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Twelve-month use of herbal medicines as a remedy for mental health problems in Japan: A cross-national analysis of World Mental Health Survey data

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Abstract

Aim—The purpose of this study was to clarify the frequencies and sociodemographic and other characteristics around use of herbal medicine as a remedy for mental health problems in Japan.

Methods—Data from the World Mental Health Japan (WMHJ) Survey and US National Comorbidity Survey Replications (NCS-R) were analyzed. The WMHJ was conducted in 2002-2006, with 4,129 respondents. NCS-R was conducted in 2002-2003, with 9,282 respondents. The interview asked respondents about their use of several types of herbs for mental health problems. Frequencies of use of herbal medicine were compared between Japan and the U.S. Multiple logistic regression analyses were conducted to determine sociodemographic and mental health-related correlates of 12-month herbal medicine use. Relevant sampling weights were used to adjust for the sampling designs.

Results—The proportion for use of herbal medicines as a remedy for mental health problems in the past 12 months was lower (0.4%) in Japan than that in the U.S (3.7%). Low education in both countries ($p < .05$) was significantly associated with non-use of herbal medicine. Any anxiety disorder in Japan was significantly associated with herbal medicine use ($p < .01$), while any mental disorder categories were significantly associated in the U.S. ($p < .01$)

Conclusion—The frequency for use of herbal medicine among patients with mental health problems in the past 12 months was much lower in Japan compared to the U.S. Persons with high

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educational attainment and anxiety disorders used herbal medicine as a remedy for mental health problems more frequently in Japan.

Keywords

Cross-sectional study; Epidemiology; National comparison; Herbal medicine; Mentalhealth

Introduction

Traditional medicine (TM) and complementary alternative medicine (CAM) have long histories around the world and are familiar to many people (Zhang, &WHO, 2000). In TM & CAM, herbal medicine is defined as 'herbal medicine include herbs, herbal materials, herbal preparations and finished herbal products, that contain as active ingredients parts of plants, or other plant materials, or combinations' (Zhang, &WHO, 2000). Herbal medicine is often used as a remedy for mental health problems, such as depression and anxiety (Perry et al., 2006; Bent et al., 2004). Since some studies have reported adverse side effects of herbs (Zhang, &WHO, 2000), it is important to better understand the characteristics of herbal medicine users.

In the United States (U.S.), many studies have shown a high frequency for the use of herbal medicine (Bent et al., 2004; Eisenberg et al., 1998; Barnes et al., 2008; Barnes et al., 2004; CDC, 1995; Harnack et al., 2001). Eisenberg et al. reported that the percentage of adults using herbal medicine rose from 3% in 1990 to 12% in 1997 (Eisenberg, Davis, Ettner, Appel, Wilkey, Van et al., 1998). The most recent study describing national trends analyzed data from the 2007 National Health Interview Survey (NHIS) (Barnes, Bloom, & Nahin, 2008). This study revealed that 17.7% of U.S. adults had used natural products including herbal medicines over the past 12 months, and this was 18.9% when Barnes et al. similarly used data from the 2002 NHIS (Barnes, Powell-Griner, McFann, & Nahin, 2004). Other studies have reported that more than 60% of the U.S. population has used herbal medicines (CDC, 1995; Harnack et al., 2001). However, there is only one previous study describing national trends of herbal medicine use as remedy for mental health problems. According to the study based on the *National Comorbidity Survey Replication* (NCS-R), using a representative survey of U.S. adults, they found that 3.7% of U.S. adults used herbal medicine to treat mental health problems in the past 12 months (Ravven, Zimmerman, Schultz, & Wallace, 2011). According to this U.S. study, people who were female, white, younger age, have a high education, working, having no insurance and having multiple comorbid medical problems were characteristics of herbal medicine users as a remedy for mental health problems in the U.S. There are no other studies regarding the frequency of herbal medicine use as a remedy for mental health problems in any other country. There are however previous studies which have reported the frequency of CAM including but not specifically limited to herbal medicine use and the frequency of herbal medicine use including but not specifically limited to its use as a remedy or treatment of mental health problems among people who have mental health problems in the U.S. (Ravven et al., 2011; Barner et al., 2010; Bazargan et al., 2008; Bystritsky et al; 2012; Grzywacz et al., 2006; Wu et al., 2007; Solomon et al., 2015; Wells et al., 2010) and in other countries (Wahlstrom et al., 2008; Adams et al., 2012; Bahceci et al., 2013; Chong et al., 2008; Crabb et al., 2011;

Feng et al., 2010; Hsu et al., 2009; Pan et al., 2005). The frequency for use of herbal medicine for mental health problems is also expected to be high in the U.S. and other parts of the world.

