

# Prevalence and Correlates of the Use of Complementary and Alternative Medicine in Adults Living in a Rural Area

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There is growing interest in the use of complementary and alternative medicine (CAM) throughout the world; however, previous research performed in Turkey has not focused on CAM use in rural areas. The present study was aimed at determining CAM use among people aged 18 years or older living in Balikesir, a province in the western part of Turkey, and the correlates of CAM use. This cross-sectional study was conducted in Balikesir between January 2015 and April 2015. The sample group was reached with multistage cluster sampling method. The study included 410 people who agreed to participate. Data were collected with the questionnaire developed by the researchers from the households through face-to-face interviews. The data were analyzed using the descriptive statistics, chi-square test, and logistic regression analysis. Of the participants, 87.3% reported that they had used CAM in the past 12 months. While 39.4% of them preferred herbal products, 25.7% reported that they used CAM due to chronic pain. The results of the logistic regression model demonstrated that CAM use was 4.23 times higher in the age group of those 44 years of age and older, 7.32 times higher among the women, 11.11 times higher among those who had junior high school or lower education, 9.76 times higher among the employed participants and 15.12 times higher among those who had chronic diseases. The results of the study revealed that nearly 9 of every 10 participants used CAM methods and that the most commonly used method was the use of herbal products.

**KEY WORDS:** *complementary and alternative medicine, cross-sectional studies, rural* *Holist Nurs Pract* 2019;33(1):36–44

## INTRODUCTION

Being healthy is one of the priority needs of individuals. When a person feels that his or her health deteriorates, he or she seeks various solutions related to his or her perception of health and health-seeking behaviors. Because of such reasons as the need for a longer time for the treatment process in modern medicine, being unable to reach the desired results in the treatment of diseases through modern medicine or dissatisfaction with the health services, health care users tend to use complementary and alternative medicine (CAM) methods.<sup>1,2</sup> Although there are

several definitions for the CAM, National Centre for CAM of US National Institutes of Health defines CAM as “a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine” and classifies CAM into 5 distinct categories: natural products, mind-body medicine, manipulative and body-based practices, other CAM practices, and ancient medical systems.<sup>3</sup> While alternative medicine is typically used in place of conventional health practices, complementary medicine refers to the use of CAM in combination with mainstream approaches. Recently, integrative medicine has emerged as a broader paradigm of patient-centered health care, combining conventional and complementary therapies with some scientific evidence of safety and effectiveness to promote health for the whole person in the context of his or her family and community.<sup>4</sup>

According to the World Health Organization’s Traditional Medicine Strategy 2014–2023, the prevalence of CAM use in the world ranges from 23.0% to 82.0%.<sup>2</sup>

Complementary and alternative medicine use is steadily increasing both in Turkey and in other

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countries of the world.<sup>2,5-11</sup> The prevalence of CAM use in the last 12 months appears to be between 60% and 80% in the Far East<sup>12,13</sup> and between 9% and 69% in the United States, in the north of Europe, and in Australia.<sup>8-10,14,15</sup> This difference in the prevalence of CAM use may result from cultural differences. For instance, among the common methods used at the national level are Ayurveda in India, herbal medicine, acupuncture and acupressure in China, and campo and acupuncture in Japan.<sup>16</sup> Most of the studies in the literature are community-based, adult-oriented studies in which CAM use within the last 12 months is questioned. The prevalence of CAM use determined within the last 12 months was as follows: between 5% and 74.8% in the systematic review of community-based studies conducted with adults by Frass et al,<sup>8</sup> in which surveys including literature-based questions were used, between 9.8% and 76% in the review study conducted using a similar method by Hariss et al,<sup>9</sup> between 9% and 63% in the review study conducted with similar method by Wardle et al,<sup>10</sup> between 22% and 84% in the systematic review that included both community-based and non-community-based studies by Kav et al,<sup>17</sup> 60% in Çetin's<sup>7</sup> community-based study conducted with 300 adults, 54% in the study conducted by Dedeli and Karadakovan,<sup>6</sup> with 103 people aged 65 years and older living in nursing homes, 44% in the community-based study conducted with 7630 adults by Hunt et al,<sup>14</sup> 40% in the community-based study conducted with 2393 people of all age groups in the society by Barnes et al,<sup>18</sup> 33% in the community-based study conducted with 12982 people aged between 30 and 87 by Kristofferson et al,<sup>15</sup> 81.8% in the hospital-based study conducted with 143 patients admitted for chemotherapy by Ugurluer et al,<sup>5</sup> 80% in the study conducted by Shumer et al,<sup>12</sup> with 519 adults who presented to a family center in which measurement tools were used, and 96.8% in the study conducted by Mbada et al<sup>19</sup> in Nigeria with 216 farmers who had musculoskeletal pain. On the contrary, the prevalence of CAM use determined within different periods was as follows: 14.4% in the community-based study conducted by Barbadoro et al,<sup>20</sup> with 104 544 patients within the last 3 years and 8.8% in the study conducted by Yen et al,<sup>21</sup> with 2540 adults aged 50 years and older within the last 3 months. According to these studies, the prevalence of CAM use may vary depending on the study method and sociodemographic characteristics of the participants.

