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Complementary and alternative medicine use in patients with mental disorders in Turkey

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A B S T R A C T

Purpose: The aim of this study was to determine the prevalence of complementary and alternative medicine (CAM) use and the associated socio-demographic factors among patients with mental disorders in the Turkish community.
Methods: One thousand and twenty-seven patients with a diagnosis of mental disorders who were attending psychiatric outpatient clinics in five Turkish cities were interviewed. A survey questionnaire, which included questions on socio-demographic characteristics and CAM use, was administered face-to-face by psychiatrists.
Results: 22.2% of patients with mental disorders were using some form of CAM in the Turkish community. CAM and medication concurrent users had a higher level of education and income compared to CAM users only or medicine users only ($p < 0.001$). The most common type of CAM used was herbal therapy ($n = 146$, 64%).
Conclusion: Use of CAM by patients with mental disorders should be investigated and taken into account by psychiatrists.

1. Introduction

Mental disorders are defined by abnormalities in cognition, emotion or mood [1]. Mental disorders are emerging as a significant problem facing health systems around the world, accounting for a larger proportion of disability in the developed countries than any other illness group, including cancer and heart disease [2]. The World Health Organization [3] reported that mental or behavioral disorders could affect one in every four people at some stage in their life in both developed and developing countries. Numerous treatment options for mental illnesses are available, such as medication, electroconvulsive therapy, and psychotherapy [4–6]. Although people with mental illness can recover [7], most mental disorders can become chronic and relapsing [8]. Relapses are more likely related to non-compliance with prescribed medication [9]. Rates of non-compliance with outpatient appointments in psychiatric patients have been found to range between 10% and 55% [10]. Medication side effects are a major source of patient noncompliance [11]. Side effects common to psychotropic drugs include gastrointestinal disturbances, weight gain, sexual dysfunction and sedation [12]. People with disorders such as schizophrenia or bipolar disorder, and people who have long-term or severe depression or anxiety may need to take medication continuously throughout their lifetime [13]. On the other hand, complementary and alternative medicine (CAM) methods are perceived as more natural and safer in general population [14]. Taking into account the above, CAM may appeal to many people with mental disorders as an alternative treatment option. CAM is defined as a diagnosis, treatment and/or prevention that complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodox medicine or by diversifying the conceptual frameworks of medicine [15]. CAMs are commonly used in most countries at an increasing rate in the last decade [16,17]. Eisenberg reported that in the U.S., the rate of CAM use had increased from

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33.8% to 42.1% between 1993 and 1997 [18]. Kessler et al. showed that 67.6% of the U.S. population had used at least one CAM therapy [19]. In Turkey, the percentage of CAM use varies between 58% and 70% [20,21]. Factors that may be associated with CAM use include age, gender, ethnicity, income level, education level, geographical location, culture and psychosocial characteristics, such as personality and coping strategies [22,23]. CAM therapies have been used in the treatment of many physical and mental illnesses, including diabetes mellitus [24], cancer [25], cardiovascular disease [26], multiple sclerosis [27], and depressive disorder [28]. Although many local, regional, and international studies have focused on CAM therapies in patients with mental disorders, there is very little information on this in Turkey. As far as we know, our study is the first report on the prevalence of CAM use in patients with mental disorders in a Turkish community. This study was designed to provide current and reliable data on the prevalence of CAM use and associated socio-demographic characteristics in patients with mental disorders in the Turkish community.

2. Method

2.1. Study design and subjects

This cross-sectional survey of patients with mental disorders was carried out in the cities of Rize, Erzurum, Gaziantep, Afyonkarahisar, and Ankara in Turkey, which have culturally diverse populations. Patients with mental disorders were consecutively recruited from psychiatric outpatient clinics. The presence of a mental disorder was assessed by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). One thousand and twenty-seven patients were eligible to participate in the study. Patients were included in the study if they had at least one of the following diagnoses: Mood disorders, anxiety disorders, somatoform disorders, psychotic disorders, or sleep disorders. Exclusion criteria were: age <18 years or >65, severe internal disease (cancer, ischemic heart disease, autoimmune disease), substance addiction, or severe cognitive impairment limiting the ability to participate in the study.

