Prevalence of and Associations for Complementary and Alternative Medicine Use among Apparently Healthy Individuals in the Philippine LIFECARE Cohort

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ABSTRACT

Objectives. The study determined the prevalence of complementary and alternative medicine (CAM) use and its association with socio-demographic and clinical characteristics among adult Filipinos aged 20-50 years.

Methods. Data from the Philippine cohort of the Life Course Study in Cardiovascular Disease Epidemiology (LIFECARE) in Luzon were analyzed. Multiple logistic regression determined the factors associated with the use of CAM.

Results. A total of 3,072 participants were included: average age of 36 years, more females, mostly married, living in the rural areas, and employed. The prevalence of CAM use in this population was 43%. The commonly sought traditional medicine practitioners were *manghihilot* (bone setter or *partera*) and *albularyo* (herbalist), and participants used herbal medicines and supplements.

Use of CAM was more likely among older participants, females, living in rural areas, had medical consultation in the last six months, experienced moderate to extreme pain, and with poor perception of general health.

Conclusion. The use of CAM is prevalent among apparently healthy individuals aged 20-50 years. Further studies should uncover reasons for CAM use.

Key Words: complementary medicine, alternative medicine, traditional medicine, herbal medicines, Philippines

INTRODUCTION

Complementary and alternative medicine (CAM) has varied definitions as noted by Shumer et al., (2014).[1] T&CM merges the terms traditional medicine (TM) and complementary medicine (CM), encompassing products, practices, and practitioners.[2]

The World Health Organization (WHO) defines traditional medicine (TM) as "the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness".[2] On the other hand, complementary medicine (CM) or "alternative medicine" refers "to a broad set of health care practices that are not part of that country's own tradition or conventional medicine

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and are not fully integrated into the dominant healthcare system. Also, the WHO encourages the integration of CAM to modern medicine.[1] CM or alternative medicine is used interchangeably with TM in some countries including the Philippines.

In this study, CAM encompasses complementary, alternative, and traditional medicine because the systems and modalities of healing are in flux.

TM practitioners include *manghihilot* (or bone setter or *partera), albularyo* (herbalist), *mangtatawas* (diagnostician, user of potassium alum)[3], and faith healers or *espiritista* in most Filipino languages, and are more popular in the rural areas. They belong to the country's own traditions. Also, they are neither "part of conventional medicine" nor "fully integrated into the dominant healthcare system".

Hilot, the root word of *manghihilot* literally means massage in Tagalog. He/she usually sets misaligned bones, attends to deliveries of babies, massages sprains, or removes air or cold in children's bodies. As of today, *hilot* and medicinal plants are likewise used in spas and wellness centers.

The *albularyo* uses herbal medicines. The word *arbularyo*, a variation of the word *albularyo*, derives from the Spanish word, *herbolario*, meaning herbalist. The use of herbal medicines and supplements is an old tradition and some are already approved in 2003 by the Department of Health (DOH) to have scientifically proven medicinal uses. In fact, the DOH through its TM program promotes locally produced herbs such as *ampalaya* or bitter gourd *(Momordica charantia*), *lagundi* or five-leaved chaste tree (*Vitex negundo.*), *niyogniyogan* or Chinese honeysuckle (*Combretum indicum*), *sambong* (*Blumea balsamifera*), *tsaanggubat (Carmona retusa), yerba buena (Mentha x cordifolia), ulasimang bato (Peperomia pellucida), bayabas* or guava (*Psidium guajava*), *bawang* or garlic (*Allium sativum*), and *akapulko* or ringworm bush (*Senna alata*).[4]

The *mangtatawas* usually diagnoses ailments using potassium alum, candles, eggs, and others.[3] He/she is the recognized diagnostician in the community to find out the source of illness, and would refer the sick to the *herbolario* for what kinds of herbal medicines to use.