Studies conducted on the issue report that although the determinants of CAM use differ from one country

to another or from one region to another, the prevalence of CAM use is higher among the elderly, women, those with a chronic disease, those whose education level or income level is low, and those who live in rural areas.<sup>6,8,15,22-28</sup>

In the literature, while some studies report that CAM use increases with age,<sup>8,10,15,20</sup> some studies report that age does not affect its prevalence.<sup>7,13,18</sup> In some studies investigating the effect of age, its prevalence increases as the education level decreases,<sup>8,12,14,18,20</sup> whereas in some studies as the education level increases, so does the prevalence of CAM use.<sup>10,29</sup> Studies investigating other correlates of CAM use indicate that its prevalence is higher in females,<sup>10,12,13,15,17,18,21</sup> in unemployed people,<sup>14</sup> in people with a chronic illness,<sup>8,10,12,14,18,20</sup> in people with high socioeconomic status,<sup>6,10,15,17,21,29</sup> and in people living in rural areas.<sup>10,13</sup>

The widespread use of CAM can also lead to unconscious use.<sup>30,31</sup> Unconscious CAM use leads to adverse effects and thus to organ dysfunction and progress of the disease. Therefore, health professionals should evaluate whether their patients use CAM, why they use CAM, what the factors associated with CAM use are, and whether the CAM method used is appropriate. If this is achieved, then national health policies on CAM use can be developed, the conscious use of CAM can be ensured, and attempts to prevent the emergence of adverse effects can be planned. Although several studies have indicated that the prevalence of CAM use is high in rural areas, there is a small body of community-based research on levels and reasons of CAM use among adults in rural areas in Turkey.<sup>32</sup>

The present study was aimed at determining CAM use among adults aged 18 years or older living in Pamukcu, a rural area in the province of Balikesir, and the factors affecting CAM use.

## METHODS

### Study type

This present study is a cross-sectional study. It was conducted in Pamukcu, a rural area in Balikesir, a province in the western of Turkey, between January 2015 and April 2015.

### Population and sample of the study

The study population comprised 3243 people aged 18 years or older living in Pamukcu. The minimum

sample size required to conduct the study was calculated as 344 with the Epi Info 2000 software package at a prevalence rate of 50.0%, the standard deviation of 5.0%, and the confidence level of 95.0%. Because the study group was to be determined using the cluster sampling method, it was decided to include 413 people in the study using the design effect of 1.2. However, having considered the possibility of not being able to contact all those people, it was decided to contact 20.0% more people ( $n = 454$  in total).<sup>33</sup> In the study, the multistage cluster sampling method was used and each of the 17 streets in the region was accepted as a cluster, and in line with the ratio of the sample size to the number of clusters ( $454/17 = 27$ ), the aim was to contact 27 persons in each cluster. There was an average of 48 houses in each cluster, and considering that the average household size in Turkey is about 3.5 to 4 persons, 7 houses ( $27/4 \approx 7$ ) were selected from these 48 houses. The first house was selected by the simple random sampling method and then 1 in every 7 houses in a row was visited and 27 people from each cluster were contacted. Of the 454 adults, 44 (9.69%) did not agree to participate in the study. Therefore, the study included 410 adults who agreed to participate in the study. The participation rate was 90.31%.

### Variables of the study

The dependent variable of the study is the use of CAM. Age, gender, marital status, education, spouse's education level, employment status, occupation, family type, perceived income status, health insurance, and presence of chronic diseases are the independent variables of the study.

