

**RESEARCH PAPER**

# Prevalence, perceptions and predictors of complementary and alternative medicine use in selected communities in the Philippines

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**Abstract**

The study examines the use of complementary and alternative medicine among residents of selected rural and urban communities in the Philippines using the CAM Healthcare Model. Interviews were conducted on 146 respondents in Batangas, Caloocan and Parañaque using a structured questionnaire that applies the RAND Short Form (SF) 36 and the Brief Illness Perception Questionnaire as measures of self-perceived health status. A higher prevalence was observed among the rural respondents (68.4%) as compared with their urban counterparts (51.5%). Users in both rural and urban areas perceived CAM as beneficial. Significant predictors of use included the type of community, an annual income of less than USD 10,500, more than 10 years of residence in the community, self-perceived health status in the Energy/Fatigue, Emotional Well-being and Pain scales in the SF 36, presence of chronic illness, and consultations to traditional faith healer for health issues. Since only about 27% of the variability in the odds of using CAM can be explained by the model, further studies investigating other predictors of use are recommended.

**Introduction**

Complementary and alternative medicine (CAM), as defined by the National Institutes of Health- National Center for Complementary and

Alternative Medicine (NIH-NCCAM) in the United States, is a term for a group of diverse medical and health care systems, practices, and products

that are not generally considered to be a part of conventional medicine. It encompasses a broad type of practice, including, but not limited to, aromatherapy, yoga, homeopathy, prayer, meditation, acupuncture and treatment with herbs, vitamins and food supplements. The increasing growth of global CAM use has already been well documented in literature. In the national survey in the United States, for example, CAM use increased from 33.8% in 1990 to 42.1% in 1997.<sup>1</sup> Regional studies in Australia suggested that approximately 50% of South Australians were CAM users with an increase from 52.1% in 2000 and 52.2% in 2004.<sup>2</sup> Within the whole African region, it was reported in 2001 that over 80% of the population used African traditional medicine for primary healthcare needs.<sup>3</sup> Most countries in the South East Asian region, it is generally believed that 70% to 80% of the population use CAM in the rural and semi urban areas where allopathic medicine is less available. Meanwhile, in the Western Pacific region, it is acknowledged that CAM is practiced in many countries but is not regulated by most governments. Similar data on the widespread use and cultural acceptance of CAM was found by the World Health Organization (WHO) on the Eastern Mediterranean region although the exact prevalence was not provided.

National data on the prevalence of CAM use particularly in the urban and rural communities in the Philippines is lacking. As such, this study was conducted to compare the prevalence and perceptions on complementary and alternative medicine and identify its predictors of use among adults in the rural barangays in Batangas and in the urban communities in the cities of Caloocan and Parañaque and Philippines.

## Materials and Method

Across sectional design was used to evaluate CAM use among adults in the rural municipality of Mataas na Kahoy, Batangas and two urban communities in Barangay Baesa 160 Zone 14 District II in Caloocan City and in Barangay Don Bosco, Parañaque City. The setting was based on the definition of rurality and urbanity of a community from Statistical Research and Training Center of the National Statistics Office in the Philippines. Sample size was computed using PASS (Power Analysis and Sample Size Software) 2008 at a power of 80% and significance level of 0.05, resulting in a sample size of at least 146. Population allocation was used to determine the number of samples needed for Mataas na Kahoy, Caloocan and Parañaque. From Mataas na Kahoy and Parañaque, 57 samples were included for each and from Caloocan, 32 households were selected. Simple random sampling was conducted to choose the barangays in the rural community. Four out of the eleven barangays were investigated. The barangays of Santol (population:1,684), Loob (population: 988), Bubuyan (population:1,107) and Calingatan (population:2,386) were drawn. The starting point of every sampling was the barangay hall. Convenience sampling was conducted to select the respondents from the households in the barangay. One adult representative from each household drawn was requested for an interview. Respondents who were included in the study are adults who are residents in the study areas for more than a year, regardless of whether they have used CAM or not and are physically and mentally able to participate in the survey. The survey instrument was administered to the respondents using a structured interview, composed of 3 parts, as follows: part 1 the respondent demographics; part 2 the evaluation