An increasing prevalence of CAM use has been noted in several countries. The systematic review by Harris and Rees (2008) showed that the prevalence of CAM use among the general population ranged from 23 to 62 percent.[5] Based on the 2002 National Health Interview Survey in the United States, 36 percent of adults used some form of CAM therapy during the past 12 months.[6] A large population study in Norway likewise revealed a 33 percent reported use of CAM within the past year.[7] Another study in Japan reported that 77.3 percent of the respondents used at least one form of CAM in the past 12 months.[1] In the Philippines, a community-based survey conducted in 2012 revealed that the prevalence of CAM use among respondents from rural and urban areas were 68.4 percent and 51.5 percent, respectively.[8] Among patients with diabetes mellitus, prevalence of CAM ranges from 7.7 percent in Australia to 76 percent in Sri Lanka.[9-10] Among cancer patients, the prevalence reported in Korea was 25.5 percent and about 44.6 percent in Japan.[11-12]

To evaluate the impact of CAM use in the healthcare system, it is crucial to determine the prevalence of CAM use or the proportion of a population using CAM at a given point. Furthermore, reliable data on the factors associated with CAM use will assist program managers and policy-makers develop an evidence-based policy that may regulate or integrate CAM use.

This study determined the prevalence of CAM use and established the association between the following and CAM use: socio-demographic characteristics (age, sex, place of residence, civil status, education, employment status), smoking, medical consultation, perceived general health, pain, hypertension, and diabetes.

MATERIALS AND METHODS

The authors utilized secondary data from the Philippine cohort of the Life Course Study in Cardiovascular Disease Epidemiology (LIFECARE), an on-going community-based prospective cohort of apparently healthy individuals aged 20-50 years old in four provinces and three cities of Metro Manila in Luzon. LIFECARE's objective was to determine the effects of socioeconomic factors, psychosocial stress, and lifestyle factors in the development of cardiovascular disease (CVD).[13] The methodology for the LIFECARE study has been described in previous publications.[13-14]

The LIFECARE study was subjected to ethics review in 2009 by the UP Manila Research Ethics Board and the Cardinal Santos Medical Center. Prior to the interview, informed consent form was administered to the participants. Interviewer-administered questionnaire was used to determine the following: socio-demographic profile, health care utilization, physical activity, smoking status, food frequency, quality of life (measured by SF-36 v2, and EuroQoL 5D), anthropometric data, medical history, CAM use, and other clinical evaluations. For this study, baseline data on socio-demographic profile, CAM use, medical consultation (conventional medicine), presence of hypertension or diabetes, intake of medications for hypertension or diabetes, perceived general health (SF-36 v2), and pain/discomfort (EQ-5D) were analyzed based from the secondary data of LIFECARE as mentioned earlier. Perceived general health was measured using item number one of the SF-36 v2, and general health status of participants was classified into very good/excellent, good, and poor/fair. Pain/discomfort experience of participants was assessed using the pain subscale of the EQ-5D, and participants were categorized to whether they experienced moderate to extreme pain or did not experience pain or discomfort.

This paper operationally defined the use of CAM in the past six months among apparently healthy individuals

aged 20-50 years old. In order to evaluate the use of CAM, participants were asked the question, "*In the past six months, have you used any complementary or alternative medicine?*" and were given the following choices: chiropractic, massage, acupuncture, iridology, herbal medicine/therapy, supplements, magnets, and crystals; and consultations with TM practitioners such as *albularyo*, *manghihilot, mangtatawas*, faith healer, and others. Multiple responses were accepted. Herbal medicines and supplements were combined for purposes of data analysis.

Descriptive statistics (mean, standard deviation, and interquartile range) were computed for quantitative data. Categorical data were described by frequencies and percentages. Multivariate logistic regression analysis using the stepwise backward selection strategy was used to identify associations between socio-demographic and health-related independent variables and the use of CAM as the dependent variable. Independent variables found to be significant in relation to the use of CAM in the univariate analysis were included in the final multivariable regression model. *P* value of less than 0.05 was considered significant.