In Japan, there are few epidemiological studies herbal medicine use frequency (Fukuda et al., 2006; Yamashita et al., 2002; Tsutani et al., 2014). In one rural prefecture, Fukuda et al. reported a high proportion of CAM including herbal medicines: Kampo (Chinese herbal medicine) (male: 13.0%, female: 18.7%), and aromatherapy and herbs (male: 2.0%, female: 7.1%) in the past six months (Fukuda, Watanabe, Ono, Tsubouchi, &Shirakawa, 2006). According to a 2011 nationwide telephone survey, the frequencies for use of 'herbs or over-the-counter Kampo', 'ethical Kampo (prescribed by medical doctors)' and 'aromatherapy' were 17.2%, 10.0% and 9.3%, respectively (Yamashita, Tsukayama, &Sugishita, 2002). There are no studies about the frequency of herbal medicines as a remedy for mental health problems in Japan. The pattern for use of herbal medicines as a remedy for mental health problems in Japan may be different from other countries, such as the U.S.

This study aimed to clarify the frequencies and sociodemographic and other characteristics of herbal medicine use as a remedy for mental health problem based on findings from the *World Mental Health* (WMH) Surveys in Japan (2002-2006) (Ishikawa, Kawakami, &Kessler, 2015). We compared findings based on data from this community-based survey in Japan with those of the only previous study in another country describing national patterns on this topic, i.e., the NCS-R in the U.S. (2002-2003) (Ravven, Zimmerman, Schultz, & Wallace, 2011) in order to clarify the characteristics of herbal medicine use in a cross-national perspective. Both the WMH Surveys in Japan and the NCS-R in the U.S. were part of broader series of WMH Surveys which were conducted in seventeen countries throughout the world. As such, these two surveys used similar methodologies and had comparable data. By understanding the characteristics of herbal medicine use as aremedy for mental health problems in both societies (i.e., Japan and U.S.), we can compare the two, and health care professionals may be able to better ensure the safe use of herbal medicines.

Methods

Sample

For WMH survey sample and method details in Japan and the U.S., see prior reports (Ishikawa et al., 2015; Kessler et al., 2004). Key methodological features relevant to this paper are briefly reviewed here.

In the Japan survey, eleven community populations in six prefectures were selected as study sites in 2002-2006. Sites were selected based on geographic variation and the availability of site investigators. A random sample was selected from residents aged 20 years or over in each survey site, based on a voter registration list or a resident registry. After sending invitation letters, trained interviewers contacted subjects and interviewed those who agreed to participate. There were 4,129 respondents and the total response rate was 55.1%. The Committees of Ethics in Research of Human Subjects at Okayama University, Japan National Institute of Mental Health, Nagasaki University, Yamagata University, Jichi Medical University, and Juntendo University approved the recruitment, consent, and field

procedures (Ishikawa et al., 2015). NCS-R in the U.S. was based on a stratified multistage clustered area probability sample of household residents in 2002-2003. A random sample was selected from residents aged 18 years or over. The number of respondents was 9,282 and the total response rate was 70.9%.

Measures

Twelve-month use of herbal medicine—Prevalence of herbal medicine use was assessed by a set of two questions. First, a single-item question asked respondents about alternative medicine use for mental health problems: 'Did you use any alternative therapies in the past 12 months for problems with your emotions or nerves (or your use of alcohol or drugs)?' The second question asked respondents, who endorsed the first question, another single question regarding the type of alternative medicine used including herbal medicine: 'Which ones did you use?' (including choice of 'herbal therapy'). Users of herbal medicine were defined as respondents who endorsed the first question and selected herbal therapy in the second question.

Details for herbal medicine use were assessed among the herbal medicine users by asking three further questions: type of herbal medicine ('What types of herbal medicines did you use for your emotions or nerves or mental health (or your use of alcohol or drugs))?'; Was this a professional's recommendation to use herbal medicine ('Did a professional advise you to use?'); and type of professionals ('What kind of professional?').

Sociodemographic variables—Sociodemographic variables measured in the interviews included sex, age (defined by age at interview and categorized as 20-34, 35-49, 50-64 and 65+ years old), education (0-11, 12, 13-15 and 16+ years), marital status (married-cohabiting, separated-widowed-divorced and never married), and employment (working, student, home maker, retired and other).

