*Research Article*

# Journal of Gazi University Health Sciences Institute

## Knowledge and Attitudes of Adults Visiting Family Health Centers in Ankara about Traditional and Complementary Medicine Practices During the Pandemic

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## Abstract

This study aims to evaluate the knowledge, attitudes, and practices regarding Traditional and Complementary Medicine (TCAM) among adults before and during the pandemic. This study is a cross-sectional research conducted in 9 Family Physician Centers in 3 central districts of Ankara. The minimum sample size was calculated as 360, and 372 adults were reached. In the pre-pandemic period, the number of individuals who heard about TCAM applications was 234 (62.9%), out of which 83 (35.5%) have applied. Individuals over 40 were more likely to have heard of TCAM methods (p<0.0001). During the pandemic period, 19.9% of the participants applied any of the TCAM methods. The most frequently applied method was cupping (36.8%), and the most frequently declared reason was "to strengthen the immune system". The frequency of applying TCAM methods was higher among individuals with chronic illnesses (p=0.026). TCAM methods are frequently utilized by adults in the population. Almost one-fifth of the adults have used any TCAM method during the pandemic period. There is a need for comprehensive studies to investigate the reasons that push people to use TCAM and ensure that the methods are applied by health personnel under healthy conditions.

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## 1. Introduction

The search for solutions to illnesses by utilizing past experiences and natural resources has led to the development and growth of "Traditional and Complementary Medicine (TCAM)" practices (Arslan et al.,2016). In developing countries, the use of TCAM practices is quite prevalent. In developed countries, the prevalence of TCAM is also increasing, driven by its accessibility and affordability. In Turkey, various studies indicate a usage rate between 54.3% and 65.8% (Fadıloğlu Ç. & Özçelik H. ,2009; PMB,2008). The World Health Organization (WHO) declared COVID-19 pandemic on March 11, 2020. Since December 2019, there have been approximately 760 million cases and 6.9 million deaths reported globally, with actual numbers believed to be much higher (WHO, 2023). The COVID-19 pandemic was accompanied by an "infodemic," characterized by the rapid spread of inaccurate and non-scientific information related to COVID-19 in both traditional media and online platforms, often inciting fear and anxiety among the public. Discussions around immunization efforts particularly exacerbated this phenomenon. Factors such as the rapid spread of the virus, delays in vaccine and medication development, changes in treatment protocols, distrust in the efficacy of pharmacological methods like vaccines and drugs, fear of side effects, and the perceived need for frequent administration have driven individuals to seek TCAM practices both for protection against the virus and for the treatment of the disease (Nugraha RV et al., 2020). This study aims to evaluate the knowledge, attitudes, and practices regarding TCAM during the pandemic among adults visiting family health centers.

## 2. Material and Method

This study is cross-sectional research conducted between April 1, 2023, and July 1, 2023, on individuals aged 18 and above who visited family health centers in the Etimesgut, Keçiören, and Pursaklar districts of Ankara, the capital of Turkiye with 25 districts. The study was conducted in 3 family health centers randomly selected from each of the 3 aforementioned central districts. According to 2023 Turkish Statistical Institute (TSI) data (Türkiye İstatistik Kurumu-TÜİK, 2023), the adult population in Ankara is 2,165,415 (48.7%) males and 2,282,019 (51.3%) females with a total of 4,447,434 individuals. It was estimated that 15,000 adults visited these 9 family health centers in a week, forming the study population. Data was collected for one week in May 2023. The sample size was calculated using the OpenEpi software, with a confidence interval of 95%, $\alpha=0.05$, d=5%, and an assumed average prevalence of 60% (Fadıloğlu Ç & Özçelik H,2009; Barnes P.M.,2008). The minimum sample size was calculated as 360 individuals. The study was conducted with 409 participants; however, 21 individuals with insufficient literacy skills and 16 who did not complete at least 90% of the survey were excluded, resulting in a final sample size of 372 participants.