All statistical analysis were performed using STATA® version 12 for Windows.[15]

Table 1. Demographic characteristics of the Philippine LIFECARE participants

Characteristics	Frequency (%)
Age	
N	3,072
Mean (SD)	36.0 (8.6)
Median (25th – 75th percentile)	36.2 (29.1 – 43.2)
Sex	
Male	1,329 (43.3)
Female	1,743 (56.7)
Place of Residence	
Urban	817 (26.6)
Rural	2,255 (73.4)
Civil Status	
Single	581 (18.9)
Married	2,018 (65.7)
Widow / Widower	65 (2.1)
Separated	56 (1.8)
Live-in	352 (11.5)
Education	
None	7 (0.2)
Elementary	615 (20.0)
High school	1,402 (45.6)
Vocational course	248 (8.1)
College	794 (25.8)
Post graduate	6 (0.2)
Employment status	
Employed (regular)	744 (24.2)
Employed (not regular)	401 (13.0)
Self-employed	924 (30.1)
Retired / Student	40 (1.3)
Unemployed	963 (31.4)
Current smoker	849 (27.6)
Alcohol intake[1]	1,812 (59.0)

[1] *Actual question was, "In the PAST YEAR, have you consumed any type of alcoholic beverage (1 or more drinks)?"*

RESULTS

A total of 3,072 participants were included, with an average age of 36 years, slightly more females than males, mostly married, and living in the rural areas. Nearly half of the participants were able to attain a high school level of education, most of them were employed, 27% were smokers and 59% consumed alcohol in the past year (Table 1).

A little more than 15 percent have had medical consultation in the last six months. Fourteen percent were out-patient while more than two percent were in-patient. Twenty-five percent perceived their health to be poor or fair while about 40 percent experienced moderate to extreme pain or discomfort. Thirteen percent had been diagnosed with hypertension while five percent had been diagnosed with diabetes mellitus (Table 2).

Table 2. Clinical characteristics and use of CAM among the Philippine LIFECARE participants

	Frequency (%)
Health Characteristics	
Medical consultation (last 6 months)[1]	**473 (15.4)**
In-patient	73 (2.4)
Out-patient	440 (14.3)
Perceived general health (SF-36 v2)[2]	
Very good / Excellent	374 (12.2)
Good	1,930 (62.8)
Poor /Fair	768 (25.0)
EQ-5D pain subscale[3]	
No pain or discomfort	1,844 (60.0)
With moderate to extreme pain or discomfort	1,226 (39.9)
Hypertension	413 (13.4)
Diabetes mellitus	154 (5.0)
Use of CAM[1]	**1,329 (43.3)**
Traditional medicine practitioners	**765 (24.9)**
Manghihilot (bone setter)	354 (11.5)
Albularyo (herbalist)	297 (9.7)
Mangtatawas (user of potassium alum)	33 (1.1)
Faith healer	3 (0.1)
Herbal medicines / Supplements	**761 (24.8)**
Sambong (*Blumea balsamifera*)	173 (5.6)
Lagundi (*Vitex negundo*)	121 (3.9)
Banaba (*Lagerstroemia speciosa*)	77 (2.5)
Oregano (*Plectranthus amboinicus*)	54 (1.8)
Taheebo (*Tabebuia avellanedae*)	45 (1.5)
Malunggay (*Moringa oleifera*)	27 (0.9)
Vitaplus	16 (0.5)
Bayabas (*Psidium guajava*)	15 (0.5)
Virgin coconut oil	14 (0.5)
Kamaria (*Artemisia vulgaris*)	13 (0.4)
Massage	201 (6.5)
Magnets and crystals	23 (0.8)
Iridology	21 (0.7)
Acupuncture	4 (0.1)
Chiropractic	2 (0.1)
Others	10 (0.3)

[1] *Multiple response allowed*

[2] *Actual question was, "In general, would you say your health is excellent, very good, good, fair, poor?"*

[3] *Answer to the question, "Please indicate which statements best describe the state of your health today." I have no pain or discomfort; I have moderate pain of discomfort; I have extreme pain or discomfort.*

In the past six months, 43 percent of participants used CAM as shown in Figure 1. Of these, almost 25 percent sought the services of TM practitioners like *manghihilot* and *albularyo*. Herbal medicines and supplements were likewise used (25%) such as *sambong* (*Blumea balsamifera*), *lagundi (Vitex negundo)*, *banaba* (*Lagerstroemia speciosa*), and *oregano* (*Plectranthus amboinicus*). Almost seven percent of apparently healthy individuals also availed of massage services.