2.2. Instruments

The questionnaire used in this study was developed by the researchers after a review of the related literature [29–31]. The questionnaire was designed in accordance with the aim of the study. The preliminary form was piloted on twenty patients to determine whether it was appropriate. Subsequently, the final form was established. The survey questionnaire was administered face-to-face by psychiatrists. The interviewer initially explained the aim of the study to selected patients with mental disorders and participants gave informed consent before the interview, and then the participants responded to the questionnaire. The questionnaire consisted of two sections: The first part included socio-demographic characteristics (age, sex, education, employment, income, place of residence, alcohol use and smoking), the second section included questions about CAM usage. Patients who confirmed CAM use for their mental disorder treatment were asked the following questions: i) Which type of CAM methods do you use currently? (aiming to exclude recall bias) ii) Do you use CAM alone or combined with medications? iii) Could you rate your perceived effectiveness of this CAM type on a 4 point-scale (1 = not effective, 2 = minimally effective, 3 = effective, 4 = very effective). We categorized treatment methods into three groups; taking psychotropic agents only, taking CAM only and taking psychotropic agents and CAM together.

Definition of Types of CAM

1) Biologically based practices: This type includes botanicals, animal-derived extracts, vitamins, minerals, fatty acids, proteins and probiotics.
2) Energy medicine based practices: This includes use of mechanical vibration (such as sound) or electromagnetic forces (visible light, magnetism, laser light monochromatic radiation) and putative energy fields.
3) Manipulative and body-based practices: This focuses primarily on the structures and systems of the body, including the bones and joints, the soft tissues, and the circulatory and lymphatic systems. Practitioners physically manipulate the patient's body without using tools or machines. This includes chiropractic and osteopathic manipulation, massage therapy, reflexology, and the Brown technique.
4) Mind-body medical practices: This "typically focuses on intervention strategies that are thought to promote health, such as relaxation, hypnosis, visual imagery, meditation, yoga, tai chi, qi gong, cognitive-behavioral therapies, group support, autogenic training and spirituality".
5) Whole medical systems practice: These may reflect individual cultural systems, such as traditional Chinese medicine and Ayurvedic medicine.

These definitions were derived from the National Center for Complementary and Alternative Medicine [32].

2.3. Statistical analyses

Statistical analysis was performed using SPSS 16.0 for Windows (SPSS, Chicago, IL, USA). Data were summarized using descriptive statistics. Comparisons between groups were made with the chi-square test for categorical variables and with one-way analysis of variance. $P < 0.05$ was accepted as significant.

3. Results

A total of 1027 patients with mental disorders participated in the study. The number of patients taking medication only was 799 (77.7%); CAM only was 81 (7.9%), while 147 (14.3%) patients were taking both a CAM and medications. Socioeconomic and demographic characteristics of the participants, according to their use of CAM or psychotropic agents, are presented in Table 1. The mean age of the participants was 36.4 ± 12 years (range 18–64 years). There were no significant differences in the socio-demographic parameters between those who used CAM only, those who took medications only and those taking a CAM and medication combination, except for education level and income, which differed significantly between the three groups ($p < 0.001$). The education level and income were higher in the medication and CAM concurrent users compared with medication users only and CAM users only. 228 (22.2%) patients were identified as having received CAM therapy. The most common type of CAM used was herbal therapy ($n = 146$, 64%). Forty-seven (20.7%) patients received mind-body medicine. Fourteen (6.2%) patients received a manipulative body-based practice. Thirteen (5.7%) patients received unprescribed multivitamins, five patients received acupuncture treatment and lastly 3 (1.3%) patients received energy therapy. The mean scores of perceived effectiveness of CAM methods used are given in Table 2. The levels were evaluated on a scale ranging from 1 to 4. The average perceived effectiveness of CAM use was 2.1 ± 0.9. The clinical characteristics of the patients are shown in Table 3. Most patients were diagnosed as: anxiety disorders (38%), depressive disorders (31.7%) and somatoform disorders (12.2%). Among 325 patients with depressive disorders, 61 (18.7%) were using CAM. Of 69 with bipolar affective disorder, 26 (37.6%) were using CAM. Of

Table 1
Demographic characteristics of the participants.

