

# Traditional Medicine Utilization and Determinants in the Rural Area of Manang, Nepal

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## ABSTRACT

**Background:** Traditional medicine (TM) has been an integral part of the rural health care system of Nepal. Despite its widespread use, there exists a notable gap in research on TM utilization and the predictive factors influencing it in rural settings. This study aimed to investigate the use of TM and associated factors in the rural area of Manang, Nepal.

**Methods:** A population-based quantitative cross-sectional study was conducted among 103 individuals from October 2021 to February 2022. A semi-structured questionnaire was used as a research tool. Proportionate and simple random sampling were employed to select the study participants. A logistic regression model was used to assess the determinants of TM utilization among the participants.

**Results:** Overall, 88 out of 103 (85.4%) participants were found to be utilizing traditional medicine. The use of TM was predicted by low monthly income (OR: 4.00, 95% CI: 1.049–15.260,  $p=0.042$ ) and perceived health status (OR: 8.40, 95% CI: 0.015–0.947,  $p=0.044$ ). Herbal medicine (68.1%), traditional healers (59.1%), and homeopathic medicine (48.9%) were the primary TM practices among the study populations.

**Conclusions:** People with low income often make TM a more affordable option due to its use of local, inexpensive materials, whereas people who see themselves as healthy or have had a positive experience with TM may prefer it for its cultural and personal value.

**Keywords:** healing practices; healthcare system; herbal plants; homeopathy; traditional medicine.

## INTRODUCTION

Traditional healing practices play a significant role in maintaining the psychological and physical well-being of the people living in remote areas, where access to modern healthcare services and treatment methods is limited.<sup>1,2</sup>

Traditional medicine serves as the backbone of the healthcare system in rural parts of Nepal (i.e., Chame, Manang), where access to modern allopathic systems may take many years for wide availability and cost-effective utilization.<sup>3,4</sup> People living in hilly and mountainous regions have historically turned to healers for the majority of their health needs and disease cures.<sup>5</sup>

Given the lack of adequate investigations and well-documented guidelines on TM use in rural and

mountainous regions of Nepal, this study provides a valuable perspective on how local practices contribute to health and well-being in a unique and challenging environment. The objective of the study was to explore the use of TM and associated factors in the rural area of Manang, Nepal.

## METHODS

The community based analytical cross-sectional design was incorporated for the study, which was conducted in the Chame Rural Municipality, located in the Manang District of Gandaki Province, Nepal, from October 2021 to February 2022. Established in 2017 as a local government of Nepal, Chame Rural Municipality covers an area of 78.86 square kilometres. Comprising five wards, this municipality consists of a total of 175 households. Wards represent subdivisions within the municipality, functioning as smaller units.<sup>6</sup> The total

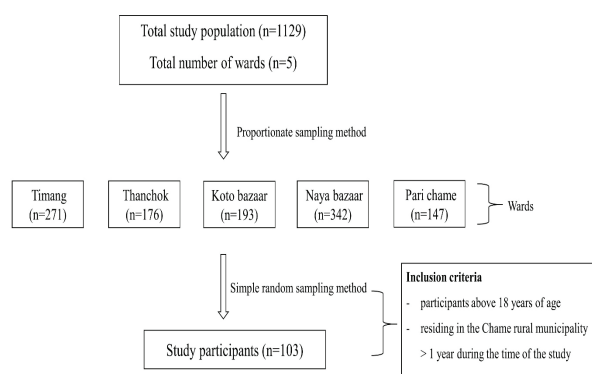
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population of the municipality was 1129 according to the Nepal Population and Housing Census, 2021 (NPHC).<sup>7</sup> Participants in the study were individuals aged 18 years and above, residing in Chame Rural Municipality for more than one year at the time of the study.

Ethical approval was obtained from the Institute Review Committee (IRC), Pokhara University (IRB-33-077-078). Formal approval was taken from the local health center of Chame Rural Municipality. Verbal and written informed consent was also obtained from the study participants.

The study sample size was determined using the Cochran’s sample size formula.<sup>8</sup>

With estimated proportion (P) = 0.85,<sup>3</sup> a standard normal variation (Z) = 1.96, at a 95% confidence interval, an allowable error (d) = 0.05, and adjusting for a 10% non-response rate, the sample size for the study was determined to be 103 individuals. Firstly, a proportionate sampling method was employed to obtain the required sample number from each ward of Chame Rural Municipality. Subsequently, the simple random sampling method was implemented to select the required study participants from each ward using the lottery method. Each individual from every household was assigned a special code during the process of random sampling. The head of the family or an adult member of the family was chosen for the survey from each household as shown in Figure 1.