Socio-demographic characteristics associated with CAM use included age, sex, place of residence, civil status, currently smoking, and alcohol intake in the past 12 months. Clinical characteristics associated with CAM use were medical consultation in the last six months, perceived general health, EQ-5D pain subscale, and taking medications for hypertension or diabetes (Table 3). Bivariate test resulting to a *p value* ≤ 0.25 was considered a candidate for a multivariable model.

Table 4 presents the multiple logistic regression results. CAM use was associated with the following: age *(p=0.0004),* sex *(p=0.016),* place of residence *(p<0.0001),* medical consultation *(p<0.0001),* perceived general health (SF-36 v2) *(p<0001)* and EQ-5D pain subscale *(p<0.0001)*. Use of CAM was more likely among 40-50 years old, females, living in rural areas, had medical consultation in the last six months, experienced moderate to extreme pain, and with poor perception of general health. Civil status, education, employment, hypertension, and diabetes had no significant relationship with CAM use in this population (Table 4).

DISCUSSION

The prevalence of CAM use among the Philippine LIFECARE cohort was 43 percent. This is within range of the results of the systematic review conducted by Harris and

Table 3. Use of CAM according to demographic and clinical characteristics

Characteristics	N	Use of CAM	*p value*
Age			
20-29	861	334 (38.8)	<0.001
30-39	1,102	455 (41.3)	
40-50	1,109	540 (48.7)	
Sex			0.001
Male	1,329	531 (40.0)	
Female	1,743	798 (45.8)	
Place of Residence			<0.001
Urban	817	309 (37.8)	
Rural	2,255	1020 (45.2)	
Civil Status			0.006
Single/Widow/Separated	702	272 (38.8)	
Married/Live-in	2,370	1,057 (44.6)	
Education			0.862
At least college level	800	344 (43.0)	
High school and below	2,272	985 (43.4)	
Employment status			0.280
Employed	2,069	909 (43.9)	
Unemployed	1,003	420 (41.9)	
Current smoker			0.017
Yes	849	338 (39.8)	
No	2,223	991 (44.6)	
Alcohol intake			0.032
Yes	1,812	755 (41.7)	
No	1,260	574 (45.6)	
Medical consultation (last 6 months)[1]	473	260 (55.0)	<0.001
In-patient	73	40 (54.8)	0.044
Out-patient	440	239 (54.3)	<0.001
Perceived general health (SF-36 v2)[2]			<0.001
Very good / Excellent	374	159 (42.5)	
Good	1,930	772 (40.0)	
Poor /Fair	768	398 (51.8)	
EQ-5D pain subscale[3]			<0.001
No pain or discomfort	1,844	683 (37.0)	
With moderate to extreme pain or discomfort	126	645 (52.6)	
Hypertension	413	182 (44.1)	0.921
Taking medication for hypertension	108	63 (58.3)	0.001
Diabetes mellitus	154	73 (47.4)	0.294
Taking medication for diabetes	39	23 (59.0)	0.046

[1] Multiple response allowed

[2] Actual question was, "In general, would you say your health is excellent, very good, good, fair, poor?"

[3] Answer to the question, "Please indicate which statements best describe the state of your health today." I have no pain or discomfort; I have moderate pain of discomfort; I have extreme pain or discomfort.