	Medications only ($n = 799$)		CAM only ($n = 81$)		Medications and CAM concurrent ($n = 147$)		p
	n	%	n	%	n	%	
Age (mean ± SD)	36.3 ± 12.9		38.6 ± 13.3		35.6 ± 12.1		$P = 0.222$
Gender							
Male	270	33.8	22	27.2	49	33.3	$P = 0.678$
Female	529	66.2	59	72.8	98	66.7	
Education level							
Illiterate/primary school	124	15.5	12	14.8	17	11.6	$p < 0.001$
Secondary school	399	49.9	33	40.7	49	33.3	
High school	176	22.0	23	28.4	42	28.6	
More than high school	100	12.5	13	16	39	26.5	
Marital status							
Single	258	32.3	25	30.9	50	34	$P = 0.752$
Married	541	67.7	56	69.1	97	66	
Place of residence							
Rural	326	40.8	41	50.6	57	38.8	$P = 0.987$
Urban	473	59.2	40	49.4	90	61.2	
Employment							
Employed	461	57.7	55	67.9	85	57.8	$P = 0.639$
Unemployed	338	42.3	26	32.1	62	42.2	
Income/monthly (YTL)[a]							
≥1500 YTL	40	5.1	9	11.3	21	14.3	$p < 0.001$
1500–750 YTL	203	25.4	23	28.3	54	36.7	
<750 YTL	556	69.5	49	60.4	72	49.0	
Smoking							
Yes	249	31.2	32	39.5	37	25.2	$P = 0.079$
No	550	68.8	49	60.5	110	74.8	
Alcohol use							
Yes	36	4.6	5	6.2	2	1.4	$P = 0.140$
No	763	95.4	76	93.8	145	98.6	

[a] 1 YTL: 1.8$.

390 with anxiety disorders, 73 (18.7%) patients reported that they used CAM. Of 51 with psychotic disorder, 19 (37.2%) were using CAM. Of 67 with sleep disorders, 29 (43.2%) were using CAM and of 125 with patients with somatoform disorders, 20 (16%) were using CAM (Fig. 1).

4. Discussion

This is the first cross-sectional study of the prevalence of CAM use in patients with mental disorders admitted to five regional psychiatric outpatient clinics in Turkey. The results of this study indicate that 22.2% of patients with mental disorders were using some form of CAM. The prevalence of CAM use in patients with mental disorders has been found to be 35.2% in Taiwan [33], 34% in United States [34], 51.9% in Australia [35], 68% in Canada [36]. In our study, this low rate could be attributed to cultural beliefs, differences in the rates of diagnosis, disease stage and demographic and socio-economic variations. Druss and Rosenheck [37] reported that psychiatric diagnosis was the salient factor determining whether patients with mental disorders used CAM therapy. Davidson et al. [38] studied the use of complementary and alternative medicine in the United States and the United Kingdom and found that among CAM users, anxiety and depressive disorders were seen more frequently. Unutzer et al. [39] reported that 21.3% of CAM users met the diagnostic criteria for at least 1 mental disorder and many of patients had a diagnosis of depression and panic disorders. Elkins et al. [40] assessed CAM use by psychiatric inpatients and found that 63% of patients used at least one CAM modality within the previous 12 months and that depressive disorders were the most frequently associated with CAM use in psychiatric inpatients.

Table 2
Types and perceived effectiveness of CAM methods used by patients with mental disorders.

