

## RESEARCH ARTICLE

# Perception of Patients with Cancer towards Support Management Services and Use of Complementary Alternative Medicine - a Single Institution Hospital-Based Study in Saudi Arabia

Khalid Hussain Sait<sup>1,4\*</sup>, Nisrin Mohammad Anfinan<sup>1,4</sup>, Basem Eldeek<sup>2,4</sup>, Jawher Al-Ahmadi<sup>3,4</sup>, Maha Al-Attas<sup>4</sup>, Hesham Khalid Sait<sup>4</sup>, Hussain Abdullah Basalamah<sup>4</sup>, Nabeel Al-Ama<sup>4</sup>, Mohamed Ezzat El Sayed<sup>4,5,6</sup>

### Abstract

**Background:** To evaluate the perception of cancer patients toward treatment services and influencing factors and to inquire about the use of complementary alternative medicine (CAM). **Materials and Methods:** Information was obtained through pre-tested structured questionnaires completed by cancer patients during treatment at King Abdulaziz University Hospital, Jeddah, Saudi Arabia. **Results:** Of 242 patients, 137 (64.6%) accepted to enter this study. Most were Saudi (n=93, 68%), female (n= 80, 58%), educated at university (n=71, 52%), married (n=97, 72%) and with breast cancer (n=36, 26%). One-hundred (73%) patients were satisfied with the services provided; 61% were Saudi. Ninety-four (68%) respondents were satisfied with the explanation of their cancer. Twenty-eight (21.6%) patients received CAM, of them 54.0% received herbal followed by rakia (21.0%), nutritional supplements/vitamins (7.0%) and Zamam water (18.0%), with significant differences among them (p =0.004). Seven (5%) patients believed this therapy could be used alone; 34 (25%) patients believed it could be used with other treatments, regardless of whether they themselves used this therapy. Fifty-three (53%) satisfied patients felt they received enough support; 31 (58%) patients received support from family and friends; 22 (41.6%) patients received support from the health-care team. Patients who received information about their disease from their physicians and those who felt they had enough support were more satisfied. The patients who took alternative treatment were older age, mostly female and highly educated but values did not reach significance. **Conclusions:** We stress enhancing the educational and supportive aspects of cancer-patient services to improve their treatment satisfaction and emphasize the need for increasing the educational and awareness programs offered to these patients.

**Keywords:** Perception - cancer - services - support - complementary alternative medicine - Saudi Arabia

*Asian Pac J Cancer Prev*, 15 (6), 2547-2554

### Introduction

Cancer is a major public health problem and an emerging global problem, with significant associated death and disability. It is the second leading cause of death in developed countries and is one of the three leading causes of death for adults in developing countries. Worldwide cancer rates are set to double by 2030, according to the World Health Organization. Over half of newly diagnosed cases and two thirds of cancer deaths are in low and medium-income countries. Currently the most important problems facing low and medium resource countries in this

century are the growth and aging of the population and the westernization of their lifestyle, which is why the role of cancer prevention programs in these countries is essential. However, to develop successful preventive programs, there needs to be an increase in the understanding of cancer and the awareness of early symptoms. Positive attitudes toward screening programs are also necessary (Boyle, Levin, 2008; Mena et al., 2013). In Saudi Arabia the total number of cancer cases among Saudis, in 2006, as reported by the Saudi Cancer Registry (SCR), was 8,054. Cancer was more among women than men, with a female to male ratio of 1: 0.94. Cancer of breast, thyroid,

<sup>1</sup>Gynecological Oncology Unit, <sup>2</sup>Medical Education Department, Community Medicine, <sup>3</sup>Family and Community Medicine Department, <sup>4</sup>Scientific chair of professor Abdullah Hussain Basalamah for Gynecological Cancer, Faculty of Medicine, King Abdulaziz University, <sup>5</sup>Radiation Oncology Section, Oncology Department, King Faisal Specialist Hospital and Research Centre, Jeddah, <sup>6</sup>Radiation Oncology and Nuclear Medicine Department, National Cancer Institute, Cairo University, Cairo, Egypt \*For correspondence: [khalidsait@yahoo.com](mailto:khalidsait@yahoo.com)

colorectal, and Non-Hodgkin's lymphoma, were the most common cancers among women, while colorectal, Non-Hodgkin's lymphoma, leukemia, and liver cancers were common among men (Saudi Cancer Registry, 2010).

Complementary and alternative medicine (CAM) can be defined as 'a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine'. Complementary medicine is typically used together with conventional medicine, whereas alternative medicine is used in place of conventional medicine. The CAM therapies are classified into five categories: whole medical systems, mind-body medicine, biologically-based therapies, manipulative and body-based methods, and energy therapies (NCCAM, 2008). Several recent studies with the general population have documented widespread use of CAM (Wade et al., 2008; Nazik et al., 2012; Pan et al., 2012). Consistent with this general trend, many people dealing with chronic illnesses, including cancer, use CAM during and after treatment (Barnes et al., 2002; American Association of Retired Persons, National Center for Complementary and Alternative Medicine, 2007; Boon et al., 2007). Reasons commonly cited by people with cancer for using CAM include attempting to improve one's physical and emotional health (Humpel et al., 2006; Fox et al 2013; Suzuki et al 2013), the desire to exert a sense of personal control over one's illness, dissatisfaction with the medical care system or health providers (Wanchai et al., 2010), and doubts concerning the effectiveness of conventional treatment (Ritvo et al., 1999). In Saudi Arabia, studies regarding the perceptions of cancer and attitudes toward conventional and CAM therapy were few and focused mostly on the knowledge of and attitudes toward breast cancer (Alam, 2006, Bismark et al., 2014).