of health status by using the RAND Short Form (SF) 36-item Health Survey Questionnaire and the 8-item Brief Illness Perception Questionnaire (BIPQ). The questions in the SF 36 are scored in a scale of zero to 100 where 100 represents highest level of functioning. Aggregate scores are combined as total percentages of the total points possible, and scores from the items representing eight scales of health status were averaged to obtain the final scores in each dimension. In the BIPQ, 8 items were measured with a 0-10 scale where the highest score of ten reflects a more threatening view of the illness. These questionnaires were translated to Filipino and back-translated in English to ensure content validity. Part 3 includes the study-specific questions particular to complementary and alternative medicine use. For quality of data, the interviewers were trained and using the same prepared visual aids to further enhance comprehension of some questionnaire concepts. The researcher monitored data collection and checked during field interview. Six interviewers who have had adequate background in public health were trained prior to the conduct of the data collection. The interview was conducted from December 2011 to February 2012. The setting of the interview was of the respondents' own preference. Prior to the interview, informed consent was reviewed and signed by the respondent. A copy was given to each respondent. Data were verified and coded for analysis. Descriptive statistics were used to describe the prevalence and frequency of CAM use. Association between health perceptions and CAM use by type of community was tested using Wald test. Comparison of existing prevalence and perceptions of CAM use between urban and rural respondents were evaluated using Fisher's exact test. Candidate variables were grouped and then

entered into a multivariate logistic regression model to assess their relationship with CAM use in order to obtain the predictors of use. The odds ratio (OR) and a 95% confidence interval (CI) for each variable were determined. Variables not contributing substantially to the model were systematically removed in a backward stepwise regression process using the likelihood ratio test as the criterion for removal. The Hosmer-Lemeshow  $\chi^2$  test was used to assess the goodness of fit between the observed and predicted number of outcomes for the final model.

## Results and Discussion

**Table 1** Socio-demographic characteristics of the respondents.

Factors	n	%
Type of community		
Urban	90	61.6
Rural	56	38.4
Age group		
61 years and above	26	17.8
55 to 60 years	10	6.9
37 to 54 years	45	30.8
36 years and below	65	44.5
Sex		
Male	88	39.7
Female	58	60.3
Educational Attainment		
At least college	104	71.2
High School	35	24.0
At most elementary	7	4.8
Employment Status		
Employed	31	21.2
Unemployed	115	78.8
Annual Income		
Less than USD 2,500	7	4.8
USD 2,500 to USD 10,500	78	53.4
Greater than USD 10,500	61	41.8
Years in the barangay		
Greater than 10 years	91	62.3
5 to 10 years	20	13.7
Less than 5 years	35	24.0

A total of 146 respondents were included in the study. Table 1, More than three-fifths of the respondents live in the urban areas. Three fourths of the respondents are aged 54 years

or below. Majority of the respondents are females (60.27%) and have at least college education (71.23%) Almost four-fifths of the respondents are unemployed. Most of the respondents (62.33%) have resided in their respective barangays for more than 10 years already.