Rees in 2008 where the prevalence of CAM use was between 23-62 percent.[5] By observation, the use of herbal medicines was commonplace in the Philippines. Furthermore, there were already approved herbal medicines in the country[16]; and government approval and promotion, aside from long tradition, may have influenced the use of medicinal plants such as *sambong* and *lagundi.*

According to the studies of Balangcod and Balangcod (2011), and Del Fiero and Nolasco (2013) in the Philippines, leaves are the most widely used plant parts for infusion or decoction while stems' juices are extracted by pounding and crushing them.[17-18] Illnesses like headache, fever, cough and colds, stomachache (due to diarrhea or pinworms), ascariasis, hyperacidity, gas pain, toothache, small cuts and wounds, swelling, scabies, and skin fungal infections to more serious ailments including urinary tract infection (UTI), dysentery, and chicken pox are treated with medicinal plants.[4,17] *Sambong,* according to 2003 NDHS study, was

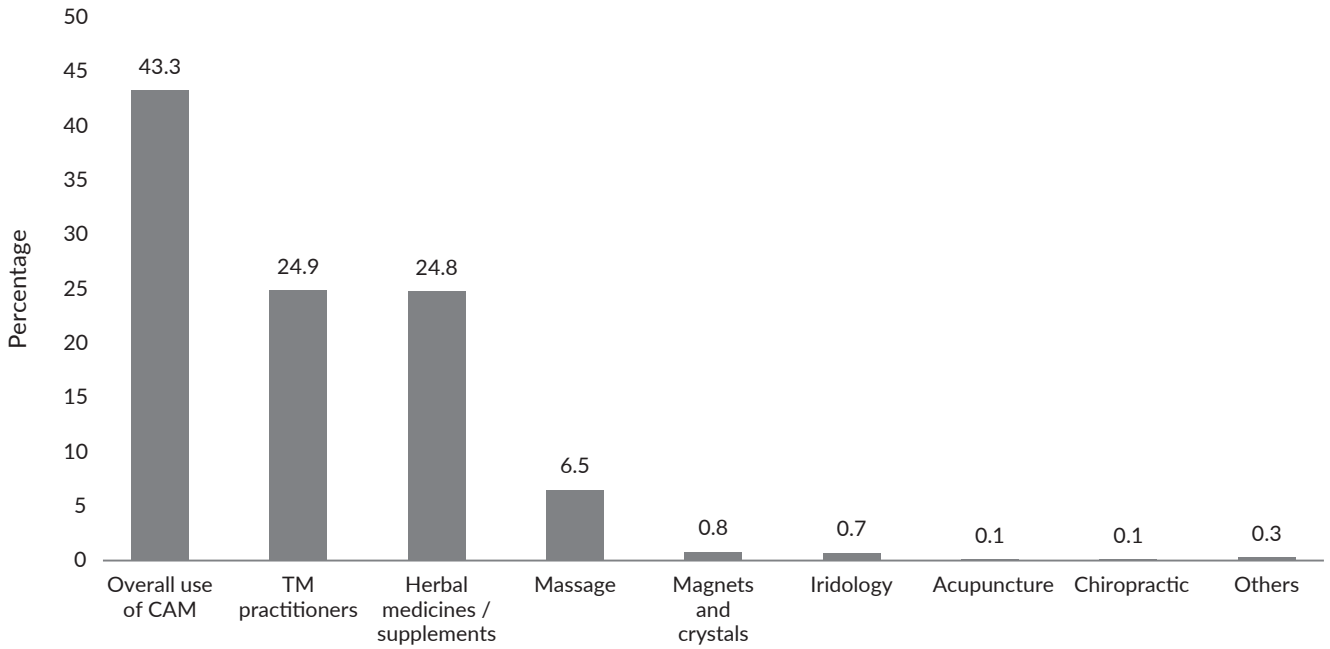

Figure 1. Use of CAM among the Philippine LIFECARE cohort (n = 3,072).