	CAM users n (%)	Effectiveness level[a]
Biologically based practised		
Herbal product	146 (64%)	2.1 ± 0.9
Unprescribed vitamins/minerals	13 (5.7%)	2.61 ± 0.8
Energy medicine		
Magnet therapy	3 (1.3%)	1 ± 0.0
Manipulative and body-based practices		
Massage	10 (4.4%)	1.9 ± 0.8
Reflexology	4 (1.8%)	2 ± 0.8
Mind-body medicine		
Relaxation techniques	2 (0.9%)	2.5 ± 2.1
Psychotherapy	5 (2.2%)	2.8 ± 1.3
Hypnosis	2 (0.9%)	2.5 ± 0.7
Spiritual healing by others	38 (16.7%)	2.05 ± 0.9
Whole medical systems		
Acupuncture	5 (2.2%)	1.6 ± 1.3

[a] Effectiveness level 1) not effective 2) minimally effective 3) effective 4) very effective.

Table 3
Clinical characteristics of patients.

	CAM user ($n = 228$)		Non-users ($n = 799$)		Total sample ($n = 1027$)		
	n	%	*n*	%	*n*	%	
Mood disorders							$X^2 = 42.15$
Depressive disorders	61	26.8	264	33.1	325	31.7	df = 9.00
Bipolar disorders	26	11.4	43	5.4	69	6.7	$P < 0.0001$
Anxiety disorders							
Panic disorder	23	10.1	93	11.6	116	11.3	
GAD	31	13.6	129	16.1	160	15.6	
OCD	15	6.6	69	8.6	84	8.2	
PTSD	4	1.8	26	3.2	30	2.9	
Psychotic disorders							
Schizophrenia	14	6.1	21	2.6	35	3.4	
Other psychotic disorders	5	2.2	11	1.4	16	1.6	
Sleep disorders	29	12.7	38	4.8	67	6.5	
Somatoform disorders	20	8.8	105	13.1	125	12.2	

OCD: Obsessive Compulsive Disorder, GAD: Genaralized Anxiety Disorder, PTSD: Post Traumatic Stress Disorder.

However, we found a higher rate of CAM use in patients with bipolar affective disorders and psychotic disorders (37.6% and 37.2% respectively) than in patients with anxiety disorders and depression (18.7% in both). The high rate of CAM use in patients with schizophrenia and bipolar affective disorders may be due to the nature of the chronic disease, its labile course, incomplete response to treatment and prolonged disability. Similar to our data, in a study carried out in Argentina and Colombia [41], it was found that 34.2% of out-patients with bipolar affective disorder used CAM methods.

CAM use was found to be associated with some sociodemographic factors such as gender, age, ethnicity and educational status [42–45]. The finding of this study showed that the rate of CAM use was higher in psychiatric patients with a higher income level and higher education. These notable findings are similar to previous studies that suggested that CAM use is more common among the well-educated and wealthy [43,46]. However, contrary to our observations, some studies in Turkey have found low education or low socioeconomic level to be associated with CAM usage [24,47]. Future studies are needed to clarify the discrepant results.

In this study, herbal therapy was more frequently reported among CAM users. These results were in line with previous studies. For example, Knaudt et al. [48] found that psychiatric outpatients were primarily taking herbal medicine for psychiatric symptoms. Contradictory results have also been reported; in the study of Russinova et al. [49], the most frequent CAM therapy used was religious/spiritual activities in patients with serious mental disorders. Honda and Jacobson [22] also found that spiritual practice was the most commonly used CAM by those with mental disorders. According to the results of this study, a high rate of herbal medicine use may be due to several reasons. First, the herbal and plant variety in Turkey is very rich. In addition, herbal products are sold in herbal shops and bazaars and there are no rules or regulations for purchase [31]. Therefore, it is easy to obtain them. Second, there are long-running traditions of herbal medicine in this country [24]. It has been reported that herbal products are the most commonly used CAM methods in Turkey for other chronic illnesses, such as diabetes mellitus, cancer, and epilepsy [24,25,29,50].

