Global Science Research Journals

ISSN: 2449-1802 Vol. 3 (6), pp. 152-159, November, 2015

http://www.globalscienceresearchjournals.org/

Global Journal of Medical, Physical and Health Education

Full Length Research Paper

Usage of complementary and alternative medicine among cancer patients in Jordan

Ishraq N. Al-momani and Deniz M. Al-tawalbeh

Balqa Applied University

Accepted 23 November, 2015

This study enrolled to explore the usage of complementary and alternative medicine among Cancer patients in Jordan. About 200 patients were conducted from the daytime chemotherapy clinic at King Abdullah University Hospital (KAUH) and AL-Basheir hospital. After all patients answered a questionnaire by specialized investigators the answers were consumed and data were analyzed using the SPSS (Statistical Package for Social Science) software. Among the participants 33% were females and 67% were males. The range of our participant's age was 46 – 55 years and the majority reached the secondary school as educational level. About 56.6% of the patients used CAM regardless the type or the stage of cancer they have beside the type of formal therapy which already they are taking. As a conclusion our study revealed that the majority of cancer patients are using CAM without discussing this with their oncologists on the other hand they use Cam without knowing the benefits or side effects that may happen to them. Further studies are needed to study the factors that may enhance the communication between patients and physicians and the most useful CAM that would be recommended for use among cancer patients.

Key words: Cancer patients, complementary and alternative medicine

INTRODUCTION

There is no doubt that cancer is a worldwide continuously growing disease. According to the 15th annual report in 2010 of cancer incidence and epidemiology in Jordan, it was found that the total number of new cancer cases was 6820, out of them (4921) were Jordanians (72.2 %) and 1899 were non Jordanians (27.8%)(16).

The total number of invasive cancers (behavior 3) for Jordanians was 4849 , out of them (2330) were males and (2519) were females with a ratio of 0.92:1 compared to 0.90:1 in 2009, while the number of in situ carcinoma was 72. In 2010, the number of new cases among Jordanians increased by 123 cases compared to 4798 cases in 2009, so it's approved that cancer is the second most common cause of death after cardiovascular disease in Jordan (16).

The number of new cancer cases diagnosed among Jordanians has increased 46% in the past 10 years, from 3362 cases in 2000 to 4921 in 2010.

The approved treatment way of cancer inn Jordan is based on chemical drugs (chemotherapy) conveying the standardized chemotherapy regimen, but the other natural remedies are not used officially nor approved by oncologists. Complementary and alternative medicine (CAM) has been defined as a group of health care system in which applications and medical products are not considered as a part of the conventional medicine (3), and according to World Health Organization (WHO) 80% of cancer patients are using CAM (24).

Although cancer is life threatening disease worldwide with increasing annual reported rates of death, the recommended treatment for this disease has a narrow therapeutic index and various side effects. Available literature indicates that CAM usage in treatment related symptoms may control and alleviate side effects and may play an important role in improving the survival rates among cancer patients (8).

It was found that the most common complain among chemotherapy receiving patients was fatigue, which experienced by 80-96% of patients, so they found that herbal medicine that is used adjuvant to chemotherapy may reduce fatigue (8).

The use of CAM has been increased rapidly over the past 15 years and nowadays it has gained medical, economic and sociological importance especially from cancer patients (1). Despite the significant trend towards the use of CAM by cancer patients, there is no enough information and studies based on the effectiveness of CAM on those patients especially here in Jordan as the bulk of literature comes from USA and Europe (1).

National Center for Complementary and Alternative Medicine (US NCCAM) studied the usage of Complementary health approaches in US among adults and the results showed that the highest CAM method is being used is the natural products with the percentage of (17.7%), the next method was deep breathing (12.7%) and the lowest percentage was for guided imagery and homeopathic methods (2.02%, 1.8%) respectively (4).

Another study which was conducted on women with advanced stage breast cancer, found that the reasons for CAM usage varies as follows; first of all boosting the immune system (40%), secondly cancer treatment (32%) and thirdly to relieve symptoms and stress associated with the side effects of conventional treatment (21%), however these reasons varied according to each specific CAM therapy (2).