### The questionnaire

The questionnaire has two sections. The first section includes 21 items concerning sociodemographic characteristics of the participants such as age, gender, employment status, occupation, marital status, educational status, educational status of the spouse, family type, health insurance, and the presence of a chronic disease. The second section has 21 items concerning presence and prevalence of CAM use within the last 12 months, type of CAM, cause of CAM use, source of the CAM knowledge, use of CAM without consulting a physician, CAM use in addition to medication, informing the physician about the CAM method used, being examined by more than

1 physician, benefiting from CAM use, and the side effects of CAM use.

### Data collection method

Before the data were collected, a pilot study was carried out with 37 people. Based on their feedback, necessary revisions were made to the questionnaire and then the data were collected. During the data collection phase, the participants were given detailed information about the purpose and scope of the research and the verbal consents indicating that they agreed to participate in the study were obtained. The data were collected using a 44-item questionnaire prepared by the researchers on the basis of the literature questioning CAM use status and correlates of CAM use through face-to-face interviews with the household. Implementation of the survey took approximately 20 minutes.

### Data analysis

Data were analyzed using the Statistical Package for the Social Sciences 22.0 (SPSS Inc, Chicago, Illinois). To perform the analysis, descriptive statistics, the  $\chi^2$  test, and logistic regression analysis were used.

To develop a model on CAM use, a logistic regression model was created using the backward elimination method that deals with variables such as age, education level, spouse's education level, occupation, family type, perceived economic status, health insurance, and presence of chronic disease all of which are shown to be statistically significantly associated with CAM use both with the univariate analysis and by studies in the literature. For the significance level of the statistical tests,  $P$  value of less than .05 was used.

### Ethic approval

The Ethics Committee of Balikesir University of Medical Sciences approved the study protocol (code of ethical approval, 2014/32).

## RESULTS

The mean age of the participants was  $44.97 \pm 16.64$  (minimum: 18, maximum: 87) years. Of the participants, 58.3% were women, 86.6% were married, 60.7% had a paid job, 26.5% were farmers, 66.8% had a nuclear family, 52.7% had an income equal to expenses, 86.1% had health insurance, and

32.7% had a chronic disease. Participants (44.9%) and their spouses (42.9%) had primary school or lower education (Table 1).

Of the participants, 87.3% reported that they had used CAM in the past 12 months. Of those who used CAM, 65.4% used CAM several times, 39.4% preferred herbal products, 25.7% used CAM for chronic pains, and 46.1% were advised to use the CAM method by their relatives and neighbors. While 49.2% of the participants took CAM without

consulting a physician, 51.1% took CAM besides a prescription drug. Of the participants, 41.6% consulted a physician about the CAM method they used, 69.8% visited several doctors when they got sick, 42.8% benefitted from CAM use, and 15.1% suffered adverse effects of CAM (Table 2).

The prevalence of CAM use was significantly higher among the participants who were aged 44 years or older ( $P = .001$ ), who were female ( $P = .028$ ), who had primary school or lower education ( $P = .001$ ), whose spouses had primary school or lower education ( $P = .038$ ), who were employed ( $P = .021$ ), and who had a chronic disease ( $P = .001$ ) than was that among their counterparts in the same categories (Table 3).

The prevalence of CAM use calculated with the logistic regression model developed using the backward elimination method was 4.23 times higher in the age group of 44 years and older than in the age group of 18 to 43 years (95.0% confidence interval [CI], 1.78-5.02), 7.32 times higher in the men than in the women (95.0% CI, 3.08-9.38), 3.35 times higher in the high school graduates (95.0% CI, 1.24-5.08), and 11.11 times higher in the graduates of junior high school or lower (95.0% CI, 2.85-13.23) than in the university graduates, 9.76 times higher in the employed participants than in the unemployed participants (95.0% CI, 4.00-11.80), and 15.12 times higher in those with a chronic disease than in those without a chronic disease (95.0% CI, 3.67-18.59) (Table 4).

## DISCUSSION

In this present study aimed to determine CAM use and correlates of CAM use in a rural area, the method used to minimize the number of the errors likely to result from disremembering or misremembering was similar to the methods used in other studies conducted both in the other countries of the world and in Turkey: CAM use within the last 12-month period was questioned and it was determined that nearly 9 of every 10 people in the last 12 months used CAM.