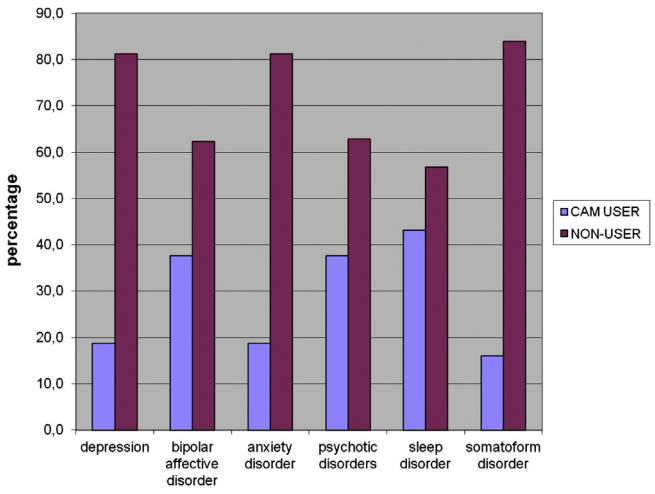

Fig. 1. Percentage of CAM user and non-users in patients with mental disorders.

Spiritual healing was the second most commonly used among CAM modalities (16.6%). Spiritual practice may differ with regards to religion and cultural background. In Turkey, people believe that mental disease may occur as a result of sorcery or harassment by the jinn, which are regarded as evil spirits. The sick people visit hodjas (preachers) to get rid of the spirits. The Hodjas prepare amulets that contain verses from the Quran, folded into small parcels, which should be carried around the neck for protection [51]. In this study, we did not regard prayer as therapeutic because most of patients pray at least five times a day as routine religious practice. Use of spiritual healing by others is generally higher among patients with psychotic disorders. Twelve of 19 psychotic patients who used CAM had tried spiritual therapy. This situation may be explained by the observation that patients with psychotic disorders tend to give extraordinary and imaginative interpretations to their illness. This belief may be associated with psychotic thought processes.

We found that other types of CAM were rarely used by patients with mental disorders: acupuncture (2.2%), hypnosis (0.9%), massage (4.4%), and magnet therapy (1.3%). These results indicate that this type of CAM is not yet well-known in our country. Similar results were also found in other studies from Turkey [24,52]. However, it has been reported that yoga, acupuncture and relaxation techniques are used very frequently by patients with mental disorders in some Asian countries such as Singapore and Taiwan [53,54].

Among users of specific CAM methods, herbal therapy, vitamins/minerals, relaxation techniques, psychotherapy and hypnosis were perceived as effective. The mean of perceived effectiveness levels in these CAM users was higher than the average perceived effectiveness of all CAM users. Previous studies [55,56] also found that among persons with mental disorders, some type of CAM was perceived as effective; however, there was no evidence of greater effectiveness of any particular type of CAM over another.

The present study was a pilot study and therefore there were some limitations as follows: First, data was derived from self-reports and this may have affected the accuracy of factual information. Second, the duration or the frequency of CAM method use was not taken into account, since the patients were only asked to indicate their CAM methods during the mental examination. We thought that retrospective investigation of CAM use may have led to recall bias. However, it is difficult to compare our results with other studies examining CAM use in the previous 6 or 12 months. Third, the questionnaire used in this study was not validated. We recognize that development of a valid and reliable questionnaire would maximize accurate self-reporting of CAM use. Despite these limitations, the present study included a large sample size and covered patients from different regions of Turkey. Thus, the results of this study might represent CAM use in patients with mental disorders on a national scale until replication studies are performed.

5. Conclusion

Our findings showed that almost one fifth of patients with mental disorders use CAM therapy in Turkey. The most preferred type of CAM was herbal therapy. Patients frequently used CAM methods together with medical treatment. CAM was more common in patients with a higher level of education and higher income and was perceived by some as effective.