The most commonly used CAM therapies seem to be herbal medicine. About 59% of patients who are using herbal medicine reported that they were not under the supervision of their physicians nor herbalists while using herbal medicine (2).

The aim of this study is to explore the usage of Complementary and alternative medicine among Jordanian cancer patients who are receiving conventional therapy beside the CAM usage considering the worldwide definition of CAM, also to get more information on the prevalence and demographic associations of CAM use by cancer patients which can influence health care professionals priorities in informing their patients regarding risks and benefits of CAM use, and help cancer patients to enhance their quality of life.

LITERATURE REVIEW

Complementary and Alternative medicine is commonly used among cancer patients but there is a limited literature on CAM use in our country, and among the two studies that we found, the rate of CAM use among Jordanian patients was 35.5% in the first study conducted in 2010 (9), and there was a positive correlation between CAM use and cancer patients within chemotherapy administration according to the study conducted in 2011 (18).

A systemic review conducted in USA showed that the prevalence of CAM usage was ranged from 9-65%; this study concluded that complementary and alternative therapies are used frequently and increasingly (4).

Another study that was conducted in Turkey among cancer patient found that herbal methods were being used among 51.2% of patients, among these methods herbal mixtures were the most common 40.9%, but the single herbal seeds or nettles use was about 39.8%, about 19.3% were using other herbals such as green tea and oregano, and finally about 27.3% were receiving dietary supplement as honey or grape molasses (3).

As we mentioned above, there are many types of CAM being used by patients and the way of CAM choice varies according to many factors such as the culture, economy and socio-demographic status of the patient which is related to so many factors like gender, high educational background, high income and private health care insurance, and here are some studies that show the different types of CAM being used by patients.

A cross sectional study in Lebanon, about Prevalence and correlates of complementary and alternative medicine use among diabetic patients in Beirut, showed that CAM use since diagnosis with the disease was 38%. After adjustment, Folk foods and herbs were the most commonly used CAM followed by natural health products (15).

A population based study in USA, reported that the most commonly CAM practices which were used by cancer patients were prayers/spiritual practices 61%, then relaxation 44.3%, then faith/spiritual healing 42.4% and lastly nutritional supplements and vitamins 40.1% in contrast with biofeedback and acupuncture/acupressure with the least percentage of 1 and 1.2% respectively (6).

Pursuit and practice of complementary therapies by cancer patients receiving conventional treatment in London who are using postal screening questionnaire followed by semi structural interview showed that 16% had used complementary therapies, the most popular was healing, relaxation, visualization, diets, homeopathy, vitamins, herbalism and the Bristol approach (20).

A questionnaire survey that was conducted on oncology patients and health care professionals conducted in Ireland in 2011 found that biologically-based and orally ingested CAM as natural supplements (probiotics, fish oil, etc), vitamins, green tea and herbals (ginger, garlic, etc) were the most common CAM used among patients and other medical systems as homeopathy and traditional Chinese methods were less commonly used (7).

The most common reasons for cancer patients to use CAM is described as; firstly to boost the immune system 40%, secondly to treat cancer 32%, thirdly to relieve symptoms (2,19) and stress associated with the side effects of conventional treatments 21%, these reasons may vary among each specific CAM therapy being used (2).

It was reported that about 4 out of 10 adults of US cancer survivors are using one of complementary and alternative medicine practices and the higher rate is among patients with last stages. The survival mentioned several reasons for using this kind of medicine as a mean of stress reduction, recurrence reduction, enhancement of wellness, improvement of quality of life (5,19,22) and to remain hope or provide cure (5, 21).

In most studies, patients reported that they were not under the supervision of their physicians nor herbalists while using CAM beside their therapy (2) ; and they did not suffer from psychological disturbances, poorer social support, or less trust in medicine or compliance with radiotherapy but with active coping behavior, and they determined CAM use as supplementary to standard medical method, and one way of avoiding passivity and of coping with feeling hopelessness (21,22).

In summary, it is clear that standard treatments of cancer are widely used and approved from almost all oncologists and there is no sufficient information about CAM therapy and the usefulness of their use among cancer treatment.