In Turkey, in studies conducted with adults in different age groups, having chronic diseases, and living in different regions, the prevalence of CAM use is reported to vary between 12.6% and 90%.<sup>5,14,17,32,34,35</sup> In the literature, CAM use is reported to be more prevalent in rural areas than in urban areas.<sup>10-12</sup>

The comparison of the prevalence of CAM use in this present study with that in other studies conducted

**TABLE 1.** Distribution of Some Sociodemographic Characteristics of the Participants

| Sociodemographic Characteristics | n (%)       |
|----------------------------------|-------------|
| Age                              |             |
| 18-43                            | 203 (49.5)  |
| ≥44                              | 207 (50.5)  |
| Gender                           |             |
| Female                           | 239 (58.3)  |
| Male                             | 171 (41.7)  |
| Marital status                   |             |
| Married                          | 355 (86.6)  |
| Single/widow                     | 55 (13.4)   |
| Education level                  |             |
| Primary school or lower          | 184 (44.9)  |
| Junior high school               | 98 (23.9)   |
| Senior high school               | 48 (11.7)   |
| University                       | 80 (19.5)   |
| Spouse's education level         |             |
| Primary school or lower          | 176 (42.9)  |
| Junior high school               | 100 (24.4)  |
| Senior high school               | 88 (21.5)   |
| University                       | 46 (11.2)   |
| Employment status                |             |
| Employed                         | 249 (60.7)  |
| Unemployed                       | 161 (39.3)  |
| Occupation                       |             |
| Farmer                           | 66 (26.5)   |
| Tradespeople                     | 52 (20.9)   |
| Civil servant                    | 47 (11.5)   |
| Worker                           | 84 (20.5)   |
| Family type                      |             |
| Nuclear                          | 274 (66.8)  |
| Extended                         | 125 (30.5)  |
| Broken                           | 11 (2.7)    |
| Perceived financial situation    |             |
| Income less than expenses        | 81 (19.8)   |
| Income equal to expenses         | 216 (52.7)  |
| Income more than expenses        | 113 (27.5)  |
| Health insurance                 |             |
| Yes                              | 353 (86.1)  |
| No                               | 57 (13.9)   |
| Presence of a chronic disease    |             |
| Yes                              | 134 (32.7)  |
| No                               | 276 (67.3)  |
| Total                            | 410 (100.0) |

**TABLE 2. Adults' Complementary and Alternative Medicine Use–Related Characteristics**

| Complementary and Alternative Medicine Use–Related Characteristics                  |   | n (%)  |
|---|---|--|
| Complementary and alternative medicine use  |   | Yes 358 (87.3)   |
|   |   | No 52 (12.7)   |
| Frequency of complementary and alternative medicine use                             |   | Once 124 (34.6)  |
|   |   | Twice or more times 234 (65.4)                             |
| Type of the Complementary and Alternative Medicine                                  | Biologically based treatments   | Herbal products 141 (39.4)                                 |
|   | Manipulative and body-based methods                                   | Spa 91 (25.4)  |
|   | Mind-body interventions   | Massage 40 (11.2)  |
|   |   | Praying, having someone else pray for him or her 64 (17.9) |
|   |   | Wearing a good luck charm 12 (3.4)                         |
|   |   | Visiting a tomb or an entombed saint 10 (2.8)              |
|   | Reasons for using complementary and alternative medicine <sup>a</sup> | Chronic pain 92 (25.7)                                     |
| Hypertension 59 (16.5)  |   |  |
| Personal care 47 (13.1)   |   |  |
| Diabetes 40 (11.2)  |   |  |
| Musculoskeletal diseases 34 (9.5)   |   |  |
| Hyperlipidemia 26 (7.3)   |   |  |
| Cancer 21 (5.9)   |   |  |
| Asthma-COPD 14 (3.9)  |   |  |
| Psychological problems 13 (3.6)   |   |  |
| Insomnia 12 (3.4)   |   |  |
| Source of information on complementary and alternative medicine methods             |   | Relative-neighbor 165 (46.1)                               |
|   | Friend 73 (20.4)  |  |
|   | Media 72 (17.6)   |  |
|   | Health personnel 48 (13.4)  |  |
| Complementary and alternative medicine use without consulting a physician           | Yes 176 (49.2)  |  |
|   | No 182 (50.8)   |  |
| Complementary and alternative medicine use besides a prescription drug              | Yes 183 (51.1)  |  |
|   | No 175 (48.9)   |  |
| Consulting a physician about the complementary and alternative medicine method used | Yes 209 (58.4)  |  |
|   | No 149 (41.6)   |  |
| Being examined by more than 1 physician   | Yes 249 (69.8)  |  |
|   | No 109 (30.2)   |  |
| Benefitting from complementary and alternative medicine use                         | Yes 153 (42.8)  |  |
|   | No 205 (57.2)   |  |
| Suffering from adverse effects of complementary and alternative medicine use        | Yes 54 (15.1)   |  |
|   | No 304 (84.9)   |  |
| Total   |   | 358 (100.0)  |