**Table 2** Health perception and status of the respondents (n=146)

<b>SF 36 Health Status</b>	<b>Mean</b>	<b>SD</b>
Physical functioning	72.9	27.5
Role limitations due to physical health	37.3	44.6
Role limitations due to emotional problems	40.2	45.3
Energy/Fatigue	62.0	19.6
Emotional well-being	72.0	19.6
Social functioning	72.1	24.3
Pain	72.0	22.7
General health	61.4	19.5
<b>Brief Illness Perception Questionnaire Score</b>	<b>3.6</b>	<b>2.2</b>
	<b>N</b>	<b>%</b>
Healthy?		
Yes	35	24.0
No	111	76.0
With acute illness(es)?		
Yes	43	29.5
No	103	70.6
With chronic illness(es)?		
Yes	81	55.5
No	65	44.5
Who is consulted when ill?		
Medical doctor	74	50.7
Allied medical professionals	64	43.8
Traditional	8	5.5

Table 2 shows the health-related characteristics of the respondents measured by dichotomous questions that inquire if they feel they are healthy, have acute illness(es) or chronic illness(es). Self-perceived health status was measured through the SF 36 tool and the BIPQ. Among the health perception components, the respondents had the highest and lowest mean scores for physical functioning (72.9 ± 27.5) and role limitations due to physical health(37.3 ± 44.6), respectively. The mean BIPQ score is 3.6 with a standard deviation of 2.2. More than three-fourths of the

respondents claim that they are not healthy.

**Table 3** Association of socio-demographic characteristics with complementary and alternative medicine use

<b>Factors</b>	<b>OR</b>	<b>p</b>	<b>95%CI</b>
Type of community			
Urban	2.2	0.029	1.1, 4.4
Rural	1.0		
Age group			
> 60 years	2.2	0.113	0.7, 3.5
55 to 60 years	1.5	0.586	0.4, 5.6
37 to 54 years	1.6	0.236	0.8, 5.7
< 37 years	1.0		
Sex			
Female	1.2	0.545	0.6, 2.4
Male	1.0		
Educational Attainment			
At least college	0.6	0.510	0.1, 3.1
High School	0.5	0.410	0.1, 2.8
At most	1.0		
Employment			
Employed	1.0	0.984	0.4, 2.2
Unemployed	1.0		
Approximate annual Income			
< USD 2,500	1.1	0.924	0.2, 5.3
USD 2,500-	1.0	0.875	0.2, 4.9
> USD 10,500	1.0		
Years in the barangay			
> 10 years	2.9	0.009	1.3, 6.5
5 - 10 years	1.8	0.285	0.6, 5.6
< 5 years	1.0		

About 30% of the respondents claim that they have acute illness(es). More than half of the respondents (55.5%) claim that they have chronic illness. About 94% of the respondents consult medical doctors and allied medical professionals when they are sick. The prevalence of CAM use among respondents residing in rural areas is 68.4% (95% CI: 57.2%, 82.1%) while the prevalence of CAM use among respondents residing in urban areas is 51.5% (95% CI: 40.6%, 61.6%).

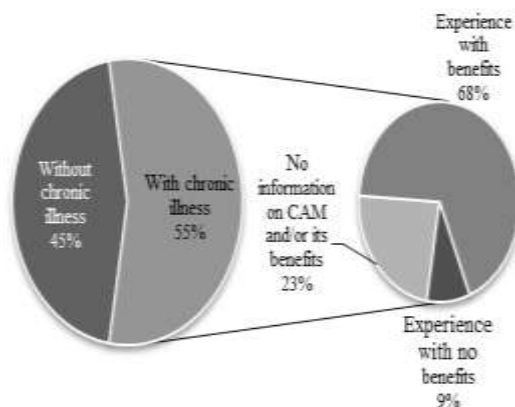
The reasons for not using CAM differ, as follows: respondents from the rural areas; no need (41.2%) no experience (23.5%) and no belief

(23.5%), whereas those from the urban areas; no belief (26.7%), no experience (22.2%), preference for conventional medications (17.8%), no need (20.0%) and ineffectiveness (8.9%). From the CAM users' viewpoint, the reasons for choosing CAM from the rural areas were inability to afford conventional medications (33.33%), accessibility (20.5%) and family tradition (15.4%). Also, CAM was used to fill in the void of conventional medications (5.13%), and due to their intimate acquaintance with the CAM product/practice (the Filipino traditional concept of "hiyang") (12.8%) and avoidance of chemicals (5.1%).