On the other hand the use of CAM therapy beside the conventional treatment among cancer patients is very common and almost all of them are using herbal therapy without discussing them with their oncologist or herbalist so there is need to improve the knowledge of both patients and physicians about CAM therapy.

METHODOLOGY

Our study is cross-sectional survey where the participants were recruited between March and May 2015.

The sample was random conventional sample consist of 206 participants from which 6 patients dropped out from the study. All patients were above the age of 18 from both genders; (134) male while the number of females in the study sample reached (66). Both inpatients and outpatients who are receiving medical therapy for cancer treatment enrolled in this study.

Our study was enrolled in two medical centers (King Abdullah University Hospital often abbreviated KAUH and Al-Basheir Hospital) to get patients of metastatic and non metastatic cancer disease.

The study was granted approval from both Clinical Research Ethics Committees of the previous hospitals. Patients were willing to participate after explanation of the nature of the study, followed by verbal and written consent form. All participants were identified from in and out patient clinic.

Cancer patients were patients who have been diagnosed with any type of cancer in the past.

Questionnaire

There were 25 items included in the questionnaire that reflect Jordanian culture, most of them were multiple choice questions; the questionnaire collected data on socio-demographics (age, gender, education, income, marital status and religion); use of CAM and specific details such as types of CAM, expectations and reasons for use. Clinical data was also collected as (stage of cancer, site of primary cancer, treatment received and current treatment).

Patients who are using CAM since the diagnosis (anytime from the moment of cancer diagnosis to the present time) asked to complete the questionnaire, on the other hand patients who did not use CAM in the past or nowadays been asked to choose the possible reason for not using CAM.

The questionnaire obtained by direct interview “face to face” and 15 minutes were allocated for each patient, who are aware of their diagnosis, able to understand the questions and willing to participate in the study.

Data Analysis

Data that obtained from the questionnaire were studied and analyzed by using the SPSS software (version 20). Chi-square was used to compare between users of CAM and who are not using them, also the relationship between CAM usage and socio-demographic data was studied. In addition the relationship between CAM and cancer localization beside the stage of cancer was analyzed.

RESULTS

A total of 206 patients were asked to fill a questionnaire, 6 of them refused to fill the questionnaire and the other 200 questionnaires were valid for analysis.

About 113 patients have been using CAM therapies and the rest did not use it beside conventional therapy. Overall, the age range of our study was (46-55) years, out of the 200 patients ; 134 were males and 66 were females, and the number of patients that used at least one CAM method was 113 (56.5%). The most commonly used Cam was herbal medicine and used by 64 patients of our participants (32%).

Patients CAM use and their sociodemographic data were studied and the results were collected in the Table 1 In general there was no statistically significant difference between the sociodemographic data and the use of CAM. There was a border line significance (p=0.095) between gender and CAM use but we cannot assume that females use CAM more than males.

The relation between monthly income and CAM use was evaluated and it was clear that patients with low income > 500JD tend to use CAM more than other groups (p=0.005).

The Table 1 showed the relation between CAM use and cancer disease among patients, Table 2
According to Table 2 it is clear that patients at the first stage of cancer disease are using CAM methods more frequently than patients at other stages (p=0.02).

Table 1: The relation between sociodemographic characteristics of the patients and their CAM use.