This cross section study aimed to evaluate the perception of cancer patients toward treatment services and the factors affecting this perception. Also this study aimed to use one-on-one interviews to gain a greater knowledge and in-depth understanding of the whole process of CAM use in survivors' cancer patients. From the previous literature, identified domains in need of investigation included: CAM use, including types and timing during the cancer journey; motivations for use of CAM; perceived positive and negative effects incurred from CAM.

## Materials and Methods

This cross-sectional study was conducted among patients with cancer attending for follow-up at King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia, during the period from December 2011 to December 2012. All participants gave informed consent. The study was approved by the University's Human Research Ethics Committee at King Abdelaziz University hospital. A questionnaire was designed to measure the knowledge, attitudes, and practices of patients with cancer regarding treatment services. The questionnaire was divided into four variable sections: personal data, knowledge about cancer, satisfaction, and the use of alternative and complementary treatments. Each question

had a unique code for ease of data entry and processing.

The research team met 212 cancer patients attending cancer unit on Saturday and Monday of every week to obtain a simple random sample for data analysis, only 137 patients accepted to participate in this study. To fulfill the inclusion criteria, patients had to be in or outpatients; to be at least 18 years old; to be aware of their cancer diagnosis; to be fit enough to complete the questionnaire according to their physician; and to be free of any cognitive dysfunction. The patients were excluded when they had just been diagnosed or when they were hospitalized in palliative care units.

Patients were assessed individually by independent investigators. Completion of the questionnaire lasted about 1 h. All patients completed the first part of the questionnaire with the help of the investigator. When they were used to the way of completion, they could choose to continue with the investigator or to do it alone. As this could have led to bias, the way patients completed the questionnaire was recorded. Physicians completed the questionnaire concerning each included patient immediately after the consultation in the ambulatory setting and the same day as the patient in the hospitalization setting.

## Statistics analysis

The statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 20, IBM Corporation. Data were expressed in the form of number (percentage) or mean (standard deviation) and minimum and maximum as appropriate. A Chi-square test was used for comparisons of non-parametric values and student "t" test for comparisons of parametric values. Significance was considered when the P value was less than 0.05.

## Results

The Saudi patients were more than non-Saudi (68.0% versus 32.0%,  $p=0.0001$ ); female were more than male (58.0% versus 42.0%,  $p=0.049$ ). Education were mostly university (52.0%), followed by illiterate (17%), primary school (12.0%), secondary school (10.0%) and preparatory school (9.0%) with significant difference between them ( $p=0.0001$ ). Most of participants were married (72.0%) followed by single (27.0%), widowed (7.0%) then divorced (4.0%) with significant difference between them ( $p=0.0001$ ). The type of cancer was mostly breast cancer (26.0%) then gastrointestinal (23.0%), gynecological (18.0%), urological (12.0%), leukemia and lymphoma (10.0%), lung (7.0%), soft tissue (2.0%) and head and neck (2.0%) with significant difference between them ( $p=0.0001$ ) (Table 1).

Regarding attitude of the cancer patients towards treatment, 7.3% of patients did not received the prescribed treatment, mostly due to financial cause (60.0%) followed by believed that treatment led to death (20.0%), did not preferred chemotherapy (10.0%) and believed that treatment were useless (10.0%) with insignificant difference between them ( $p=0.079$ ). Most of patients (40.0%) were satisfied regarding treatment of cancer, 32.0% were very satisfied, 18.0% were dissatisfied and 10.0% were very dissatisfied with significant difference

between them ( $p=0.0001$ ). About 20.6% received alternative treatment, of them 54.0% received herbal followed by rakia (21%), nutritional supplements/vitamins (7.0%) and Zamam water (18.0%) with significant difference between them ( $p=0.004$ ). Most of patients (47.0%) received alternative treatment with cancer treatment, 43% before cancer treatment and 10.0% after cancer treatment with significant difference between them ( $p=0.0001$ ). Most of patients (50.0%) received alternative treatment to improve general condition, 36.0% to increase response to cancer therapy and 14.0% in response to peer pressure with insignificant difference between them ( $p=0.066$ ). Most of patients (61.3%) believed that

alternative medicine should not be used, while 25.0% believed that it should be taken with medical treatment, 8.1% were not sure and 5.1% believed that it should be used alone with significant difference between them ( $p=0.0001$ ) (Table 2).