Ward: represents a division of municipality into smaller units.

**Figure 1. Study population and sampling procedure.**

In this study, the primary outcome variable was the utilization of TM. The independent variables considered included age, sex, education, income, ethnicity, types of healers, perceived health status, source of TM, types of healing practices, knowledge about TM, efficiency and safety of using TM, reasons for using TM, side

effects of TM, types of herbal medicine, satisfaction from using TM, and the availability of TM. A semi-structured and validated questionnaire was adopted for data collection. The Cronbach alpha was determined to be 0.83. Face-to-face interviews were conducted with the assistance of trained health professionals with a background in health sciences. The questionnaire was initially developed in English and then back-translated into the Nepali language. A pre-test was done among 12 individuals in the neighboring rural village of Kaski, Nepal to strengthen and validate the study tools. Experts’ opinions from Nepal and other developing countries on TM research were also incorporated in every aspect of this study to enhance the validity of the research tools. The survey was conducted from October 21, 2021, to February 15, 2022. Initially, the collected data were managed and entered using Epi Data (Ver. 3.1). Then, the entered data were exported to SPSS (Ver. 20) for further analysis. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were utilized to present the study results. Binary logistic regression was used to determine the odds ratios and factors associated with TM utilization. The level of significance was set at <0.05.

## RESULTS

Table 1 shows the socio-demographic characteristics of the participants. The mean age of the participants was 41.7±14.66 years. Most of them were male (52.4%), married (76.7%), and identified as Janajati (89.3%). Nuclear families were prevalent among the participants, and most had a primary level of education and were employed. The primary source of income for the majority was business, with a median income of NRs 30000. Over three-fourths of the participants were permanent residents of Chame, with a median stay period of 20 years. Only a small proportion (10.7%) were enrolled in social health insurance.

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

Variables	Frequencies (%)
<b>Age</b>	
≤ 40 years	58 (56.3)
> 40 years	45 (43.7)
<i>Mean, SD = 41.7 ± 14.66</i>	
<b>Sex</b>	
Male	54 (52.4)
Female	49 (47.6)

Table 1. Socio-demographic characteristics of the participants.	
Variables	Frequencies (%)
<b>Marital status</b>	
Unmarried	17 (16.5)
Married	79 (76.7)
Divorced	1 (1.0)
Widowed	6 (6.5)
<b>Ethnicity</b>	
Brahmin/Chhetri	8 (7.8)
Janajati	92 (89.3)
Dalit	3 (2.9)
<b>Religion</b>	
Hindu	28 (27.2)
Buddhist	74 (71.8)
Christian	1 (1.0)
<b>Type of family</b>	
Nuclear	64 (62.1)
Joint	39 (37.9)
<b>Family size (n=102)</b>	
≤ 5	66 (64.1)
> 5	36 (35.0)
<b>Education status</b>	
No formal education	23 (22.3)
Primary	39 (37.9)
Secondary and high school	22 (21.4)
Bachelors and above	19 (18.4)
<b>Employment status</b>	
Employed	55 (53.4)
Unemployed	48 (46.6)
<b>Source of income</b>	
Agriculture	30 (29.1)
Business	53 (51.5)
Government services	7 (6.8)
Private services	3 (2.9)
Daily wages	7 (6.8)
Others	3 (2.9)
<b>Monthly income (n=95)</b>	
≤ 30000	52 (54.7)
> 30000	43 (41.7)
<b>Permanent resident</b>	
Yes	79 (76.7)

Table 1. Socio-demographic characteristics of the participants.	
Variables	Frequencies (%)
No	24 (23.3)
<b>Length of the stay</b>	
≤ 20 years	56 (54.4)
> 20 years	47 (45.6)
<b>SHI enrollment</b>	
Yes	11 (10.7)
No	92 (89.3)

SHI social health insurance; SD standard deviation

As shown in table 2, study participants demonstrated a higher prevalence of TM utilization 88 (85.4%). Among TM users, more than half of them had used TM due to ancestral practice 53 (60.2%) followed by faith 34 (38.6%), low cost 31 (35.2%), and no side effects 28 (31.8%). The major factors for not using TM were the absence of a specific standard dose, unhygienic conditions, and false claims. The primary access to TM among the participants was from the nearby forest 72 (81.8%), followed by pharmacies 34 (38.6%). Nearly one-third of the participants primarily received information about TM from family members, with healthcare workers being the second most common source 25 (28.4%). Herbal medicine 60 (68.2%) was the major predominant TM practice among the participants. Nirmasi (*Delphinium denudatum*) (42.9%), Yarshagumba (*Cordyceps sinensis*) (30.6%), Kutki (*Picorrhiza kurroa*) (26.5%) and Banlasun (*Allium wallichii*) (24.5%) were the major types of herbal medicine used among the participants. More than one-third of the participants (36.7%) reported using TM to treat bites and wounds, followed by skin infections (30.4%), and infertility/sexual weakness (24.1%). Over half (62.5%) of the participants reported not experiencing any side effects with the use of TM.