		Yes%	No%	Total%	Chi-square	P-value
Age	Less than 25 year	2(1.8%)	1(1.2%)	3(1.5%)	2.007	0.735
	25-35year	6(5.5%)	9(10.6%)	15(8.05%)		
	36-45year	19(17.4%)	13(15.3%)	32(16.35%)		
	46-55 year	44(40.4%)	35(41.2%)	79(40.8%)		
	More than 55 year	38(34.9%)	27(31.8%)	65(33.35%)		
Gender	Male	30(27.5%)	33(38.8%)	63(33.15%)	2.781	0.095
	female	79(72.5%)	52(61.2%)	131(66.85%)		
Educational level	Primary	40(36.7%)	29(34.1%)	69(35.4%)	0.1773	0.621
	Secondary	44(40.4%)	30(35.3%)	74(37.85%)		
	College/ university	19(17.4%)	18(21.2%)	37(19.3%)		
	Professional degree	6(5.5%)	8(9.4%)	14(7.45%)		
Marital status	Single	9(8.3%)	9(10.6%)	18(9.45%)	3.704	0.157
	Married	92(84.4%)	63(74.1%)	155(79.25%)		
	Divorced	0(0.0%)	0(0.0%)	0(0.0%)		
	Widowed	8(7.3%)	13(15.3%)	21(11.3%)		
Religion	Islam	107(98.2%)	84(98.8%)	191(98.5%)	0.136	0.712
	Christian	2(1.8%)	1(1.2%)	3(1.5%)		
Monthly income	Less than 500 JD	94(86.2%)	61(71.8%)	155(79%)	10.49	0.005*
	JD1000-500	15(13.8%)	18(21.2%)	33(17.5%)		
	More than 1000JD	0(0.0%)	6(7.1%)	6(3.5%)		
Geographical area	North	46(42.2%)	34(40%)	80(41.1%)	1.862	0.394
	Middle	59(54.1%)	44(51.8%)	103(52.95%)		
	South	4(3.7%)	7(8.2%)	11(5.95%)		

*significant at the significance level ($\alpha \leq 0.05$)

It was seen that patients did not use CAM while they were taking chemotherapy and most of them used CAM after carrying out radiotherapy or after a surgery, patients who used CAM with surgery were 99.1%, patients who used CAM with radiotherapy were 90.8% but patients who are using CAM with chemotherapy were only 17.4% with a significance value of (p=0.047, p=0.011 and p=0.031 respectively).

When asking the patients about the reasons for using CAM, 59 patients answered that they wanted to prevent the cancer and 58 patients answered that they wanted to improve their immune system, and most of them used

Table 2: The relation between CAM use and cancer disease information among patients.

		Yes%	No%	Total%	Chi-square	P-value
Stage of cancer	First Stage	49(45%)	57(67.1%)	106(56.05%)	9.889	0.02*
	Second Stage	10(9.2%)	3(3.5%)	13(6.35%)		
	Third Stage	8(7.3%)	4(4.7%)	12(6%)		
	Fourth Stage	42(38.5%)	21(24.7%)	63(31.6%)		
How long you have cancer	Less than one year	58(53.7%)	50(58.8%)	108(56.25%)	0.619	0.734
	One to three years	29(26.9%)	19(22.4%)	48(24.65%)		
	More than three years	21(19.4%)	16(18.8%)	37(19.1%)		
What treatment have you received						
Surgery Treatment	Subject to this treatment	34(31.2%)	41(48.2%)	75(39.7%)	5.849	0.016*
	Not Subject to this treatment	75(68.8%)	44(51.8%)	119(60.3%)		
Radiotherapy	Subject to this treatment	74(67.9%)	61(71.8%)	135(69.85%)	0.339	0.561
	Not Subject to this treatment	35(32.1%)	24(28.2%)	59(30.15%)		
Chemotherapy	Subject to this treatment	33(30.3%)	30(35.3%)	63(32.8%)	0.549	0.459
	Not Subject to this treatment	76(69.7%)	55(64.7%)	131(67.2%)		
Hormone treatment	Subject to this treatment	101(92.7%)	80(94.1%)	181(93.4%)	0.162	0.687
	Not Subject to this treatment	8(7.3%)	5(5.9%)	13(6.6%)		
Are you currently receiving						
Surgery Treatment	Subject to this treatment	108(99.1%)	80(94.1%)	188(96.6%)	3.928	0.047*
	Not Subject to this treatment	1(0.9%)	5(5.9%)	6(3.4%)		
Radiotherapy	Subject to this treatment	99(90.8%)	66(77.6%)	165(84.2%)	6.524	0.011*
	Not Subject to this treatment	10(9.2%)	19(22.4%)	29(15.8%)		
Chemotherapy	Subject to this treatment	19(17.4%)	26(30.6%)	45(24%)	4.641	0.031*
	Not Subject to this treatment	90(82.6%)	59(69.4%)	149(76%)		
Hormone treatment	Subject to this treatment	100(91.7%)	77(90.6%)	177(91.15%)	0.08	0.778
	Not Subject to this treatment	9(8.3%)	8(9.4%)	17(8.85%)		

*significant at the significance level ($\alpha \leq 0.05$)

CAM after recommendations from their family or friends, Table 3 and 4.