Table 4. Factors associated with the use of CAM

	Use of CAM			
	Crude OR (95% CI)	*p value*	Adjusted OR (95% CI)	*p value*
Age				
20-29	1.0 (ref)	<0.0001	1.0 (ref)	0.0004
30-39	1.1 (0.9 – 1.3)		1.1 (0.9 – 1.3)	
40-50	1.5 (1.2 – 1.8)		1.4 (1.2 – 1.7)	
Sex				
Male	1.0 (ref)	0.001	1.0 (ref)	0.016
Female	1.3 (1.1 – 1.5)		1.2 (1.0 – 1.4)	
Place of Residence				
Urban	1.0 (ref)	<0.0001	1.0 (ref)	<0.0001
Rural	1.4 (1.2 – 1.6)		1.5 (1.3 – 1.8)	
Medical consultation (last 6 months)[1]				
Without	1.0 (ref)	<0.0001	1.0 (ref)	<0.0001
With	1.8 (1.4 – 2.1)		1.6 (1.3 – 2.0)	
Perceived general health (SF-36 v2)[2]				
Very good/ Excellent	1.0 (ref)	<0.0001	1.0 (ref)	0.0019
Good	0.9 (0.7 – 1.1)		0.8 (0.6 – 1.0)	
Poor /Fair	1.4 (1.1 – 1.9)		1.1 (0.8 – 1.4)	
EQ-5D pain subscale[3]				
No pain or discomfort	1.0 (ref)	<0.0001	1.0 (ref)	<0.0001
With moderate to extreme pain or discomfort	1.9 (1.6 – 2.2)		1.7 (1.5 – 2.0)	

[1] *Outpatient and/or inpatient consults in the past six months were combined.*
[2] *Actual question was, "In general, would you say your health is excellent, very good, good, fair, poor?"*
[3] *Answer to the question, "Please indicate which statements best describe the state of your health today." I have no pain or discomfort; I have moderate pain of discomfort; I have extreme pain or discomfort.*

correctly recognized by only eight percent to treat urinary stones. The most popular herbal medicines were guava, garlic, and bitter gourd.[18] *Lagundi* was used to treat cough and asthma while *banaba* was used to treat diabetes mellitus. All media also advertised the use of herbal supplements using popular Filipino artists as promoters. Herbal supplements were widely available in drugstores and supermarkets. Spas and massage parlors were likewise all-over different cities and rural areas. Visiting these clinics was also a new trend in lifestyle and connoted a high social status.

This study showed that age, sex, geographical location, and general health were found to be associated with the use of CAM and this is consistent with previous studies.[1,6-8] Education, civil status, alcohol consumption, and smoking were not associated with the use of CAM which is in contrast to the previous studies among the general population.[1,6-8]

Previous studies (mostly foreign) showed that age, sex, and education were the predictors for CAM use for both sick and healthy individuals.[1,6-9,11,12] Among the general population, use of CAM was significantly associated with age, sex, household income, education, marital status, geographic location, perceived health status, presence of chronic illness, health insurance status, use of cigarettes or alcohol, and hospitalization.[1,6-8] On the other hand, use of CAM among diabetic patients was observed to vary according to age, sex, education, private health insurance, healthier lifestyle, pain, and health-related quality of life.[9] Among cancer patients, predictive factors of CAM use include age, sex, education, household income, cancer type, timing of diagnosis, primary cancer type, and metastasis.[11,12]

In general, older people have more illnesses than younger individuals; and the former tend to seek more health services including CAM. CAM was a more affordable alternative than seeking medical help from doctors in the Philippines. TM practitioners were also more accessible in rural areas because they usually lived in the same or nearby *barangay* or village.

CONCLUSION

The use of CAM is prevalent among apparently healthy individuals aged 20-50 years in the Philippine LIFECARE cohort. They have been consulting Filipino traditional healers and are using medicinal plants whether in its raw form or as supplements.

Reasons for CAM use in the country should be further studied to contribute to the growing literature on understanding Philippine medicine which is a set of systems and modalities of healing used singly or as complementary.

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Statement of Authorship

All authors have approved the final version submitted.

Authors Disclosure

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