Data were collected using a questionnaire about the participants' sociodemographic characteristics, personal and family medical history, and hearing and using TCAM practices pre-pandemic and pandemic periods.

Ethical approval of the study is obtained from the Gazi University Ethical Committee (07.02.2023, research code: 2023-124).

### 3. Findings

The data were analyzed using IBM SPSS version 20.0. Descriptive statistics were presented as frequencies, percents, mean±standard deviations, and medians (min, max). Pearson, Yates' Corrected and Fisher's Exact Chi-square tests were used for data analysis. A p-value of less than 0.05 was considered statistically significant.

Among the study group, 254 (68.3%) were female. The participants' median age was 36 (18,92) and mean age was 37.25±10.4 years. Before the pandemic, 234 (62.9%) individuals had heard of TCAM practices. Individuals over 40 were more likely to have heard of TCAM methods (p<0.0001). No significant association was found between hearing about TCAM methods and other characteristics (Table 1).

**Table 1.** Distribution of Individuals by General Characteristics

| Descriptive Features | n (%) | Heard about TCAM Methods Before the Pandemic | | Statistical Analysis Chi-square value; p |
|---|---|---|---|---|
| | | Yes n (%)* | No n (%)* | |
| **Age Group** | | | | |
| ≤30 | 88 (23,7) | 44 (50.0) | 44 (50.0) | 15.287; 0.000 |
| 31-40 | 180 (48,4) | 110 (61.1) | 70 (38.9) | |
| ≥41 | 104 (28,0) | 80 (76.9) | 24 (23.1) | |
| **Gender** | | | | |
| Female | 254 (68,3) | 158 (62.2) | 96 (37.8) | 0.167; 0.682 |
| Male | 118 (31,7) | 76 (64.4) | 42 (35.6) | |
| **Education Level** | | | | |
| Primary Education | 105 (28,2) | 64 (61.0) | 41 (39.0) | 1.337; 0.512 |
| High School | 129 (34,7) | 78 (60.5) | 51 (39.5) | |
| Bachelor's/Master's Degree | 138 (37,1) | 92 (66.7) | 46 (33.3) | |
| **Marital Status** | | | | |
| Married | 297 (79,8) | 186 (62.6) | 111 (37.4) | 0.048; 0.826 |
| Single | 75 (20,2) | 48 (64.0) | 27 (36.0) | |
| **Employment Status** | | | | |
| Regular Employment | 162 (43,5) | 104 (64.2) | 58 (35.8) | 4.951; 0.084 |
| Irregular Employment | 23 (6,2) | 19 (82.6) | 4 (2.9) | |
| Unemployed | 187 (50.3) | 111 (59.4) | 76 (40.6) | |

| | | | | |
|---|---|---|---|---|
| **Number of People in Household** | | | | |
| 3 or less | 107 (28,8) | 71 (66.4) | 36 (33.6) | 0.946; 0.623 |
| 4 | 149 (40,1) | 90 (60.4) | 59 (39.6) | |
| 5 or more | 116 (31,2) | 73 (62.9) | 43 (37.1) | |
| **Perceived Income Level** | | | | |
| Poor | 54 (14.5) | 33 (61.1) | 21 (38.9) | 5.180; 0.075 |
| Moderate | 235 (63.2) | 140 (59.6) | 95 (40.4) | |
| Good | 83 (22.3) | 61 (73.5) | 22 (26.5) | |
| **Presence of Chronic Illness** | | | | |
| Yes | 78 (21,0) | 54 (69.2) | 24 (30.8) | 1.693; 0.193 |
| No | 294 (79,0) | 180 (61.2) | 114 (38.8) | |
| **Regular Medication Use** | | | | |
| Yes | 96 (25.8) | 63 (65.6) | 33 (34.4) | 0.411; 0.522 |
| No | 276 (74.2) | 171 (62.0) | 105 (38.0) | |
| **Smoking Status** | | | | |
| Smoker | 88 (23,7) | 51 (58.0) | 37 (42.0) | 1.210; 0.271 |
| Non-smokers | 284 (76,3) | 183 (64.4) | 101 (35.6) | |
| **Perceived Health Status score** | | | | |
| ≤5 | 105 (28,2) | 70 (66.7) | 35 (33.3) | 0.888; 0.346 |
| ≥6 | 267 (71,8) | 164 (61.4) | 103 (38.6) | |
| **Total** | 372 (100.0) | 234 (62.9) | 138 (37.1) | |