According to CAM use almost half of the patients used CAM for less than one year 48%, mostly with a daily use of 24.5%, and those patients who were using CAM did not suffer from any side effects during the usage of CAM, Table 5, 6 and 7.

Although the number of patients who were using CAM was high in our study, patients did not approve the usage of CAM without conventional therapy as seen in Table 8, but on the other hand the majority was welling to recommend CAM use for other cancer patients, Table 9.

Table 3: Frequency and percentage of reasons of CAM use among patients

Answer	Frequency	Percentage
Cancer prevention	59	29.5
Improve immune system	58	29.0
Other	9	4.5

Table 4: The sources of CAM information

Answer	Frequency	Percentage
Family members	30	15.0
Friends	28	14.0
Personal knowledge	24	12.0
Doctor advice	10	5.0
Media	5	2.5
Other cancer patients	16	8.0
Total	113	56.5

Table 5: Frequency and percentage of CAM usage.

Answer	Frequency	Percentage
Less than one year	96	48.0
One -three years	11	5.5
More than three years	6	3.0
Total	113	56.5

Table 6: How frequently did patients use CAM.

Answer	Frequency	Percentage
Daily	49	24.5
Weekly	5	2.5
Occasionally	47	23.5
Only once	12	6.0
Total	113	56.5

Table 7: Frequency and percentage of side effects that may occur during CAM use.

Answer	Frequency	Percentage
Yes	18	9.0
No	83	41.5
Uncertain	12	6.0
Total	113	56.5

Table 8: Patients opinion about replacing conventional therapy with CAM.

Answer	Frequency	Percentage
Yes	35	17.5
No	78	39.0
Total	113	56.5

Table 9: Frequency of patients that may recommend CAM use for others.

Answer	Frequency	Percentage
Yes	80	40.0
No	33	16.5
Total	113	56.5

DISCUSSION

Previous studies revealed that CAM use is increasing worldwide and it is common among patients of cancer in Jordan(9), and according to the cross-sectional survey of patients attending the outpatient departments at King Hussein Cancer Center (KHCC) in Amman, out of 1138 cancer patient 404 (35.5%) reported that they are using CAM (9).

According to National Center for Complementary and Alternative Medicine (NCCAM) in 2012, the statistics of

CAM use among United states adult showed that the use of non-vitamin non-mineral dietary supplements was the highest prevalence 17.7%, then deep breathing 10.9% and the lowest one was guided imagery 1.7% (17).

The prevalence of CAM use in Arab countries was determined depending on more than one study, for example in Kuwait in 2013 a study conducted by Alrashidi, Sarkhou, and Alotibi, on the knowledge and attitude of CAM among general practitioners showed that herbal and acupuncture was the highest CAM used (33.0%), and the lowest practice was for chiropractic (2.3%) (10).

A study conducted in Saudi Arabia, that was conducted in Riyadh region in 2012 by Aldahash *et al,* showed that 73% of the responders reported there use of CAM therapy (11). On the other hand another study conducted in the same year in Riyadh by Ahmad Alolemy, showed the most CAM used in the region were as follow; medical herbs (58%), prayers (54%),honey and bee products (54%), Hijama (35.71%) and Cauterization or massage therapy(22%) (12).

A study conducted by Gerber et al, in 2014 among mid life Arab women live in Qatar, the results of CAM used presented that nutritional remedies and herbal remedies were the most commonly used method followed by physical method (13).

A self reported study in Ajman ,UAE was conducted by Mathew et al , in 2013 represented that homeopathy was the most common CAM used among the participant from the different nationality, it was (85.7%) for the Far East, then Pakistan (38.5%), and India (23%) (14).

In our study, the number of patients using at least one CAM method was 113 and the prevalence was (56.5%), this percentage is close with the rates reported from both Jordan and the previous Arab studies., and in our study it was clear that herbal medicine was most commonly used method 32%, followed by food and vitamin supplements 11.5%, dietary adjustment 6% and spiritual practice 4.5%.