Psychiatrists should inquire into the possible self-use of CAM therapy in their patients and provide information in relation to possible benefits and risks.

Conflict of interest

None declared.

References

[1] Hyman S, Chisholm D, Kessler R, Patel V, Whiteford H. Mental disorders. In: Jamison DT, Breman JG, Measham AR, et al., editors. Disease control priorities in developing countries. 2nd edn. Washington (DC): World Bank; 2006. [Chapter 31].

[2] Reeves WC, Strine TW, Pratt LA, Thompson W, Ahluwalia I. Mental illness surveillance among adults in the United States. MMWR Surveil Summ 2011;60(3):1–29.

[3] WHO. Fact sheet: the world health report. Mental and neurological disorders. Geneva: World Health Organization; 2001.

[4] Siddiqi K, Siddiqi N. Treatment of common mental disorders in primary care in low- and middle-income countries. Trans R Soc Trop Med Hyg 2007;101(10):957–8.

[5] Watzke B, Ruddel H, Jurgensen R, Koch U, Kriston L, Grothgar B, et al. Longer term outcome of cognitive–behavioural and psychodynamic psychotherapy in routine mental health care: randomised controlled trial. Behav Rese Ther 2012;50(9):580–7.

[6] Stein D, Kurtsman L, Stier S, Remnik Y, Meged D, Weizman A. Electroconvulsive therapy in adolescent and adult psychiatric inpatients- a retrospective chart design. J Affect Disord 2004;82(3):335–42.

[7] Anthony WA. Recovery from mental illness: the guiding vision of the mental health service system in the 1990s. Psychosocial Rehabilition J 1993;16:11–23.

[8] Liberman RP. Psychiatric rehabilitation of chronic mental patients. Washington DC: American Psychiatry Pub; 1988. p. 19–22.

[9] Rosa MA, Marcolin MA, Elkis H. Evaluation of the factors interfering with drug treatment compliance among Brazilian patients with schizophrenia. Rev Bras Psyquiatr 2005;27(3):178–84.

[10] Compton MT, Rudisch BE, Weiss PS, West JC, Kaslow NJ. Predictors of psychiatrist-reported treatment-compliance problems among patients in routine U.S. psychiatric care. Psychiatry Res 2005;137(1–2):29–36.

[11] Lindsey PL. Psychotropic medication use among older adults: what all nurses need to know. J Gerontol Nurs 2009;35(9):28–38.

[12] Roy R, Jahan M, Kumari S, Chakraborty PK. Reasons for drug-non compliance of psychiatric patients: a centre based study. J Indian Acad Appl Psychol 2005;31:24–8.

[13] Mental health medication. National Institute of Mental Health, U.S Department of Health and Human Services. Available on-line at, http://www.nimh.nih.gov/health/publications/mental-health-medications/nimh-mental-health-medications.pdf; 2012.

[14] MacLennan AH, Wilson DH, Taylor AW. The escalating cost ASD prevalence of alternative medicine. Prev Med 2002;35(2):166–73.

[15] Ernst E, Cassileth BR. The prevalence of complementary/alternative medicine in cancer: a systematic review. Cancer 1998;83(4):777–82.

[16] Kremser T, Evans A, Moore A, Luxford K, Begbie S, Bensoussan A, et al. Use of complementary therapies by Australian women with breast cancer. The Breast 2008;17:387–94.

[17] Simon GE, Cherkin DC, Sherman KJ, Eisenberg DM, Deyo RA, Davis RB. Mental health visits to complementary and alternative medicine providers. Gen Hosp Psychiatry 2004;26(3):171–7.

[18] Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, et al. Trends in alternative, 1990–1997: results of a follow-up national survey. JAMA 1998;280(18):1569–75.

[19] Kessler RC, Davis RB, Foster DF, Van Rompay MI, Walters EE, Wilkey SA, et al. Long-term trends in the use of complementary and alternative medical therapies in the United States. Ann Intern Med 2001;135(4):262–8.