The number of individuals who heard and applied any of the TCAM methods was 83 (35.5%). The rate was higher among female participants and those with high school or higher education levels (each p<0.05) (Table 2). The most frequently applied TCAM methods were cupping (%36.1), leech thearpy (hirudotherapy) (%19.0), phytotherapy (%19.0) and acupuncture (%12.6). These methods are followed by ozone application 5 (3.1%), apitherapy (1.9%), mesotherapy (1.9%), hypnosis (1.3%), music therapy (1.3%), homeopathy (1.3%), reflexology (0.6%), and others (1.9%). Most of the applications were done by non-health personnel (30.8%) or by health personnel in places other than health centers (28.6%). Self-application at home was 20.9 %. Only 19.7% of those who applied TCAM methods had the application done by a healthcare professional at a health center. Fifty participants (60.2%) stated that they had benefited from the application. The main information sources about TCAM applications were the Internet (28.7%), TV Programs/News (26%), and Neighbors/ Relatives/ Friends (25.8%), respectively. Health institutions/ health personnel as an information source are ranked fourth with 10.6%.

**Table 2.** Usage of TCAM Methods Among Participants Before the Pandemic by Sociodemographics, Personal Background, and Perceived Health Status

| Descriptive Features | n* (%) | Usage of TCAM Methods Before the Pandemic | | Statistical Analysis Chi-square value; p |
|---|---|---|---|---|
| | | Yes n (%)* | No n (%)* | |
| **Age Group** | | | | |
| ≤30 | 44 (18.8) | 9 (20.5) | 35 (79.5) | 5.777; 0.056 |
| 31-40 | 110 (47.0) | 45 (40.9) | 65 (59.1) | |
| ≥41 | 80 (34.2) | 29 (36.3) | 51 (63.7) | |
| **Gender** | | | | |
| Female | 158 (67.5) | 64 (40.5) | 94 (59.5) | 5.391; 0.030 |
| Male | 76 (32.5) | 19 (25.0) | 57 (75.0) | |
| **Education Level** | | | | |
| Primary Education | 64 (27.4) | 14 (21.9) | 50 (78.1) | 7.158; 0.028 |
| High School | 78 (33.3) | 31 (39.7) | 47 (60.3) | |
| Bachelor's/Master's Degree | 92 (39.3) | 38 (41.3) | 54 (35.8) | |
| **Marital Status** | | | | |
| Married | 186 (79.5) | 69 (37.1) | 117 (62.9) | 0.730; 0.393 |
| Single | 48 (20.5) | 14 (29.2) | 34 (70.8) | |