Using a univariate analysis to detect the predictive factors that may influence the satisfaction and dissatisfaction among the population studied, the Saudi patients were dissatisfied with the service provided to them more than non-Saudis ( $p=0.003$ ). In satisfied patients female were more than male (63.0% versus 37.0%), while in dissatisfied patients male were more than female (54.0% versus 46.0%) with insignificant difference between them ( $p=0.055$ ). The received information regarding cancer were in satisfied patients mostly by doctors (65.0%) followed by nurses (17.0%), report (8.0%), relative (6.0%) then accidental (4.0%); while in dissatisfied patients mostly by doctors (45.0%) followed by nurses (43.0%) then accidental (12.0%) with significant difference between them ( $p=0.010$ ). Regarding satisfaction regarding explanation of cancer diagnosis, in satisfied patients were mostly strongly satisfied (42.0%) followed by satisfied (27.0%), not satisfied (25.0%) then strongly dissatisfied (6.0%); while were in dissatisfied patients were mostly satisfied (54.0%), then not satisfied (24.0%), strongly satisfied (14.0%) then strong dissatisfied (8.0%) with significant difference between them ( $p=0.006$ ). Regarding enough support, in satisfied patients were mostly yes than no (53.0% versus 47.0%); while in dissatisfied patients mostly no than yes (73.0% versus 27.0%) with significant difference between them ( $p=0.005$ ) (Table 3).

The patients who took alternative treatment were older, mostly females and highly educated than those did not take alternative medicine but these values did not reach significant level ( $p=0.750$ ,  $p=0.523$ ,  $0.208$ ). The marital status in patients who received alternative treatment were mostly married (75.0%) then widowed (18.0%)

**Table 1. Demographic Characteristics of the Studied Patients with Cancer (n=137).**

Variables		Number (%)	Significance
Nationality	Saudi	93 (68.0%)	$p=0.0001$
	Non-Saudi	44 (32.0%)	
Gender	Male	57 (42.0%)	$p=0.049$
	Female	80 (58.0%)	
Age	Mean $\pm$ SD	41.00 $\pm$ 17.00	
	Minimum-maximum	(19.00-75.00)	
Education	Illiterate	23 (17.0%)	$p=0.0001$
	Primary	17 (12.0%)	
	Preparatory	12 (9.0%)	
	Secondary	14 (10.0%)	
	University	71 (52.0%)	
Marital status	Married	97 (72.0%)	$p=0.0001$
	Single	37 (27.0%)	
	Widowed	9 (7.0%)	
	Divorced	5 (4.0%)	
Type of cancer	Breast	36 (26.0%)	$p=0.0001$
	Gastrointestinal	32 (23.0%)	
	Gynecological	25 (18.0%)	
	Urological	17 (12.0%)	
	Leukemia & lymphoma	12 (10.0%)	
	Lung	10 (7.0%)	
	Soft tissue	3 (2.0%)	
	Head & neck	2 (2.0%)	

**Table 2. Attitude of the Studied Patients with Cancer Towards Treatment (n=137)**

Questions (number)		Response No (%)	Significance	
Did you receive the prescribed treatment?	No	10 (7.3%)	$p=0.079$	
	If no, what was the cause? (n=10)	Financial		6 (60.0%)
Are you satisfied regarding the treatment of cancer patients? (n=137)	Treatment lead to death	2 (20.0%)	$p=0.0001$	
	I do not prefer chemotherapy	1 (10.0%)		
	Treatment useless	1 (10.0%)		
	Very satisfied	45 (32.0%)		
	Satisfied	55 (40.0%)		
Did you receive complementary alternative methods? (n=137)	Dissatisfied	24 (18.0%)	$p=0.004$	
	Very dissatisfied	13 (10.0%)		
	Yes	28 (20.6%)		
	If yes, what type of treatment did you receive? (n=28)	Herbal		15 (54.0%)
	Religious/spirit practice (Rakia)	6 (21.0%)		
When did you receive the alternative treatment? (n=28)	Zamzam water	5 (18.0%)	$p=0.0001$	
	Nutritional supplements/vitamins	2 (7.0%)		
	Before treatment	12 (43.0%)		
	With treatment	13 (47.0%)		
	After treatment	3 (10.0%)		
Why do you receive alternative treatment? (n=28)	Improve general condition	14 (50.0%)	$p=0.066$	
	Increase response	10 (36.0%)		
	Peer pressure	4 (14.0%)		
	How you believe that alternative methods should be used? (n=137)	Alone		7 (5.1%)
With medical treatment	34 (25.0%)			
Never	84 (61.3%)			
I am not sure	12 (8.5%)			