[20] Aydin S, Bozkaya AO, Mazicioglu M, Gemalaz A, Ozcakir A, Oztork A. What influences herbal medicine use? Prevalence and related factors. Turk J Med Sci 2008;38(5):455–63.

[21] Tan M, Uzun O, Akcay F. Trends in complementary and alternative medicine in eastern Turkey. J Altern Complement Med 2004;10(5):861–5.

[22] Honda K, Jacobson JS. Use of complementary and alternative medicine among United States adults: the influences of personality, coping strategies, and social support. Prev Med 2005;40(1):46–53.

[23] Al-Windi A. Determinants of complementary alternative medicine (CAM) use. Complement Ther Med 2004;12(2–3):99–111.

[24] Ceylan S, Azal O, Taslipinar A, Acikel CH, Gulec M. Complementary and alternative medicine among Turkish diabetes patients. Complement Ther Med 2009;17(2):78–83.

[25] Ceylan S, Hamzaoglu O, Komurcu S, Beyan C, Yalcın A. Survey of the use of complementary and alternative medicine among Turkish cancer patients. Complement Ther Med 2002;10(2):94–9.

[26] Frishman WH, Grattan JG, Mamtani R. Alternative and complementary medical approaches in the prevention and treatment of cardiovascular disease. Curr Prob Cardiol 2005;30(8):383–459.

[27] Huntley A. A review of the evidence for efficacy of complementary and alternative medicines in MS. Int MS J 2006;13(1):4–12.

[28] Thachil AF, Mohan R, Bhugra D. The evidence base of complementary and alternative therapies in depression. J Affect Disord 2007;97(1–3):23–35.

[29] Aydin Avci I, Koc Z, Saglam Z. Use of complementary and alternative medicine by patients with cancer in northern Turkey: analysis of cost and satisfaction. J Clin Nurs 2012;21(5–6):677–88.

[30] Hasan SS, Ahmed SI, Bukhari NI, Loon WC. Use of complementary and alternative medicine among patients with chronic disease at outpatient clinics. Complement Ther Clin Pract 2009;15(3):152–7.

[31] Akinci AC, Zengin N, Yildiz H, Sener E, Gunaydin B. The complementary and alternative medicine use among asthma and chronic obstructive pulmonary disease patients in the southern region of Turkey. Int J Nurs Pract 2011;17(6):571–82.

[32] National Center for Complementary and Alternative Medicine (NCCAM) (2012). Available on-line at: http://nccam.nih.gov/health/whatiscam.

[33] Pan JJ, Chen BY, Teng HW, Lu ML, Shen WW. The use of alternative medicine among Taiwanese psychiatric outpatients. Psychiatry Clin Neurosci 2005;59(6):711–6.

[34] Woodward AT, Bullard KM, Taylor RJ, Chatters LM, Baser RE, Perron BE. Use of complementary and alternative medicine for mental and substance use disorders: a comparison of African Americans, black Caribbeans, and non- Hispanic Whites. Psychiatr Serv 2009;60(10):1342–9.

[35] Alderman CP, Kiepfer B. Complementary medicine use by psychiatry patients of an Australian hospital. Ann Pharmacother 2003;37(12):1779–84.

[36] Hazra M, Noh S, Boon H, Taylor A, Moss K, Mamo DC. Complementary and alternative medicine in psychotic disorders. J Complement Integr Med 2010;7(1):1553–3840 [online].

[37] Druss BG, Rosenheck RA. Use of practitioner-based complementary therapies by persons reporting mental conditions in the United States. Arch Gen Psychiatry 2000;57(7):708–14.

[38] Davidson JR, Rampes H, Eisen M, Fisher P, Smith RD, Malik M. Psychiatric disorders in primary care patients receiving complementary medical treatments. Compr Psychiatry 1998;39(1):16–20.

