAM use with their physicians mainly because they "did not think it was important" (Hwang et al., 2015) and others feared to receive negative input (Erku, 2016). Roter et al. have found that the majority of CAM discussion in the oncology setting is initiated by the patients rather than physicians (Roter et al., 2016). In this study, the most common type of CAM used was Spiritual therapy 70.5% (Chui et al., 2014). This high percentage could be explained by the strong religious beliefs of participants who are Muslim. In addition, the other modalities of CAM such as Honey (36.8%), Olive oil (24.2%) and herbal therapy (23.2%) were also used among the study population. Nevertheless, herbal therapy took the lead in previously conducted studies from various locations (Al-Rowais et al., 2010; Elolemy and Albedah, 2012; Yildiz et al., 2013; Al-momani and Al-tawalbeh, 2015; Posadzki et al., 2013; Ben-Arye et al., 2014). In Saudi Arabia (Al-Rowais et al., 2010; Elolemy and Albedah, 2012), Jordan (Al-momani and Al-tawalbeh, 2015), and similarly in the UK (Posadzki et al., 2013), herbal medicine were among the highest percentages of most common type of CAM consumed. Natural products are readily available and often sold as dietary supplements. They include a range of herbs, vitamins, minerals, and probiotics (NCCIH, 2015). Although the benefits of many natural products have been documented, there is still a lot to be learned about their effects on the human body, their safety and potential interactions with medicines and other natural products (Mohiuddin et al., 2010; Ji et al., 2009).

9. Strengths and limitations

This study was the first to investigate the association of CAM utilization with QoL amongst women with breast cancer in Saudi Arabia. However, this study has some limitations. All measures in the study were self-reported and hence subject to recall bias. Also, this study was conducted among women with breast cancer in a tertiary hospital in Saudi Arabia in an oncology clinic; therefore, our findings cannot be generalizable to other settings or other types of cancer.

10. Conclusion

CAM therapy commonly used among women in our study sample was correlated with higher overall global QoL, better physical, role and social functions and had a greater concern about their body images as compared to non-CAM users. Employment status and average monthly income, as well as ongoing anti-cancer therapy, had a significant relationship with CAM use. Since CAM is commonly widely used nowadays, the healthcare team may need to discuss the use of CAM with breast cancer women and be up to date on the benefits and risk of CAM use through well-equipped training programs and workshops. Also, future studies may need to explore the factors behind the patients' CAM utilization.

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper

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