**Table 3. Predictors of the Satisfaction of Patients with Cancer**

Parameters		Dissatisfied (n=37) Number (%)	Satisfied (n=100) Number (%)	p value
Nationality	Saudi	32 (86.0%)	61 (61.0%)	p=0.003
	Non-Saudi	5 (14.0%)	39 (39.0%)	
Gender	Male	20 (54%)	37 (37.0%)	p=0.055
	Female	17 (46%)	63 (63.0%)	
Age	Mean±SD	41.0±18.0	40.9±17.0	p=0.930
Education	Illiterate	4 (11.0%)	19 (19.0%)	p=0.166
	Primary	3 (8.0%)	14 (14.0%)	
	Preparatory	2 (5.0%)	10 (10.0%)	
	Secondary	7 (19.0%)	7 (7.0%)	
	University	21 (57.0%)	50 (50.0%)	
Marital status	Married	22 (60%)	63 (63%)	p=0.470
	Single	12 (32.0%)	26 (26.0%)	
	Widowed	3 (8.0%)	6 (6.0%)	
	Divorced	-	5 (5.0%)	
Who informed you?	Doctor	17 (45%)	65 (65%)	p=0.010
	Nurse	16 (43.0%)	17 (17.0%)	
	Report	-	8 (8.0%)	
	Relative	-	6 (6.0%)	
	Accidental	5 (12.0%)	4 (4.0%)	
Satisfaction regarding explanation of cancer diagnosis	Strongly dissatisfied	3 (8.0%)	6 (6.0%)	p=0.006
	Not satisfied	9 (24.0%)	25 (25.0%)	
	Satisfied	20 (54.0%)	27 (27.0%)	
	Strongly satisfied	5 (14.0%)	42 (42.0%)	
Did you receive enough support?	Yes	10 (27.0%)	53 (53.0%)	p=0.005
	No	17 (73.0%)	37 (47.0%)	
Who provided you with support?	Friends and family	6 (60.0%)	31 (58.0%)	p=0.152
	Health care team	4 (40.0%)	22 (42.0%)	

**Table 4. Comparison between Patients Who Received and Did not Receive Complementary Alternative Medicine**

Parameters	Received alternative treatment (n=28)	Did not receive alternative treatment (n=109)	p value	
Nationality	Saudi	17 (61.0%)	79 (69.0%)	p=0.250
	Non-Saudi	11 (39.0%)	33 (31.0%)	
Gender	Male	12 (43.0%)	45 (42.0%)	p=0.523
	Female	16 (57.0%)	64 (58.0%)	
Age	Mean±SD	49.76±20.10	36.92±15.35	p=0.750
Marital status	Married	21 (75.0%)	65 (59.6%)	p=0.003
	Single	2 (7.0%)	35 (32.1%)	
	Widowed	5 (18.0%)	4 (3.7%)	
	Divorced	-	5 (4.6%)	
Education	Illiterate	7 (25.0%)	16 (14.7%)	p=0.208
	Primary	6 (21.4%)	11 (10.1%)	
	Preparatory	1 (3.6%)	11 (10.1%)	
	Secondary	3 (10.7%)	11 (10.1%)	
	University	11 (39.3%)	60 (55.0%)	

and single (2.0%); while in patients who did not received alternative medicine were mostly married (59.0%) then single (32.0%), divorced (5.0%) then widowed (4.0%) with significant difference between the (p=0.003) (Table 4).

## Discussion

According to the 2007 Saudi cancer registry (Bazerbashi, 2007), the total number of new adult cancer cases reported was 11,437. Overall, cancer was slightly more prevalent in females than in males (Bazerbashi, 2007). These numbers encouraged us to study the knowledge and attitudes of these patients to improve the role of the health team in dealing with this disease and those patients. During our study, we mainly explored patient satisfaction with their care and the factors influencing satisfaction. In addition, we inquired about the use of CAM among cancer patients. In this study, the Saudi patients were more than non-Saudi; female were more than male university education was more than other types of educations; married status were more than single, widowed and divorced. The patients included in this study had various cancer types, mostly breast cancer then gastrointestinal, gynecological, urological, leukemia & lymphoma, lung, soft tissue and head and neck. The National Cancer Registry Report in 2001 revealed that breast cancer represented 12.9% of all cancers among Saudi population (Amin et al., 2009).

Regarding attitude of the our cancer patients towards treatment, 7.3% of patients did not received the prescribed treatment, mostly due to financial cause followed by believed that treatment led to death, did not preferred chemotherapy and believed that treatment were useless. As could be seen, financial constraint was described as a major obstacle to accessing health care in cancer care in particular. In this study, most of patients (40.0%)

were satisfied regarding treatment of cancer, 32.0% were very satisfied, 18.0% were dissatisfied and 10.0% were very dissatisfied. In our study, education level did not significantly affect satisfaction, contradicting other studies that showed that higher levels of education were associated with better appreciation of the cancer disease (Opoku et al., 2012). A study performed in Jeddah among a group of adults regarding oral cancer knowledge found that greater the awareness of oral cancer was observed most among highly educated individuals (Al-attas, 2005). The patient-physician relationship is a significant factor influencing patient medication adherence and, ultimately, positive outcomes. If patients are satisfied with the relationship, they are more likely to comply with the advice of the health-care provider. Improving patient-physician relationships can effectively promote patient medication adherence. In this study, the Saudi patients were dissatisfied with the service provided to them more than non-Saudis. In satisfied patients female were more than male (63.0% versus 37.0%), while in dissatisfied patients male were more than female (54.0% versus 46.0%) with insignificant difference between them. The received information regarding cancer were in satisfied patients mostly by doctors (65.0%) followed by nurses (17.0%), report (8.0%), relative (6.0%) then accidental (4.0%); while in dissatisfied patients mostly by doctors (45.0%) followed by nurses (43.0%) then accidental (12.0%) with significant difference between them. These numbers draw our attention to the importance of the patient-doctor relationship in increasing patient and public knowledge about cancer and its determinants among Saudi. In Riyadh Region of Saudi Arabia, a study showed that 67.6% of patients had no knowledge of any cancer warning signals, but 80.7% of patients believed some cancers can be cured if detected early. It also found that 65.1% of patients received information about cancer from television or radio (Ravichandran et al., 2010).