A study on women with Gynecologic cancer in US showed significant impact of annual income that is greater than $30,000 with CAM users (22). Although it was thought that the socio-economic factor may affect CAM use negatively that is patients with high income attended to use and to buy CAM and vice versa, in our study CAM use was high in patients with low income (<500JD) and low in patients with high income >1000JD this may be because in Jordan there is only one specialized center for cancer treatment in Amman so it may be difficult for patients from other regions to reach the center because of the socioeconomic conditions or CAM products may be cheaper than conventional treatment that's why patients may refer to CAM use rather than conventional treatment.

Another problem that may face patients was the communication between the patient and the specialist which may be weak and patients wont tell their doctor about CAM use, in our study 40% of CAM users did not tell their doctor about CAM use while in a US study that was conducted on advanced stage breast cancer women, they found that the relationship between the doctor and his patient was high and there was a discussion between them about ingested CAM products (2).

In another US study on breast cancer, women which were about disclosing complementary and alternative medicine use in the medical encounter the reasons for not discussing CAM use with practitioners was physician disinterest, negative response, unwillingness or inability to contribute useful information (23), but in our study the majority of the patients refused to tell their doctors because they thought it was unnecessary to tell the doctor.

In some studies there was a correlation between type of cancer and interest in CAM use specially for patients with brain, breast, and lung carcinoma than other diagnostic group(21), and despite their CAM use such patients had high trust in standard medicine as CAM non users (21). But in our study there was no correlation between type of cancer and CAM use p value was more than 0.005.

In this study we found a correlation between stage of cancer and use of CAM, about 106 patients of the study population were at stage 1 and were active users of CAM

Patients can get information about CAM use by different ways, a study on advanced-stage American breast cancer women showed that patients can get information from Friends or family members and mass media (2), another study in Japan revealed the same result about 77% from family members or friend and 23% personal choices (24), this result was contrary to our study where patients mostly get information from family members or friends (15%, 14%) and rarely from mass media (2.5%).

In this study the reasons for using CAM among cancer patients was to improve immune system and to prevent cancer with close percentages (29 % and 29.5%), and this result is similar to other studies findings.

In conclusion CAM is widely used among cancer patients despite the type or stage of cancer and almost all patients are using CAM beside the conventional treatment with or without the knowledge of their physician.

RECOMMENDATIONS

Health care professionals must be educated about CAM use and their benefit among Cancer disease, therefore they should be updated about the most popular, safe and effective remedies and know where to find reliable information for themselves and for their patients, so we suggest for special training programme to be developed by several work groups

for enhancing oncologists communication skills to raise their awareness for potential benefits and risks associated with these therapies.

There should be a true prevalence for the use of CAM in Jordan so that further studies and specialist can depend on to address in practice and research.

Patients should have the right for making their own decision on using CAM beside the conventional therapy.

Further studies on herbal medicine should be done to give accurate information about their use among cancer patients and how they may improve the disease or the possible side effects that may result from the chemotherapy.