| | | | | |
|---|---|---|---|---|
| **Employment Status** | | | | |
| Regular Employment | 104 (44.4) | 41 (39.4) | 63 (60.6) | 1.627; 0.443 |
| Irregular Employment | 19 (8.1) | 5 (26.3) | 14 (73.7) | |
| Unemployed | 11 (47.4) | 37 (33.3) | 74 (66.7) | |
| **Number of People in Household** | | | | |
| 3 or less | 71 (30.3) | 24 (33.8) | 47 (66.2) | 0.393; 0.822 |
| 4 | 90 (38.5) | 31 (34.4) | 59 (65.6) | |
| 5 or more | 73 (31.2) | 28 (38.4) | 45 (61.6) | |
| **Perceived Income Level** | | | | |
| Poor | 33 (14.1) | 14 (42.4) | 19 (57.6) | 0.927; 0.629 |
| Moderate | 140 (59.8) | 47 (33.6) | 93 (66.4) | |
| God | 61 (26.1) | 61 (26.1) | 22 (36.1) | |
| **Presence of Chronic Illness** | | | | |
| Yes | 54 (23.1) | 20 (37.0) | 34 (63.0) | 0.013; 0.911 |
| No | 180 (76.9) | 63 (35.0) | 117 (65.0) | |
| **Regular Medication Use** | | | | |
| Yes | 63 (26.9) | 22 (34.9) | 41 (65.1) | 0.000; 1.000 |
| No | 171 (73.1) | 61 (35.7) | 110 (64.3) | |
| **Smoking Status** | | | | |
| Smoker | 51 (21.8) | 17 (33.3) | 34 (66.7) | 0.038; 0.845 |
| Non-smokers | 183 (778.2) | 66 (36.1) | 117 (63.9) | |
| **Perceived Health Status score** | | | | |
| ≤5 | 70 (29.9) | 20 (28.6) | 50 (71.4) | 1.669; 0.196 |
| ≥6 | 164 (70.1) | 63 (38.4) | 101 (61.6) | |
| **Total** | 234 (100.0) | 83 (35.5) | 151 (64.5) | |

During the pandemic period, 74 (19.9%) of the participants applied any of the TCAM methods. The frequency was higher among individuals with chronic illnesses (p=0.026) (Table 3). No significant association was found between applying TCAM methods and other characteristics (Table 3). The most frequently applied TCAM method was cupping (36.8%), followed by phytotherapy (26.3%), ozone application (14.0%), acupuncture (13.2%) leech therapy (hirudotherapy) (9.7%). The declared reasons for the application of TCAM during the pandemic were to strengthen the immune system (50.0%), in addition to medical (drug) treatment (33.3%), and not trusting the medical treatment (16.7%).

Three hundred fourteen (84.4%) of the participants was vaccinated with any of the COVID vaccines.

There was no difference in terms of vaccination status between the participants who had heard of TCAM methods before the pandemic and those who had not (p = 0.235). The rate of non-vaccination was higher in the participants who applied TCAM methods both before the pandemic (p<0.0001) and during the pandemic (p=0.004) compared to those who did not.

## 4. Discussion

In our study, 62.9% of participants had heard of TCAM methods before the pandemic, with an application rate of 22.3%. During the pandemic, this rate was 19.9%. A similar study by Ak and Aksakal conducted in family health centers in Ankara found a TCAM usage rate of 32.6% among adults (Ak &Baran Aksakal, 2020). Research by Torres-Zeno et al. reported that TCAM usage rates in Puerto Rico before the pandemic ranged from 55.7% to 92.1%, depending on the specific method used (Torres-Zeno et al., 2016). Youn et al.,2022, in a multinational cross-sectional study at the beginning of the pandemic, reported TCAM application frequencies of 47.5% in Germany, 41.3% in the USA, 17.5% in Japan, 77.7% in China, 43.3% in Malaysia, 85.8% in Vietnam, 52.5% in Russia, 42.1% in Kazakhstan, and 48.0% in the United Arab Emirates (Youn et al., 2022). The prevalence of TCAM practices varies due to socio-economic levels, spiritual beliefs, access to healthcare, and integration into health systems. These factors might explain the differences in TCAM usage frequencies across countries.

The average age of the participants was around 37 years, with nearly half of the participants aged between 30 and 40. While individuals over 40 were more likely to have heard of TCAM methods, there was no significant difference in applying these methods between age groups before or during the pandemic. In contrast, another study conducted in family health centers in Ankara found that individuals over 60 used TCAM methods more frequently (Ak & Baran Aksakal, 2020). Karataş and colleagues, in an online survey, reported that 65% of their participants were 40 and above, with higher TCAM usage in this age group (Karataş et al., 2021). Generally, as health-related issues are expected to increase with age, individuals may seek alternative or complementary methods alongside standard treatments to manage their health problems and improve their quality of life. However, this trend was not observed in our study.