Cancer patients often experience distress. However, the majority of newly diagnosed patients gradually adapt to the crisis. When symptoms of distress and anxiety persist over months, patients require psychosocial support; the psychological status of cancer patients plays a major role in adherence and general condition. Fifty three (53%) satisfied patients felt they were receiving enough support, with 58% of the support provided by family and friends, while 42% of the support came from the health-care team. Many studies have shown the need for the cancer patient to receive psychological support (Ernstmann et al., 2009; Goldzweig et al., 2010). In a German study, 18.9% of patients indicated an unmet need for psychosocial support and 9.5% of patients were actually using psychosocial services; that need was higher in female patients (Merckaert et al., 2010).

There is a growing interest in the use of CAM among people diagnosed with cancer. In this study, about 20.6% of cancer patients received CAM therapies. The use of CAM therapies among patients with cancer ranged from 7-64% (1998; Richardson et al., 2000; Greenlee et al., 2009; Muhamad et al 2012; Marriam and Muhamad 2013). The large variability in CAM use between studies (from 7% to 64%) was likely to be due to the various

researchers' and patients' differing definition of CAM (Bismark et al 2014). There have been a limited number of studies that include patients with a wider variety of cancers. A US study of 453 patients attending a cancer centre found 83% had used at least one CAM (Richardson et al., 2000). A Finnish study found 30% of 216 breast cancer and 28% of 190 prostate cancer patients used CAM after diagnosis (Salmenpera, 2002).

Variations among the most commonly used CAMs are quite substantial and attributable to factors such as differences in study populations and inconsistency in the way CAMs are defined (Gansler et al 2008; Wang & Chung 2012; Saibul et al., 2012). In our study, the most commonly used CAM in cancer survivors are herbal (54.0%) then rokia (21.0%), which can be considered prayer/spiritual practices methods, Zamzam water (18.0%), and nutritional supplements/vitamins (7.0%). In 2002, Ni et al. reported that the three most commonly used therapies to be spiritual healing or prayer (13.7%), herbal medicine (9.6%), and chiropractic therapies (7.6%). The distinction between prevalence when spiritual and nonspiritual CAMs are included is important, as opinions and practices differ regarding whether spiritual practices should be considered as CAMs. For this reason, some studies exclude spiritual-based practices (American Association of Retired Persons, National Center for Complementary and Alternative Medicine, 2007; Matthews et al., 2007) whereas others report the results with and without spiritual-based practices (Barnes et al., 2002; Grzywacz et al., 2006). The analysis of the 2002 NHIS data for CAM use by US adults found that the most commonly used therapies were prayer for one's own health (43.0%), prayer by others for one's own health (24.4%), natural products (18.9%), deep breathing exercises (11.6%), participation in prayer group for one's own health (9.6%), meditation (7.6%), and chiropractic care (7.5%) (Barnes et al., 2004). In the Middle East, traditional herbal medicine is the leading CAM modality in the context of cancer care (Yildirim et al., 2006; Afifi et al., 2010; Ulger and Yagli, 2010). The use of herbs for treating cancer is documented in various historical documents that include well-known Arab and Jewish physicians such as Ibn Sina (980-1037 AD) and Maimonides (1135-1204 AD). The contemporary prevalence of CAM use among patients with cancer has been studied in Jordan (Yildirim et al., 2006), and Turkey (Tarhan et al., 2009) and may reach as many as half of the patients. Accumulating evidence from epidemiological studies supports the anticancer properties of garlic and its organosulfur compounds (Nagini, 2008). The potential of phytochemicals present in spices such as turmeric, red chilli, cloves, ginger, fennel, fenugreek, and black cumin in cancer prevention has been established (Aggarwal et al., 2008). There is accumulating evidence that repeated daily brief cold stress by hydrotherapy over many months can increase both numbers and activity of peripheral cytotoxic T lymphocytes and natural killer cells, the major effectors of adaptive and innate tumour immunity (Shevchuk and Radoja, 2007).

In this study, twelve of these patients (43.0%) received these CAMs prior to treatment, which may affect the early treatment of the disease. Thirteen other patients

(47.0%) reported their use of CAM in conjunction with standard treatment, which raises the possibility of drug-herb interaction with possible serious side effects that may interfere with delivery of the standard treatment or possibly reduce its efficacy. And three patients (10.0%) used CAM after treatment of disease. Additionally, of those who used and those who did not use CAM, 7 (5.1%) patients believed that it could be taken alone and 34 (25.0%) patients thought it could be used with other treatments, which points to the importance of patient education and the responsibility of the physician to meticulously explore patients' ideas and behaviors regarding CAM. Salmenpera (2002) examined whether the expected benefits from CAM use were realized among a sample of cancer patients. Forty-three women (90%) and 29 men (62%) reported positive effects on physical coping and general health.