Respondents from the urban areas stated that they selected CAM because of the following: avoidance of chemicals (34.8%), their intimate acquaintance with CAM product/practice (26.09%), and expensive conventional medications (21.74%). CAM products mostly used by the respondents in the rural areas are of herbal origin such as: horse radish, or *Moringa oleifera* (35.9%), guava (30.8%), bitter melon (28.2%), herbal supplements (23.1%) and sambong or *Blumea balsamifera* (20.5%). CAM products mostly used by the respondents in the urban areas are: horse radish, or *Moringa oleifera* (60.9%), alkaline water (45.7%), bitter melon (43.5%), bayabas (39.1%) and herbal supplements (23.9%). The most common CAM methods used in the rural areas, included: (1) *hilot* or traditional Filipino massage (46.2%), use of holy oil (46.2%), consultations with an *albularyo* (traditional faith healers) (38.5%), *tawas* or an *albularyo's* traditional diagnostic ritual using interpretations of figures formed by candle wax drops on water (18.0%) and magnets (10.3%); whereas those in the urban areas included: *hilot* (53.3%), Chinese medicine (26.7%), *tawas* (24.4%), *albularyo* (22.22%)

and use of holy oil (20.00%). About 10% and 13% of the respondents from the rural and urban areas, respectively, used CAM on a daily basis for illness prevention, pain relief and treatment of cough and colds. The most common indication of CAM use was for pain relief in the rural (79.5%) and urban areas (58.7%).

The associations between CAM use and health status perception components were not statistically significant by Wald tests; as follows: physical functioning (PF) ( $p = 0.606$ ), role limitations due to physical health (RLPH) ( $p = 0.65$ ), role limitations due to emotional problems (RLEP) ( $p = 0.90$ ), energy/fatigue (EF) ( $p = 0.72$ ), emotional well-being (EW) ( $p = 0.59$ ), social functioning (SF) ( $p=0.96$ ), pain ( $p = 0.23$ ); and general health (GH) ( $p=0.15$ ), as shown in Table 4. However it should be noted that the lower the scores in PF, RLPH, EF, SF, P or GH, the higher the odds of using CAM. Correspondingly, the higher the scores in RLEP or EW, the higher the odds of using CAM.



**Figure 1** Proportion of respondents with and without chronic diseases and their experience and perceptions.

**Table 4** Association of health-related characteristics with the use of complementary and alternative medicine.

Health-related	OR	p	95% CI
Healthy?			
Yes	0.8	0.589	0.4, 1.7
No	1.0		
With acute illness?			
Yes	0.3	0.000	0.1, 0.5
No	1.0		
With chronic illness?			
Yes	6.0	0.000	2.9, 12.3
No	1.0		
Health Perception			
SF 36 Scales			
Physical	1.0	0.166	1.0, 1.0
Role limitations due to physical health	1.0	0.490	1.0, 1.0
Role Limitations due to emotional problems	1.0	0.974	1.0, 1.0
Energy/ Fatigue	1.0	0.177	1.0, 1.0
Social	1.0	0.365	1.0, 1.0
Pain	1.0	0.666	1.0, 1.0
General Health	1.0	0.081	1.0, 1.0
Brief Illness	1.7	0.380	0.9, 1.2

About half (55.5%) of the respondents suffer from chronic conditions such as hypertension (36.1%), arthritis (12.4%) and diabetes mellitus (7.2%). They are currently taking antihypertensives (31.1%), multivitamins (12.2%), pain reliefs (9.5%) and oral hypoglycaemic agents (9.5%). Respondents from the rural and urban areas with positive experiences with CAM, were 89.7% and 93.5%, respectively, and were not significantly different ( $p = 0.698$ ).

Crude logistic regression to determine the association between a particular factor and outcome of interest regardless the effects of the other factors showed that, despite the differences in socio-demographic

factors, only the type of community and years in the barangay have significant crude associations with CAM use ( $p < 0.05$ ).