[39] Unutzer J, Klap R, Sturm R, Young AS, Marmon T, Shatkin J, et al. Mental disorders and the use of alternative medicine: results from a national survey. Am J Psychiatry 2000;157(11):1851–7.

[40] Elkins G, Rajab MH, Marcus J. Complementary and alternative medicine use by psychiatric inpatients. Psychol Rep 2005;96(1):163–6.

[41] Strejilevich SA, Sarmiento MJ, Scapola M, Gil L, Martino DJ, Gil JF, et al. Complementary and alternative medicines usage in bipolar patients from Argentina and Colombia: Associations with satisfaction and adherence to treatment. J Affect Disord 2012. http://dx.doi.org/10.1016/j.jad.2012.08.029.

[42] Mackenzie ER, Taylor L, Bloom BS, Hufford DJ, Johnson JC. Ethnic minority use of complementary and alternative medicine (CAM): a national probability survey of CAM utilizers. Altern Ther Health Med 2003;9(4):50–6.

[43] Barner JC, Bohman TM, Brown CM, Richards KM. Use of complementary and alternative medicine for treatment among African–Americans: a multivariate analysis. Res Social Adm Pharm 2010;6(3):196–208.

[44] Lee MM, Chang JS, Jacobs B, Wrensch MR. Complementary and alternative medicine use among men with prostate cancer in 4 ethnic populations. Am J Public Health 2002;92(10):1606–9.

[45] Akhu-Zaheya LM, Alkhasawneh EM. Complementary alternative medicine use among a sample of Muslim Jordanian oncology patients. Complement Ther Clin Pract 2012;18(2):121–6.
[46] Ravven SE, Zimmerman MB, Schultz SK, Wallace RB. 12-month herbal medicine use for mental health from the National Comorbidity Survey Replication (NCS-R). Ann Clin Psychiatry 2011;23(2):83–94.
[47] Akyurek S, Onal C, Kurtman C. Use of alternative medicine in patients with lung cancer. Int J Hematol Oncol 2005;15:73–7.
[48] Knaudt PR, Connor KM, Weisler RH, Churchill LE, Davidson JR. Alternative therapy use by psychiatric outpatients. J Nerv Ment Dis 1999;187(11):692–5.
[49] Russinova Z, Wewiorski NJ, Cash D. Use of alternative health care practices by persons with serious mental illness: perceived benefits. Am J Public Health 2002;92(10):1600–3.
[50] Goker Z, Serin HM, Hesapcioglu S, Cakir M, Sonmez FM. Complementary and alternative medicine use in Turkish children with epilepsy. Complement Ther Med 2012;20(6):441–6.
[51] Minas H, Klimidis S, Tuncer C. Illness causal beliefs in Turkish immigrants. BMC Psychiatry 2007;7:34.
[52] Araz A, Harlak H, Mese G. Factors related to regular use of complementary/alternative medicine in Turkey. Complement Ther Med 2009;17(5–6):309–15.
[53] Feng L, Chiam PC, Kua EH, Ng TP. Use of complementary and alternative medicines and mental disorders in community-living Asian older adults. Arch Gerontol Geriatr 2010;50(3):243–9.
[54] Hsu MC, Moyle W, Creedy D, Venturato L, Ouyang WC, Tsay SL. Use of antidepressants and complementary and alternative medicine among outpatients with depression in Taiwan. Arch Psychiatry Nurs 2009;23(1):75–85.
[55] Bystritsky A, Hovav S, Sherbourne C, Stein MB, Rose RD, Campbell-sills L, et al. Use of complementary and alternative medicine in a large sample of anxiety patients. Psychosomatics 2012;53(3):266–72.
[56] Williams JW, Gierisch JM, McDufffie J, Strauss JL, Nagi A. An overview of complementary and alternative medicine therapies for anxiety and depressive disorders: supplement to efficacy of complementary and alternative medicine therapies for posttraumatic stress disorders. Washington (DC): Department of Veterans Affairs; 2011.