In this study, most of patients (50.0%) received alternative treatment to improve general condition, 36.0% to increase response to cancer therapy and 14.0% in response to peer pressure. In most cases, CAM users are not disappointed or dissatisfied with conventional medicine but want to do everything possible to regain their health and improve their quality of life (Rabow et al., 2004). Patients may use CAM to reduce side effects and toxicity, to protect and stimulate immunity, or to prevent second cancers or recurrences. Other expectations included treating some of the side-effects from conventional treatment and because they perceived there would be less side-effects from CAM products and therapies. The use of CAM to boost the immune system is not without risk, especially if the person is currently undergoing conventional treatment for cancer. For example, combined use of some herbal supplements with an anticancer therapy such as chemotherapy, may change the amount of the drugs absorbed (Sparreboom et al., 2004). An Australian study of 156 cancer patients found the expectations of benefits varied widely depending on the CAM used (Miller et al. 1998). For example, more than 50% of patients using shark cartilage believed that it would cure their cancer, whereas only 7-14% of those using meditation, change of diet or multivitamins believed that a cure would be the outcome. Shen et al. (2002) also found the primary reason for use depended on the CAM modality. For example, among the women with breast cancer using relaxation and meditation techniques, the main reason was to boost the immune system (40% of participants), followed by to treat the cancer (32%). Similarly, in a survey of 411 Canadian breast cancer survivors (Boon et al., 2000), 63% reported boosting the immune system was the main reason for CAM use.

In this study, married patients were significantly higher likely to use CAM. Meanwhile old age, female and higher education patients were more likely to use CAM than those who did not use CAM but levels did not reach significant level, that may be the small number of patients used CAM in this study. Previous studied reported that CAM use for cancer treatment is more prevalent among women than men and is associated with younger age, higher education, higher socioeconomic status, advanced disease, active coping behaviour, and a change in life outlook and beliefs

since the diagnosis of cancer (Edgar et al., 2000; Paltiel et al., 2001; Alferi et al., 2001; Wolsko et al., 2004; AARP, NCCAM, 2007; Gansler et al., 2008; Truant et al., 2013 ; Saghatchian et al., 2014 ). Some potential explanations why female used CAM than male are that women tend to pay more attention to their health (Berrigan et al., 2003); more frequent physician visits (Bertakis et al., 2000). A study of CAM use among persons aged  $\geq 50$  years found that use decreased with age. Persons aged 50 to 54 years (69%) and 55 to 64 years (70%) were more likely to have used a CAM practice than those aged  $\geq 65$  (54%) (AARP, NCCAM, 2007). An analysis of 2002 NHIS data found that age was positively correlated with CAM use if prayer was included (Barnes et al., 2002). If prayer (aside from praying for health for oneself) was excluded, all the CAM categories demonstrated "inverted U-shaped" relationships with age, with highest use levels among the middle-aged, whereas the youngest and oldest groups reported the least use of CAM (Barnes et al., 2002). Meanwhile, others reported negative associations between CM use and age (Barnes et al., 2002; Committee on the Use of Complementary and Alternative Medicine by the American Public IoM, 2005).

In conclusion, we stress the need for a change in cancer patient care to improve satisfaction. In this study, these changes demonstrated improved outcomes in the study-population. This change is centered upon improving the patient-doctor relationship, as that has been shown to greatly affect not only awareness but also behavior. This study provides additional evidence that CAM use among cancer survivors is common and may be determined by disease and demographic factors. In order to encourage open communication of CAM use by their patients, oncologists should be knowledgeable about the most commonly used remedies, or at least be able to direct patients to reliable sources of information. Establishment of support groups at KAUH for patients with cancer is essential for the improvement of health-care team relationships with cancer patients. Regular feedback will be obtained from those patients with the aim of detecting areas that need improvement. Further research should investigate the connection between CM use and particular long-term and late effects of treatment, such as fear of recurrence or fatigue.

## Acknowledgements

We would like to thank our colleagues for helping us to complete the interview and to populate the questionnaires. We express great appreciation to all of the cancer patients for taking the time to complete the questionnaire. May Allah continue their cure from their cancer. Special thanks to the team of the scientific chair of Prof. Abdullah Hussain Basalamah for gynecological cancer at King Abdulaziz University for their support.

## References

- AARP, NCCAM (2007). Complementary and alternative medicine: what people 50 and older are using and discussing with their physicians. Washington, DC: AARP.