Among the health-related factors measured in this study, only the presence of acute and chronic illness(es) had statistically significant crude associations with CAM use ( $p < 0.001$ ). The odds of using CAM among respondents without acute illness is four times higher than that of those with acute illness(es). The odds of using CAM among respondents with chronic illness(es) is six times higher than that of those without chronic illness. Using backward elimination method, the significant predictors of CAM use include the type of community, an annual income of less than USD 10,500, more than 10 years of residency in the barangay, low Energy/Fatigue (EF) score, high Emotional Well-being (EW) score, low Pain score, good health status, presence of chronic illness(es), and when a person consults traditional healers when sick.

The Hosmer-Lemeshow goodness-of-fit test shows that the model has good internal fit ( $p=0.3460$ ). The final model has a pseudo- $R^2$  equal to 0.2699 which means that about 27% of the variability in the odds of using CAM can be explained by the model.

The characteristics of the respondents are consistent with the common demographics of the country although some of the data in the study may not be generalizable to the whole population. Majority of the respondents lived in the urban areas, among these, 75% aged 54 years and below and females. When the interview was conducted, the unemployed females were most likely to be left in charge of the household. The number of years of residence in the barangay to determine the degree of adaptation of the majority of the respondents of more than ten years

probable suggest that the participant most likely represents the culture in his/her geographic location.

**Table 5** Significant predictors of complementary and alternative medicine use.

Significant predictors	OR	p	95% CI
Type of Community			
Rural	5.5	0.01	0.05, 0.64
Urban	1.0		
Annual Income			
< USD 2,500	15.0	0.030	1.31, 171.7
USD 2,500-10,500	15.1	0.027	1.36, 166.7
> USD 10,500	1.0		
Years in the barangay			
> 10 years	3.0	0.043	1.03, 8.46
5 to 10 years	1.2	0.85	0.28, 4.66
< 5 years	1.0		
Health Perception Components			
Energy/Fatigue	1.0	0.019	0.93, 0.99
Emotional well-being	1.1	0.001	1.03, 1.1
Pain	1.0	0.023	0.94, 1.00
Healthy?			
Yes	3.9	0.05	0.98, 15.67
No	1.0		
With chronic illness(es)			
Yes	8.4	>0.01	3.15, 22.17
No	1.0		
Who is consulted when ill?			
Traditional healers	18.4	0.007	2.20, 154.5
Allied medical professionals	2.7	0.069	0.93, 7.68
Medical doctors	1.0		

When the health-related characteristics of the respondents were evaluated, it was found that more than 75% of the respondents do not believe that they are healthy. This self-perceived existence of a disease was consistent with the scores obtained in the SF 36. The obtained highest mean score for PF of  $72.9 \pm 27.5$  and the lowest mean score obtained for RLPH of  $37.3 \pm 44.6$  could mean that most of the interviewees believe that they are still capable of doing moderate to vigorous activities

but they also realize that due to their conditions, the quality of doing such activities becomes lower and the amount of time doing the same work takes longer. Mean BIPQ score of  $3.56 \pm 2.17$  indicates a nonthreatening perspective of their conditions, implying that the respondents may tolerate illnesses.

CAM use of about 68.4% was found among the residents in the rural areas. This was expected because it has better accessibility and is locally available.<sup>4-5</sup> Also, women were more readily to use CAM than men. Non-CAM users (41.2%) from the rural areas stated that they were "healthy" and 27.5% have no experience but would try when necessary. In the urban areas, most respondents did not believe and had no prior experience with CAM. It is noted that non CAM users in the rural areas were more receptive to CAM than the urban respondents.