Abbreviation: COPD, chronic obstructive pulmonary disease.  
<sup>a</sup>Multiple options are marked.

in Turkey revealed that it was higher in some studies and lower in some studies.<sup>5,17,36,37</sup> All these differences, may have stemmed from the differences between the participants' characteristics and designs of the studies. Another factor is that people living in rural areas lack several opportunities and have difficulties in accessing health care due to economic and geographical reasons.

In studies conducted in different countries such as Australia, the United States, South Korea, Japan, and

the United Kingdom, the prevalence of CAM use ranges from 9.0% to 86.0%. Use of CAM is increasing gradually from west to east.<sup>2,5,9,10,12,32,38,39</sup> The culture of those countries may have affected this increase. Another factor is that CAM applications are of an eastern origin. In a study conducted in a rural area in Nigeria, the prevalence of CAM use in the past year was calculated to be approximately 97%, and the most commonly used CAM methods were herbal products and massage.<sup>19</sup> This high rate of CAM use

**TABLE 3.** Complementary and Alternative Medicine Use Among Adults in Terms of Selected Sociodemographic Characteristics

| Sociodemographic Characteristics (n = 410) | Complementary and Alternative Medicine Use |      |    |      | $\chi^2$ | P    |
|--|--|------|----|------|----------|------|
|  | Yes  |      | No |      |          |      |
|  | n  | %    | n  | %    |          |      |
| Age, y                                     |  |      |    |      |          |      |
| 18-43                                      | 161  | 79.3 | 42 | 20.7 | 23.276   | .001 |
| ≥44  | 197  | 95.2 | 10 | 4.8  |          |      |
| Gender                                     |  |      |    |      | 4.844    | .028 |
| Female                                     | 216  | 90.4 | 23 | 9.6  |          |      |
| Male                                       | 142  | 83.0 | 29 | 17.0 |          |      |
| Marital status                             |  |      |    |      | 0.777    | .378 |
| Married                                    | 312  | 87.9 | 43 | 12.1 |          |      |
| Single/widow                               | 46   | 83.6 | 9  | 16.4 |          |      |
| Education level                            |  |      |    |      | 18.098   | .001 |
| Primary school or lower                    | 172  | 93.5 | 12 | 6.5  |          |      |
| Junior high school                         | 83   | 84.7 | 15 | 15.3 |          |      |
| Senior high school                         | 43   | 89.6 | 5  | 10.4 |          |      |
| University                                 | 60   | 75.0 | 20 | 25.0 |          |      |
| Spouse's education level                   |  |      |    |      | 11.218   | .011 |
| Primary school or lower                    | 163  | 92.6 | 13 | 7.4  |          |      |
| Junior high school                         | 87   | 87.0 | 13 | 13.0 |          |      |
| Senior high school                         | 73   | 83.0 | 15 | 17.0 |          |      |
| University                                 | 35   | 76.1 | 11 | 23.9 |          |      |
| Employment status                          |  |      |    |      | 5.307    | .021 |
| Employed                                   | 225  | 90.4 | 24 | 9.6  |          |      |
| Unemployed                                 | 133  | 82.6 | 28 | 17.4 |          |      |
| Occupation                                 |  |      |    |      | 2.599    | .458 |
| Farmer                                     | 57   | 86.4 | 9  | 13.6 |          |      |
| Tradespeople                               | 46   | 88.5 | 6  | 11.5 |          |      |
| Civil servant                              | 44   | 93.6 | 3  | 6.4  |          |      |
| Worker                                     | 78   | 92.9 | 6  | 7.1  |          |      |
| Family type                                |  |      |    |      | 0.006    | .937 |
| Nuclear                                    | 239  | 87.2 | 35 | 12.8 |          |      |
| Extended/broken                            | 119  | 87.5 | 17 | 12.5 |          |      |
| Perceived financial situation              |  |      |    |      | 2.116    | .347 |
| Income less than expenses                  | 69   | 85.2 | 12 | 14.8 |          |      |
| Income equal to expenses                   | 186  | 86.1 | 30 | 13.9 |          |      |
| Income more than expenses                  | 103  | 91.2 | 10 | 8.8  |          |      |
| Health insurance                           |  |      |    |      | 0.278    | .598 |
| Yes  | 307  | 87.0 | 46 | 13.0 |          |      |
| No   | 51   | 89.5 | 6  | 10.5 |          |      |
| Presence of a chronic disease              |  |      |    |      | 16.905   | .001 |
| Yes  | 130  | 97.0 | 4  | 3.0  |          |      |
| No   | 228  | 82.6 | 48 | 17.4 |          |      |