- Afifi FU, Wazaify M, Jabr M, Treish E (2010). The use of herbal preparations as complementary and alternative medicine (CAM) in a sample of patients with cancer in Jordan. *Complement Ther Clin Pract*, **16**, 208-12.
- Aggarwal BB, Kunnumakkara AB, Harikumar KB, et al (2008). Potential of spice-derived phytochemicals for cancer prevention. *Planta Med*, **74**, 1560-9.
- Alam AA (2006). Knowledge of breast cancer and its risk and protective factors among women in Riyadh. *Ann Saudi Med*, **26**, 272-7.
- Al-attas SA (2005). Knowledge, attitude and behavior about oral cancer, among a group of adult Jeddah population. *Saudi Dental J*, **17**, 34-42.
- Alferi SM, Antoni MH, Ironson G, Kilbourn KM, Carver CS (2001). Factors predicting the use of complementary therapies in a multi-ethnic sample of early-stage breast cancer patients. *J Am Med Womens Assoc*, **56**, 120-3.
- American Association of Retired Persons (2007). National Center for Complementary and Alternative Medicine. Complementary and Alternative Medicine: What People 50 and Older Are Using and Discussing With Their Physicians. Washington, DC: AARP.
- Amin TT, Al Mulhim AR, Al Meqihwi A (2009). Breast cancer knowledge, risk factors and screening among adult Saudi women in a primary health care setting. *Asian Pac J Cancer Prev*, **10**, 133-8.
- Barnes PM, Powell-Griner E, McFann K, Nahin RL (2004). Complementary and alternative medicine use among adults: United States, 2002. *Adv Data*, **343**, 1-19.
- Bazerbashi S (2007). Cancer incidence for specific site. National Saudi Cancer Registry. Riyadh (KSA): Ministry of Health.
- Bernstein BJ, Grasso T (2001). Prevalence of complementary and alternative medicine use in cancer patients. *Oncology*, **15**, 1267-72.
- Berrigan D, Dodd K, Troiano RP, Krebs-Smith SM, Barbash RB (2003). Patterns of health behavior in US adults. *Prev Med*, **36**, 615-23.
- Bertakis KD, Azari R, Helms LJ, Callahan EJ, Robbins JA (2000). Gender differences in the utilization of health care services. *J Fam Pract*, **49**, 147-52.
- Bismark RS, Chen H, Dy GK, Gage-Bouchard EA, Mahoney MC (2014). Complementary and alternative medicine use among patients with thoracic malignancies: Support Care Cancer.
- Boon H, Stewart S, Kennard M, et al (2000). Use of complimentary/alternative medicine by breast cancer survivors in Ontario: prevalence and perceptions. *J Clin Oncol*, **18**, 2515-21.
- Boon HS, Olatunde F, Zick SM (2007). Trends in complementary/alternative medicine use by breast cancer survivors: comparing survey data from 1998 and 2005. *BMC Womens Health*, **7**, 4.
- Boyle P, Levin B. World cancer report 2008. Lyon: International Agency for Research on Cancer; 2008.
- Committee on the Use of Complementary and Alternative Medicine by the American Public IoM. Complementary and alternative medicine in the United States. Washington, DC: National Academies Press; 2005.
- Edgar L, Remmer J, Rosberger Z, Fournier MA (2000). Resource use in women completing treatment for breast cancer. *Psychooncology*, **9**, 428-38.
- Ernstmann N, Neumann M, Ommen O, et al (2009). Determinants and implications of cancer patients' psychosocial needs. *Support Care Cancer*, **17**, 1417-23.
- Fox P, Butler M, Coughlan B, Murray M, et al (2013). Using a mixed methods research design to investigate complementary alternative medicine (CAM) use among women with breast cancer in Ireland. *Eur J Oncol Nurs*, **17**, 490-7.
- Gansler T, Kaw C, Crammer C, Smith T (2008). A population-based study of prevalence of complementary methods used by cancer survivors: a report from the American Cancer Society's studies of cancer survivors. *Cancer*, **113**, 1048-57.
- Goldzweig G, Meirovitz A, Hubert A, et al (2010). Meeting expectations of patients with cancer: relationship between patient satisfaction, depression, and coping. *J Clin Oncol*, **28**, 1560-5.
- Greenlee H, Kwan ML, Ergas IJ, et al (2009). Complementary and alternative therapy use before and after breast cancer diagnosis: the Pathways Study. *Breast Cancer Res Treat*, **117**, 653-65.
- Grzywacz JG, Suerken CK, Quandt SA, et al (2006). Older adults' use of complementary and alternative medicine for mental health: findings from the 2002 National Health Interview Survey. *J Altern Complement Med*, **12**, 467-73.
- Humpel N, Jones SC (2006). Gaining insight into the what, why and where of complementary and alternative medicine use by cancer patients and survivors. *Eur J Cancer Care*, **15**, 362-8.
- Matthews AK, Sellergren SA, Huo D, List M, Fleming G (2007). Complementary and alternative medicine use among breast cancer survivors. *J Altern Complement Med*, **13**, 555-62.
- Mena MI, Wiafe-Addai B, Sauvaget C, et al (2014). Evaluation of the impact of a breast cancer awareness program in rural Ghana: a cross-sectional survey. *Int J Cancer*, **134**, 913-24.
- Meriam S, Merriam s, Muhamad M (2013). Roles traditional healers play in cancer treatment in Malaysia: implications for health promotion and education. *Asian Pac J Cancer Prev*, **14**, 3593-601.
- Merckaert I, Libert Y, Messin S, et al (2010). Cancer patients' desire for psychological support: prevalence and implications for screening patients' psychological needs. *Psychooncology*, **19**, 141-9.
- Miller M, Boyer M, Butow P, Gattellari M, Dunn S, Childs A (1998). The use of unproven methods of treatment by cancer patients: frequency, expectations and cost. *Supportive Care Cancer*, **6**, 337-47.
- Muhamad M, Merriam S, Suhani N (2012). Why breast cancer patients seek traditional healers. *Int J Breast Cancer*, **2012**, 689168.
- Nagini S (2008). Cancer chemoprevention by garlic and its organosulfur compounds-panacea or promise. *Anticancer Agents Med Chem*, **8**, 313-21.
- Nazik E, Nazik H, Api M, Kale A, Aksu M (2012). Complementary and alternative medicine use by gynecologic oncology patients in Turkey. *Asian Pac J Cancer Prev*, **13**, 21-5.
- NCCAM (National Center for Complementary and Alternative Medicine): <http://nccam.nih.gov/health/whatiscam/> 2008.
- Ni H, Simile C, Hardy AM (2002). Utilization of complementary and alternative medicine by United States adults: results from the 1999 national health interview survey. *Med Care*, **40**, 353-8.
- Opoku SY, Benwell M, Yarney J (2012). Knowledge, attitudes, beliefs, behavior and breast cancer screening practices in Ghana, West Africa. *Pan Afr Med J*, **11**, 28.
- Paltiel O, Avitzour M, Peretz T, et al (2001). Determinants of the use of complementary therapies by patients with cancer. *J Clin Oncol*, **19**, 2439-48.
- Pan SY, Gao SH, Zhou SF, et al (2012). New perspectives on complementary and alternative medicine: an overview and alternative therapy. *Altern Ther Health Med*, **18**, 20-36.
- Rabow MW, Dibble SL, Pantilat SZ, McPhee SJ (2004). The comprehensive care team: a controlled trial of outpatient palliative medicine consultation. *Arch Intern Med*, **164**, 83-91.
- Ravichandran K, Mohamed G, Al-Hamdan NA (2010). Public knowledge on cancer and its determinants among Saudis