Literature points that CAM users choose alternative therapies to make their health care more congruent with their personal values, beliefs, and overall philosophic orientation toward health and life.<sup>6</sup> Such philosophical reason was said to result from personal values, disillusionment with conventional therapies because of lack of efficacy or of side effects, or a desire to have better control over health care matters.<sup>6</sup> However, this study does not fully support these. Mainly, high costs of drugs prevent majority of the Filipinos to use conventional medicines, which is supported by the rural respondents in this study who stated that they used more affordable and accessible CAM. The rural residents have limited access to conventional health care services with stronger informal community networks<sup>7</sup>, fewer resources, widespread poverty as a consequence of lower income<sup>8</sup>, and geographic isolation<sup>9</sup>. Almost 13% of the rural respondents raised the

phenomenon of *hiyang*, a concept usually cited by Filipinos within the context of medication-taking behaviour. Most older respondents mentioned that they take herbal medicines because they feel *hiyang*, or that the product is compatible with their body constitution. Only 5.1% of the rural respondents patronize CAM because it has no chemicals. This is the major reason of CAM use in urban residents (34.8%). Urban respondents have more access to conventional medicines and as such, they compare conventional and alternative medicines (ex. the concept of taking "natural" drugs as opposed to the "chemical" drugs). Another reason common to both urban and rural respondents is that "CAM is a tradition in the family", a point that suggests that CAM use is also influenced to some extent by culture and faith as opposed to conventional treatments where medication taking is based largely on science. Other reasons cited by the respondents are that they use CAM to avoid side effects of conventional treatment, because a friend had recommended it, or because regular treatments had failed to provide a cure.

CAM is used by both groups of respondents when necessary for the same indications: pain relief (rural > urban), illness prevention (urban > rural) and treatment of coughs and colds (rural > urban). Pain which affects general health, psychological health and economic well being, one of the strong predictors of CAM usage, could diminish fears and bring hope with natural approaches to relief.<sup>10</sup>

The association between health perception and CAM use in the urban and rural areas was not statistically significant. It has been seen in this study that individuals with poor self-perceived health status due to physical constraints but with better emotional status are more likely to use CAM. However, the associations

between CAM use and the various health perception components were not statistically significant, as what was reported previously in literature<sup>11</sup>.

Although the model indicating the predictors of use could only explain about 27% of the variability in the odds of using CAM in the Philippines, this is still considerably higher than the reported variability in odds (4.9%) using the Andersen's model in the context of CAM use in a national survey in England<sup>12</sup>.

## Conclusion

The results of this study show a higher prevalence of CAM use in the rural setting (68.4%) than in the urban areas (51.1%). CAM methods and modalities used in both types of communities do not differ significantly. Most of the respondents only use CAM when needed and these are used in the treatment of acute rather than chronic conditions even if most of the respondents have chronic illness(es). The most common reason why people turn to CAM is that they cannot afford the costs of conventional medicine. By itself, this should raise the idea that some patients may have used CAM in place of the conventional treatments prescribed by their doctor and thus, there is a risk for noncompliance. Although most of the respondents consult their primary physicians for their health concerns, they are more frequently in touch with their relatives and friends who are their most common sources of information regarding complementary and alternative medicine. Individuals with low scores in the RAND Short Form (SF) 36 scales of physical functioning, role limitations due to physical health, energy/fatigue, social functioning, pain or general health but have high scores in the scale role limitations due to emotional health and emotional well-being have higher odds of using CAM. Low scores in the brief illness



perception questionnaire also increase the likelihood of CAM usage. Both respondents in urban and rural communities perceive CAM to be beneficial in the management of their health. Significant predictors of CAM use include residence in a rural location, an annual income of less than USD 10,500, more than 10 years of residence in the barangay, energy/fatigue score, emotional well-being score, pain score, overall health status, presence of chronic illness and if the person consults traditional healers when sick. The model proposed by this study can only explain about 27% of the variability in the odds of using CAM. As such, future studies are warranted to supplement the gaps in literature and further assess the factors that influence CAM use.

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