reported in the aforementioned study might have stemmed from the fact that the participants of that study were people with chronic diseases, that it was difficult to access health services, and that people were not satisfied with health services.

In a study conducted in a rural area in Japan, the prevalence of CAM use within the past year was about 78%. Similar to the present study, the majority of CAM methods used in the study mentioned previously

was self-therapy (praying etc) and visiting places such as shrines.<sup>12</sup> This similarity is probably because both studies were conducted in rural areas and spiritual values are of great importance in both nations. The most commonly used CAM methods in this present study were herbal products, spas, and praying. Although praying was considered among CAM methods in the present study, it was not considered among CAM methods in some

**TABLE 4.** Variables Associated With Complementary and Alternative Medicine Use in the Logistic Regression Model

| Sociodemographic Characteristics (n = 410) | $\beta$ | SE    | P    | OR <sup>a</sup> | 95% CI            |
|--|---------|-------|------|-----------------|-------------------|
| Age, y                                     |         |       |      |                 |                   |
| 18-43                                      | 1.443   | 0.440 | .001 | 4.23            | 1.00 (1.78-5.02)  |
| ≥44  |         |       |      |                 |                   |
| Gender                                     |         |       |      |                 |                   |
| Male                                       | 1.991   | 0.441 | .001 | 7.32            | 1.00 (3.08-9.38)  |
| Female                                     |         |       |      |                 |                   |
| Marital status                             |         |       |      |                 |                   |
| Single                                     | 0.325   | 0.593 | .583 | 0.72            | 1.00 (0.22-2.30)  |
| Married                                    |         |       |      |                 |                   |
| Education level                            |         |       |      |                 |                   |
| University                                 |         |       |      |                 | 1.00 (1.24-5.08)  |
| High school                                | 1.212   | 0.508 | .017 | 3.35            |                   |
| Primary school                             | 2.408   | 0.693 | .001 | 11.11           | (2.85-13.23)      |
| Spouse's education level                   |         |       |      |                 |                   |
| University                                 |         |       |      |                 | 1.00 (0.62-4.81)  |
| High school                                | 0.737   | 0.627 | .240 | 2.08            |                   |
| Primary school                             | 0.112   | 0.646 | .863 | 0.89            | (0.23-2.72)       |
| Employment status                          |         |       |      |                 |                   |
| Unemployed                                 | 2.279   | 0.455 | .001 | 9.76            | 1.00 (4.00-11.80) |
| Employed                                   |         |       |      |                 |                   |
| Family type                                |         |       |      |                 |                   |
| Nuclear                                    | 0.227   | 0.387 | .558 | 0.79            | 1.00 (0.37-1.70)  |
| Extended                                   |         |       |      |                 |                   |
| Perceived financial situation              |         |       |      |                 |                   |
| High income                                |         |       |      |                 | 1.00 (0.42-2.57)  |
| Equal income                               | 0.045   | 0.459 | .922 | 1.04            |                   |
| Low income                                 | 1.004   | 0.554 | .070 | 2.73            | (0.92-4.08)       |
| Health insurance                           |         |       |      |                 |                   |
| Yes  | 0.715   | 0.613 | .244 | 2.04            | 1.00 (0.61-4.80)  |
| No   |         |       |      |                 |                   |
| Presence of a chronic disease              |         |       |      |                 |                   |
| No   | 2.71    | 0.72  | .001 | 15.12           | 1.00 (3.67-18.59) |
| yes  |         |       |      |                 |                   |