Twelve-month diagnoses of mental disorders—The face-to-face interview included the *World Health Organization Composite International Diagnostic Interview* version 3.0 (WHO-CIDI 3.0). WHO-CIDI 3.0 assessed 17 mental disorders according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV). These mental disorders were further classified into three categories: any anxiety (Panic disorder, Generalized anxiety disorder, Specific phobia, Social phobia, Agoraphobia without panic and post-traumatic stress disorder), any mood (Major depressive disorder, Dysthymia and Bipolar I-II disorders), and any substance disorders (Alcohol abuse or dependence, Alcohol dependence, Drug abuse or dependence and Drug dependence).

Statistical Analysis

Sociodemographic characteristics (i.e., sex, age, education, marital status, employment) of the total samples and herbal medicine users were compared between samples of Japan and the U.S. based on cross-tabulations. Multiple logistic regression analyses were conducted to determine associations (adjusted prevalence odds ratios, APORs) between the sociodemographic variables and 12-month herbal medicines use, using all the demographic variables simultaneously in a model. All samples in this study were weighted to adjust for

differential probabilities of selection and post-stratification to match to the population distributions of sex and age in Japan and the U.S. The associations (APORs) between three categories of 12-month mental disorders and herbal medicine use were also examined by multiple logistic regressions, adjusting for sociodemographic variables. All the analyses were conducted with PROC SURVEYFREQ and PROC SURVEYLOGISTIC of Statistical Analysis System (SAS) 9.4 for Windows statistical package (SAS Institute Inc., Casey, North California, USA), and considered sampling weights to adjust for sampling design and response rate by sex and age (part I weights) for these two surveys.

Results

Characteristics of respondents

Demographic characteristics of the total samples and herbal medicine users are shown in Table 1. The sociodemographic characteristics of the Japan sample were similar to that in the U.S. In Japan, 16 participants (0.4% of the total sample) reported using herbal medicine in the past 12 months for problems with their emotions or nerves; in the U.S., 345 (3.7% of the total sample) used herbal medicines in the past 12 months.

Sociodemographic correlates of herbal medicine use in the past 12 months

In Japan, respondents with 12 years (APOR: 0.2, 95%Cl: 0.0-1.0, p = .05) of educational attainment had a significantly smaller probability of using herbal medicines than respondents having the highest education (Table 2). Male, older, and married/cohabiting respondents had smaller probabilities of using herbal medicine, while the associations were not significant. In the U.S., the probability of using herbal medicines was significantly smaller (APOR: 0.3, 95%Cl: 0.2-0.5, p < .01) among males than females. Younger respondents had a significantly higher probability of using herbal medicine (for age 20-34, APOR: 4.0, 95%Cl: 1.7-9.5, p < .01; for age 35-49, APOR: 5.8, 95%Cl: 2.8-11.9, p < .01; and for age of 50-64, APOR: 4.5, 95%Cl: 2.2-9.1, p < .01). Respondents with lower levels of educational attainment had a significantly lower probability (for 0-11 years, APOR: 0.4, 95%Cl: 0.3-0.5, p < .01; and for 12 years, APOR: 0.5, 95%Cl: 0.4-0.7, p < .01). Married/cohabiting respondents (APOR: 0.7, 95%Cl: 0.5-1.0, p = .04) had a significantly lower probability of using herbal medicines than never married respondents.

Prevalence of using herbal medicines among respondents with 12-month WMH-CIDI/DSM-IV disorders

The prevalence of mental disorders in both samples and herbal medicine users in Japan was lower than that in the U.S. (Table 3). In Japan, prevalence of herbal medicine use was higher among respondents who had any anxiety disorders (4.9%) than those for any mood and substance disorders (2.3% and 1.0%, respectively). Having any anxiety disorder was significantly associated with greater prevalence of herbal medicine use (APOR: 23.6, 95%Cl: 5.2-108.2, p < .01). No respondents with 12-month any substance disorders reported use of herbal medicine in Japan, with a significantly lower APOR (< 0.001, 95%Cl: < 0.001-< 0.001, p < .01). In comparison, in the U.S., the having a mental disorder category was significant and to a similar extent associated with herbal medicine use (for any anxiety disorders, APOR: 2.7, 95%Cl; 1.9-3.7, p < .01; for any mood disorders, APOR: 2.5, 95%Cl:

1.7-3.7, p < .01; and for any substance disorders, APOR: 2.4, 95%Cl: 1.3-4.7, p < .01). It was interesting to note that prevalence of herbal medicine use among respondents with 12-month anxiety disorders was similar in Japan and the U.S.