- in the Riyadh Region of Saudi Arabia. *Asian Pac J Cancer Prev*, **11**, 1175-80.
- Richardson MA, Sanders T, Palmer JL, Greisinger A, Singletary SE (2000). Complementary/alternative medicine use in a comprehensive cancer center and the implications for oncology. *J Clin Oncol*, **18**, 2505-14.
- Ritvo P, Irvine J, Katz J, et al (1999). The patient's motivation in seeking complementary therapies. *Patient Educ Couns*, **38**, 161-5.
- Saghatchian M, Bihan C, Chenailier C, et al (2014). Exploring frontiers: Use of complementary and alternative medicine among patients with early-stage breast cancer. *Breast*. [Epub ahead of print]
- Saibul N, Shariff ZM, Rahmat A, Sulaiman S, Yaw YH (2012). Use of complementary and alternative medicine among breast cancer survivors. *Asian Pac J Cancer Prev*, **13**, 4081-6
- Salmenpera L (2002). The use of complementary therapies among breast and prostate cancer patients in Finland. *Eur J Cancer Care*, **11**, 44-50.
- Saudi Cancer Registry (2010). Cancer incidence report, Saudi Arabia-2006. Kingdom of Saudi Arabia: Ministry of Health.
- Shen J, Andersen R, Albert P, et al (2002). Use of complementary/alternative therapies by women with advanced-stage breast cancer. *BMC Complement Altern Med*, **2**, 1-7.
- Shevchuk NA, Radoja S (2007). Possible stimulation of anti-tumor immunity using repeated cold stress: a hypothesis. *Infect Agent Cancer*, **2**, 20-9.
- Sparreboom A, Cox M, Acharya M, Figg W (2004). Herbal remedies in the United States: potential interactions with anticancer agents. *J Clin Oncol*, **22**, 2489-503.
- Suzuki N, N Takimoto Y, Suzuki R, et al (2013). Efficacy of oral administration of *Lentinula edodes* mycelia extract for breast cancer patients undergoing postoperative hormone therapy. *Asian Pac J Cancer Prev*, **14**, 3469-72
- Tarhan O, Alacacioglu A, Somali I, et al (2009). Complementary-alternative medicine among cancer patients in the western region of Turkey. *J BUON*, **14**, 265-9
- Truant TL, Porcino AJ, Ross BC, Wong ME, Hilario CT (2013). Complementary and alternative medicine (CAM) use in advanced cancer: a systematic review. *J Support Oncol*, **11**, 105-13.
- Ulger O, Yagli NV (2010). Effects of yoga on the quality of life in cancer patients. *Complement Ther Clin Pract*, **16**, 60-3.
- Wade C, Chao M, Kronenberg F, Cushman L, Kalmuss D (2008). Medical pluralism among American women: results of a national survey. *J Womens Health (Larchmt)*, **17**, 829-40.
- Wanchai A, Armer JM, Stewart BR (2010). Complementary and alternative medicine use among women with breast cancer: a systematic review. *Clin J Oncol Nurs*, **14**, 45-55
- Wang HH1, Chung UL (2012). Use of complementary and alternative medicine among breast cancer survivors in Taiwan. *Asian Pac J Cancer Prev*, **13**, 4789-92.
- Wolsko PM, Eisenberg DM, Davis RB, Phillips RS (2004). Use of mind-body medical therapies. *J Gen Intern Med*, **19**, 43-50.
- Yildirim YK, Fadiloglu C, Uyar M (2006). Complementary therapies in palliative cancer care. *Agri*, **18**, 26-32.