REFERENCES

1. A. Molassiotis *et al.* Use of Complementary and Alternative Medicine in Cancer patients: a European Survey. Annals of oncology 16:655-663, 2005.
2. Joannie shen *et al.* Use of Complementary /Alternative Therapies by Women with Advanced-stage Breast Cancer. BMC complementary and alternative medicine 2:8, 2008.
3. Mehmet kucukoner, Zulfikar bilge. Complementary and Alternative Medicine Usage in Cancer Patients in Southeast of Turkey. 10 (1): 21-25, 2013.
4. Ernst. Prevalence of Use of Complementary/Alternative Medicine: a Systemic Review. 78 (2), 2007.
5. Rose M. Bell. A Review of Complementary and Alternative Medicine Practices Among Cancer Survivors. Clinical journal of oncology nursing 365-370, 2009.
6. Ted Gansler, Chiewkwei. A Population-Based Study of Prevalence of Complementary methods Use by Cancer Survivor. A report from the American cancer society's studies of cancer survivors, 113: (5), 2008.
7. Chang *et al*. Complementary and Alternative Medicine Use in Oncology: a Questionnaire Survey of patients and health care professionals. BMC cancer 11: 196, 2011.
8. Lio G, Apaya M, L Shyur. Herbal Medicine and Acupuncture for Breast Cancer Palliative Care and Adjuvant Therapy. Evidence based complementary and alternative medicine, 2013.
9. Fatma U.Afifi, Myyada Wazaify, Mohammad Jaber, Emad Treish. The use of herbal preparations as complementary and alternative medicine (CAM) in a sample of Patients with cancer in Jordan. Complementary Therapies in Clinical Practice.16 (4): 2010,208-212
10. Alrashidi,F.E, SarKhou, N.N and Alotaibi,M.S. Knowledge and Attitudes of Complementary and Alternative Medicine among General Practitioners in Farwaniya Health Region, Kuwait. Greener Journal of Medical Sciences. ISSN: 2276-7797 . 3 (3), pp. 079-084, April 2013.
11. Faisal D. Aldahash, *et al.* Atitude Toward the Use of Complementary and Alternative Medicine by Patients in Saudi Arabia. Biomedica Vol. 28 (Jan. – Jun. 2012)
12. Elolemy AT, AlBedah AMN. Public Knowledge, Attitude and Practice of Complementary and Alternative Medicine in Riyadh Region, Saudi Arabia. Oman Med J 2012 Jan; 27(1):20-26.
13. L.M. Gerber, *et al* . Use of complementary and alternative medicine among midlife Arab women living in Qatar. EMHJ. Vol. 20 No. 9. 2014
14. E Mathew et al, Self-Reported Use of Complementary and Alternative Medicine among the Health Care Consumers at a Tertiary Care Center in Ajman, United Arab Emirates. Ann Med Health Sci Res. 2013 Apr-Jun; 3(2): 215–219.
15. Farah Naja *et al*. Prevalence and correlates of complementary and alternative medicine use among diabetic patients in Beirut, Lebanon: a cross-sectional study. BMC Complementary and Alternative Medicine. 2014, 14:185
16. Dr. Mohammad Tarawneh Dr. Omar Nimri ,Dr. Kamal Arkoob, Dr . Marwan AL Zaghal. Ministry of Health, Non-Communicable Diseases Directorate. Jordan Cancer Registry, Cancer Incidence in Jordan – 2010
17. Patricia M. Barnes, Barbara Bloom and Richard L. Nahin. Complementary and Alternative Medicine Use Among Adults and Children: United States, National Health Statistics Reports, Number 12 , 1-24, 2007.
18. Laith M. Akhu-Zaheya and Esraa M. Alkhasawneh, Complementary alternative medicine use among a sample of Muslim Jordanian oncology patients. Elsevier, Volume 18, Issue 2, May 2012, Pages 121–126.
19. Barrie R. Cassileth, Gary Deng. Cmplementary and Alternative Therapies for Cancer
The oncologist 2004;9: 80-89
20. S M Downer et al, Pusuit and Practice of Complementary Therapies by Cancer Patient receiving conventional treatment. BMJ 1994; 309:86
21. WolfgangSollner et al. use of Complementary and Alternative Medicine by Cancer Patients Is Not Associatd with perceived Distress or Poor Compliance with Standard Treatment but with active Coping Behavior.American Cancer Society. 2000; 89:4
22. Elizabeth M. Swisher et al. Use of Complementary and Alternative Medicine among Women with Gynecologic Cancers. 2014
23. Adler SR, Fosket JR. Disclosing complementary and alternative medicine use in the medical encounter: a qualitative study in women with breast cancer. The Journal of Family Practice. 1999, 48(6): 453-458
24. ichinosuke Hyodo et al. Nationwide Survey on complementary and alternative medicine in Cancer Patient in Japan. J Clin Oncol23:2645-2654. 2005.
25. Haile T. Debas, Ramanan Laxminarayan, and Stephen E. Straus . Disease Control Priorities in Developing Countries; Chapter 69; Complementary and Alternative Medicine, page 1281of 1292.2006.