Details regarding use of herbal medicines

The most commonly used herbal medicine in the two countries were Chamomile (Japan: 33.9%, U.S.: 38.4%) and St. John's wort(Japan; 25.4%, U.S.: 61.6%) (Table 4). Percentages of people that answered ‘Other’ were also high (Japan; 52.9%, U.S.: 29.0%). Professionals frequently recommended the respondent to use herbal medicine (Japan: 52.3%, United States: 21.4%). In Japan, types of professionals who made the recommendation were ‘Psychiatrist’ (4.9%), ‘Family doctor’ (4.6%), ‘other health professional’ (5.2%) and ‘other’ (37.6%). In comparison, in the U.S., the most common type of professionals was ‘Family doctor’ (5.9%). ‘Other alternative provider’ (4.5%), ‘Other’ (4.1%) and ‘Other medical doctor’ (3.1%) were also common.

Discussion

This is the first study to report on the frequency and characteristics of herbal medicine users as a remedy for mental health problems in Japan. The results indicated that the proportion of those using herbal medicines was remarkably lower in Japan than that in the U.S., and the types of herbal medicines most commonly used were Chamomile and St. John's wort in both countries. Demographic characteristics, classified based on education were relevant to use of herbal medicines in both Japan and the U.S. Any anxiety disorders were associated with herbal medicine use in Japan, while all mental disorder categories were similarly associated in the U.S.

Frequency of herbal medicine use as a remedy for mental health problems

We found that the frequencies for 12-month use of herbal medicine as a remedy for mental health problems in a general population was much lower in Japan (0.4%) compared to that in the U.S. (3.7%), while the frequencies for herbal medicine use in both countries were reported to be almost the same (Barnes et al., 2004; Yamashita et al., 2002). This is partly because of the popularity for using CAM in Japan for health promotion or disease prevention, rather than for serious health conditions (Yamashita, Tsukayama, &Sugishita, 2002), meanwhile, in the U.S. CAM was used as a remedy for specific disease conditions (Eisenberg, Davis, Ettner, Appel, Wilkey, Van et al., 1998). Another possible reason is that the prevalence of common mental disorders was lower in Japan (Ishikawa, Kawakami, &Kessler, 2015) compared to the U.S (Ravven, Zimmerman, Schultz, & Wallace, 2011).

It is interesting to note the high proportion (52.3% among the users) of “other” non-physician professionals recommending herbal medicine in Japan, which was higher than that in the U.S. Other professionals may include Chinese medicine therapists/practitioners/counselors. One of the reasons why the percentage of other professionals recommending herbal medicine was high in Japan may be that they were good at explaining about the therapy and people were easily tempted (Tsutani, &Yukawa, 2014). In the U.S., the professionals who recommended the use of herbal medicine the most were family

physicians. In contrast, in Japan, medical professionals recommended the use of herbal medicine less frequently. Fukuda et al. also reported that no medical doctor recommended aromatherapy (Fukuda, Watanabe, Ono, Tsubouchi, &Shirakawa, 2006). Using herbal medicine as a remedy for mental health problems seems quite independent of medical doctors in Japan. A close monitoring of the use of herbal medicine for mental health problems outside the health care system and strengthening undergraduate and lifelong training for physicians on CAM may be required in Japan.

Demographic correlates

The proportion of herbal medicine users was higher among respondents with 16 years or more of education than among those with 0-11 and 13-15 years of education in Japan. Yamashita et al. also reported that education levels were associated with use of 'aromatherapy' (Yamashita, Tsukayama, &Sugishita, 2002). A similar pattern was observed from the sample in the U.S. in the present study and has also been reported in previous studies (Barner et al., 2010; Wells et al., 2010). These findings suggest that having higher educational attainment is positively associated with herbal medicine use in both countries. People with higher education may be more likely to use various health-related actions.

12-month WMH-CIDI/DSM-IV mental disorders and herbal medicine uses

In Japan, having any anxiety disorders was positively associated, and having any substance disorders was negatively associated, and both were significantly associated with herbal medicine use. In comparison, in the U.S., having any anxiety, mood or substance disorders was positively and significantly associated with herbal medicine use to a similar extent. Persons with any anxiety disorders may use herbal medicine as a remedy for their symptoms in Japan, because Chamomile is the most popular oil in this Japan survey, and is known to have analgesic, hypnotic, relaxing and sedative effects (Perry, &Perry, 2006). People with any substance disorders seem less likely to use herbal medicine in Japan. This finding is similar to a previous study in Finland that reported that alcohol abuse was negatively associated with use of CAM (Wahlstrom, Sihvo, Haukkala, Kiviruuse, Pirkola, &Isometsa, 2008). Although this result in the Japan survey found a similar trend, the small sample size of people having any substance disorders may have affected the results and the negative findings in the Japan data.