While there was no difference in TCAM usage between genders during the pandemic, women used these methods more frequently before the pandemic. A study in Isparta also found higher TCAM usage among women (Öztürk et al., 2005). Research by Kristoffersen et al.,2017, reported that being female was a determinant of TCAM usage (Kristoffersen et al.,2017). Another research by Kristoffersen et al.,2014, highlights that women are more concerned about their health, more proactive in improving it, and may face barriers in meeting their healthcare needs, leading them to prefer TCAM methods (Kristoffersen et al.,2014). In-depth interviews with women in Norway revealed that barriers in communication, understanding, and treatment of their illnesses led them to use TCAM methods (Salamonsen et al.,2012; Salamonsen et al., 2010).

Variables such as economic status, education level, and age can influence the use of modern healthcare services. Individuals with lower perceived income may use TCAM methods more frequently. However, our study did not find a significant relationship between perceived income level, regular employment status, and the frequency of using TCAM methods

before or during the pandemic. Öztürk et al. found that individuals with poorer financial status used TCAM methods more frequently (Öztürk et al., 2012). In contrast, Kristoffersen et al.2017, found an association between income level and TCAM usage in univariate analyses, which was not confirmed in further analyses (Kristoffersen et al., 2017). Similar to our study, Ibrahim et al. found no association between income level and TCAM usage (Ibrahim et al., 2018). Karataş and colleagues reported higher TCAM usage among individuals with higher income levels (Karataş et al., 2021).

In our study, the frequency of TCAM usage before the pandemic was lower among primary education graduates, while no significant difference was found during the pandemic across educational levels. A study in Iraq found higher TCAM usage among individuals with lower educational levels (Ibrahim et al., 2018), whereas Karataş et al. reported higher usage among those with higher educational levels (Karataş et al., 2021). A study in Isparta also found that individuals with lower educational levels used TCAM methods more frequently (Öztürk et al., 2005). However, Nural and Çakmak's research found no relationship between educational level and TCAM usage (Nural & Çakmak, 2018). The relationship between educational level and TCAM usage is complex. Individuals with higher educational levels may have better economic well-being, making modern healthcare services more accessible and reducing the reliance on TCAM methods. Conversely, easier access to accurate information may influence decisions related to TCAM usage. Additionally, factors such as the characteristics of the research groups and cultural influences in traditional societies might contribute to varying results across studies.

In our study, those diagnosed with a chronic disease were more likely to use TCAM methods during the pandemic. A study conducted in Ankara reported a chronic disease prevalence of 37.9%, with higher TCAM usage among individuals with chronic illnesses (Ak & Baran Aksakal, 2020). Similar findings were reported in studies conducted in Kayseri and Isparta (Karataş et al., 2021; Öztürk et al., 2005). A study in India found a TCAM usage rate of 63.9% among hypertensive patients (Nugraha et al., 2020), and another in Germany reported that half of the patients with kidney failure used TCAM methods (Kristoffersen et al., 2017). Demographic transitions, such as declining fertility rates, population policies, increased life expectancy, and medical-technological advancements, have led to an aging global population. This demographic transition, coupled with an increase in the burden of non-communicable chronic diseases, may drive individuals to seek TCAM methods alongside modern medical practices. Additionally, challenges in accessing healthcare services during the pandemic, the uncertainty surrounding COVID-19, and its high mortality and morbidity rates among individuals with chronic diseases may have further encouraged.

**Ethical Statement**

Ethical approval of the study is obtained from the Gazi University Ethical Committee dated 07.02.2023 with the research code of 2023-124.

**Financial Support for the Study**

This study did not receive any financial support.

**Presentation Information**

The findings of this study have not been presented at any conference or journal.

**Conflicts of Interest**

The authors declare no conflicts of interest regarding this study.

**Author Contributions**

EI: Conceived and designed the analysis; Collected the data; Contributed data or analysis tools; Performed the analysis; Wrote the paper.

FNBA: Conceived and designed the analysis; Collected the data; Contributed data or analysis tools; Performed the analysis; Wrote the paper.

**Acknowledgment (optional)**

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