Abbreviations: CI, confidence interval; OR, odds ratio.  
<sup>a</sup>Hosmer and Lemeshow test: 0.984, Nagelkerke  $R^2$ : 0.379.

studies.<sup>8,14,15,22,27,32,38,40</sup> Because the region the present study was conducted is a rural area, and because Turkish people living in rural areas are very religious, praying is often used as a CAM method and thus praying was included among CAM methods in the present study. In consistent with the literature, the most preferred CAM method was the use of herbal products.<sup>7,11,14,22,26,32,37,40,41</sup> Increases in the use of herbal products are probably due to the fact that they are easily available and cheap and can be applied at any time. The findings of this present study support the findings of studies in the literature. Another CAM method frequently used in the present study by the participants with a chronic disease was praying. This

case can be explained by the fact that praying has an important place in Turkish culture, and that Turkish society attaches importance to religious values.<sup>7,32</sup> In this present study, variables such as age, gender, employment status, educational status, and the presence of chronic diseases were among the determinants of CAM use, and the prevalence of CAM use was higher among the elderly, women, those working in a paid job, and having chronic diseases and low education levels. This finding is consistent with the findings of the studies in the literature.<sup>8,10,20,24,41</sup> In some studies in the literature, as the education level increased, so did the CAM use,<sup>10,20,29</sup> whereas in some other studies, as in this study, CAM use

increased as the education level decreased.<sup>7,8,13,18</sup> That the CAM use increased as the participants' educational level decreased in this present study may have been due to their being influenced by the environment they lived in. Indeed, almost half of the participants in the present study stated that they learned about the CAM method they used from their relatives or neighbors. In the literature, patients with chronic diseases, especially patients with cancer, are reported to resort to using CAM, because they often think that modern medicine is inadequate and because they are desperate.<sup>5,17,37</sup> It is also reported by the World Health Organization that CAM use is high among those with chronic diseases and those living in rural areas.<sup>2</sup> In this present study, almost all of the participants with chronic diseases used CAM, which is in line with the results of studies in the literature. In a study conducted in Eskisehir, a province in Turkey, it is reported that CAM use is associated with the accessibility of health care services and that those who have difficulties in accessing health services resort to CAM use more.<sup>7</sup> In this present study, it was determined that nearly half of the participants used CAM without consulting a physician, which supports the findings of the study conducted in Eskisehir. Similarly, in another study conducted in Norway, a strong association was reported between CAM use and patient satisfaction.<sup>42</sup> It was determined that about one-third of the participants in this study did not tell their physicians the CAM method they used, which is consistent with the data in the literature.<sup>5,11,12,27,32</sup> This may be due to assumption that the CAM methods used would not be approved by the physician.

## CONCLUSION

In this present study, it was determined that almost 9 of every 10 participants used CAM methods, and that the most commonly used method was the use of herbal products. The leading cause of using CAM by the participants was chronic diseases. The prevalence of CAM use was higher among the elderly, women, those who had junior high school or lower education, and those with a chronic disease. That the majority of the participants used CAM methods more than once and mostly due to chronic diseases within the past year, that almost 1 of 2 participants used CAM methods in addition to drug therapy without being examined by a physician, and that the majority of the participants resorted to multiple physicians suggest that they did not trust modern medical care. In addition, that the

participants of this present study used CAM methods because of chronic diseases suggests that home visits and the follow-up of patients with chronic diseases were not appropriately fulfilled by health professionals in primary health care. Therefore, the fulfillment of home visits and the follow-up of patients with chronic diseases by primary health care providers should be ensured. Health professionals should question whether and why adults use CAM, what the factors associated with CAM use are, and what CAM methods are used. They should also evaluate whether the CAM method used is appropriate and provide families with consulting on CAM use. Finally, nationwide community-based qualitative studies should be carried out to find out why CAM is used and programs should be organized to reduce CAM use resulting from problems associated with the inadequate delivery of health services. World Health Organization Traditional Medicine Strategy 2014-2023 recommends that research groups aiming to investigate CAM use should be established, and strategies in line with the needs of society should be developed.<sup>2</sup>

## LIMITATIONS

Among the major limitations of this study are that the results can be generalized only to the study population, that the study was conducted in the field, and that the majority of the participants were women because mostly there were women at homes during the hours when the study data were collected.

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