Limitations

This study has multiple limitations. First, the measures for sampling were different between the surveys in Japan and the U.S. The WMH survey in the U.S. was based on a stratified multistage clustered area probability sample of household residents in 2002-2003, while the Japan survey collected participants mainly from western Japan, and did not include metropolitan cities. The response rate for the survey in Japan was also low. Second, the reliability and validity of the questionnaires regarding herbal medicine were not confirmed, so measurement error may exist. Third, the sample size of herbal medicine users in Japan was too small to analyze properly. Statistically, the associations may be a result of limitations in the Japan data. Fourth, the data were collected more than a decade ago. Therefore, the findings of this study may not represent current situations.

Summary

In conclusion, the frequency of herbal medicine use among patients with mental health problems in the past 12 months was 0.4%. In Japan, persons with high educational attainment and anxiety disorders more frequently used herbal medicine as a remedy for mental health problems. Given this knowledge, mental health care professionals can be aware that some people may be more likely to use herbal medicines as a remedy for mental health problems and that the use of herbal medicine may cause some side effects, although the frequency is low.

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Table 1

Demographic characteristics of all samples and herbal medicine (HM) users in community-based surveys in Japan and United States (US)

	All samples, n(%)		HM users, n(%†)	
	Japan n = 4129	US n = 9282	Japan n = 16	US n = 345
Sex				
Male	1946 (47.1)	4445(47.9)	5(0.3)	79(1.8)
Female	2183 (52.9)	4837(52.1)	11(0.5)	265(5.5)
Age (years old)				
20-34	958(23.2)	2921(31.5)	5(0.5)	111(3.8)
35-49	949(23.0)	2921(31.5)	6(0.5)	148(5.1)
50-64	1111(26.9)	1957(21.1)	3(0.3)	74(3.8)
65+	1111(26.9)	1483(16.0)	2(0.2)	12(0.8)
Education (years)				
0-11 years	1125(27.9)	1498(16.1)	4(0.4)	25(1.7)
12 years	1419(35.2)	2993(32.2)	2(0.1)	89(3.0)
13-15 years	764(18.9)	2568(27.7)	5(0.6)	108(4.2)
>=16 years	726(18.0)	2223(23.9)	5(0.7)	122(5.5)
Marital status				
Married/cohabiting	2844(68.9)	5182(55.8)	8(0.3)	174(3.4)
Separated/widowed/divorced	557(13.5)	1897(20.4)	3(0.6)	76(4.0)
Never married	729(17.6)	2202(23.7)	4(0.6)	95(4.3)
Employment				
Working	2642(64.0)	6287(67.7)	12(0.5)	269(4.3)
Student	63(1.5)	295(3.2)	-	11(3.6)
Homemaker	779(18.9)	528(5.7)	2(0.2)	24(4.5)
Retired	450(10.9)	1346(14.5)	-	16(1.2)
Other	194(4.7)	826(8.9)	2(0.8)	25(3.0)

Samples were weighted to adjust for differential probabilities of selection and post-stratified to match the population distributions on the cross-classification for sex and age.

† the percentage indicates the proportion of HM users among total respondents for each category.

Table 2

Association between demographic variables and use of herbal medicine in Japan and United States (U.S.) †

	Herbal medicine users					
	Japan n = 16			U.S. n = 345		
	No. of users (%)‡	APOR§,	(95%CI)§	No. of users (%)‡	APOR§	(95%CI)
Sex						
Male	5(0.3)	0.5	(0.1-1.8)	79(1.8)	0.3	(0.2-0.5)*
Female	11(0.5)	1.0		265(5.5)	1.0	
Age (years old)						
20-34	5(0.5)	1.8	(0.4-7.6)	111(3.8)	4.0	(1.7-9.5)*
35-49	6(0.5)	2.7	(0.5-15.8)	148(5.1)	5.8	(2.8-11.9)*
50-64	3(0.3)	1.4	(0.3-6.7)	74(3.8)	4.5	(2.2-9.1)*
65+	2(0.2)	1.0		12(0.8)	1.0	
Education (years)						
0-11 years	4(0.4)	0.8	(0.2-3.6)	25(1.7)	0.4	(0.3-0.5)*
12 years	2(0.1)	0.2	(0.0-1.0)*	89(3.0)	0.5	(0.4-0.7)*
13-15 years	5(0.6)	0.8	(0.2-2.9)	108(4.2)	0.7	(0.5-1.0)
>= 16 years	5(0.7)	1.0		122(5.5)	1.0	
Marital status						
Married/cohabiting	8(0.3)	0.7	(0.1-3.0)	174(3.4)	0.7	(0.5-1.0)*
Separated/widowed/divorced	3(0.6)	1.5	(0.4-5.9)	76(4.0)	1.0	(0.7-1.5)
Never married	4(0.6)	1.0		95(4.3)	1.0	
Employment						
Working	12(0.5)	1.0		269(4.3)	1.0	
Student	-	<0.001	(<0.001-<0.001)*	11(3.6)	0.9	(0.3-2.7)
Homemaker	2(0.2)	0.4	(0.1-3.1)	24(4.5)	1.1	(0.7-1.8)
Retired	-	<0.001	(<0.001-<0.001)*	16(1.2)	0.8	(0.4-1.5)
Other	2(0.8)	1.5	(0.3-8.8)	25(3.0)	0.8	(0.5-1.1)

† Samples were weighted to adjust for differential probabilities of selection and post-stratified to match the population distributions on the cross-classification for sex and age.

§ Adjusted prevalence odds ratio (APOR) and the 95% confidence intervals (95%CIs) estimated by using multiple logistic regression with all demographic variables in the model.

- no cases.

* Significant at the 0.05 level.

‡ Prevalence of herbal medicine users in each group in the parentheses.

Table 3

Prevalence of 12-month WMH-CIDI/DSM-IV disorders in all sample and among herbal medicine (HM) users in community-based surveys in Japan and US[†]

	12-month prevalence of the disorder category in the total sample (%)	Prevalence of HM users among respondents with 12-month disorder category (%)	APOR[§]	95%CIs
Japan				
Any anxiety disorders	4.9	6.4	23.6	(5.2-108.2)*
Any mood disorders	2.3[‡]	0.8[‡]	0.4	(0.0-4.4)
Any substance disorders	1.0	-	<0.001	(<0.001-<0.001)*
U.S.				
Any anxiety disorders	18.5	9.0	2.7	(1.9-3.7)*
Any mood disorders	8.3[‡]	11.3[‡]	2.5	(1.7-3.7)*
Any substance disorders	3.8	8.5	2.4	(1.3-4.7)*

[†]Samples were weighted to adjust for differential probabilities of selection and post-stratification to match the population distributions based on the cross-classification for sex and age.

[§]Adjusted prevalence odds ratio (APOR) and the 95% confidence intervals (95%CIs) estimated by using multiple logistic regression adjusted for sex, age, education, marital status, employment, and other disorder categories.

[‡]Part I sample, otherwise part II sample.

-no cases.

*Significant at the 0.05 level.

Table 4

Type of herbal medicine and professional recommendation to use herbal medicine among respondents who used herbal medicine used for mental health problems in the past 12 months in community-based surveys in Japan and the U.S

	Users, n (%)†	
	Japan (n=16)	**U.S. (n=345)**
Type of herbal medicine		
Chamomile	5(33.9)	130(38.4)
Kava	3(17.8)	70(20.5)
Lavender	2(11.3)	43(12.7)
St. John's wort	4(25.4)	210(61.6)
Valerian	1(5.2)	50(14.7)
Chasteberry	-	4(1.2)
Black Cohosh	-	17(5.1)
Other	8(52.9)	99(29.0)
Professional recommendation	8(52.3)	73(21.4)
(if yes) what kind of professional:		
Psychiatrist	1(4.9)	-
Family doctor	1(4.6)	20(5.9)
Other medical doctor	-	11(3.1)
Psychologist	-	8(2.3)
Social worker	-	-
Counselor	-	1(0.3)
Other mental health professional	-	1(0.3)
Other health professional	1(5.2)	5(1.6)
Religious or spiritual advisor	-	6(1.7)
Other alternative provider	-	15(4.5)
Other	6(37.6)	14(4.1)

†Samples were weighted to adjust for differential probabilities of selection and post-stratified to match the population distributions on the cross-classification for sex and age. The percentage indicates proportion of HM users for each category among the total HM users in each country

-no cases.