Table 2. Utilization of the TM among the participants.	
Variables	Frequencies (%)
<b>Perceived health status</b>	
Good	69 (67.0)
Poor	34 (33.0)
<b>Family member felt sick</b>	
Frequently	11 (10.7)
Rarely	92 (89.3)
<b>Use of TM</b>	
Yes	88 (85.4)

**Table 2. Utilization of the TM among the participants.**

Variables	Frequencies (%)
No	15 (14.6)
<b>Reason for using TM* (n=88)</b>	
Low cost	31 (35.2)
Cure multiple diseases	23 (26.1)
Effective than allopathic medicine	16 (18.2)
Unavailability of modern medicine	18 (20.5)
No side effects	28 (31.8)
Faith/belief	34 (38.6)
Ancestral practices	53 (60.2)
Influence from mass/media	8 (9.1)
<b>Reason for not using TM* (n=15)</b>	
Absence of a standard dose	9 (60.0)
Unhygienic conditions	8 (53.3)
Lack of knowledge	2 (13.3)
False claims	8 (53.3)
High cost	7 (46.7)
Forbidden by religion	3 (20.0)
<b>Utilization of TM in last three months</b>	
Frequently	10 (11.4)
Rarely	78 (88.6)
<b>Use of orthodox medicine in last three months</b>	
Frequently	14 (15.9)
Rarely	74 (84.1)
<b>Access to TM *</b>	
Consult traditional medical providers	26 (29.5)
Nearby forests	72 (81.8)
Pharmacies	34 (38.6)
Borrow from neighbors	29 (33.0)
Pick directly from the field	10 (11.4)
Other sources	1 (1.1)
<b>Travel time to access TM</b>	
Less than 2 km	67 (76.1)
More than 2 km	21 (24.9)
<b>Types of TM practices*</b>	
Herbal medicine	60 (68.2)
Yoga/meditation	40 (45.5)
Traditional healer's	52 (59.1)
Homeopathic medicine	43 (48.9)
Rituals remedies	24 (27.3)
Self-recovery	11 (12.5)
<b>Learn about TM</b>	
Family members	31 (35.2)

**Table 2. Utilization of the TM among the participants.**

Variables	Frequencies (%)
Friends/acquaintance	28 (27.2)
Literature/books	2 (2.3)
Media	2 (2.3)
Healthcare workers	25 (28.4)
<b>Use of herbal medicine</b>	
Yes	53 (60.2)
No	35 (39.8)
<b>Type of herbal medicine used*</b>	
Timur ( <i>Zanthoxylum armatum</i> )	4 (8.2)
Banlasun( <i>Allium wallichii</i> )	12 (24.5)
Yarshagumba ( <i>Cordyceps sinensis</i> )	15 (30.6)
Jimbu ( <i>Allium Hysistum Stearn</i> )	11 (22.4)
Gurjo ( <i>Tinospora Cordifolia</i> )	4 (8.2)
Kutki ( <i>Picorrhiza kurroa</i> )	13 (26.5)
Nirmasi ( <i>Delphinium denudatum</i> )	21 (42.9)
Beshar ( <i>Curcuma longa</i> )	3 (6.1)
Panchaule ( <i>Dactylorhiza hatagirea</i> )	5 (10.2)
Chiraito( <i>Swertia chirayita</i> )	2 (3.8)
Jatamashi ( <i>Nardostachys jatamansi</i> )	7 (14.2)
Others	2 (4.1)
<b>Diseases treated with TM*</b>	
STD	9 (11.4)
Skin infections	24 (30.4)
Malaria/Typhoid/ Jaundice	18 (22.8)
Infertility and sexual weakness	19 (24.1)
Diabetes	7 (8.9)
TB/Asthma	14 (17.7)
Stroke/hypertension	10 (12.7)
Mental illness	7 (8.9)
HIV/AIDS	1 (1.3)
Piles/waist pains	16 (20.3)
Epilepsy	4 (5.1)
Bone fracture/arthritis	13 (16.5)
Bites/wounds	29 (36.7)
Others	2 (2.5)
<b>Experience side effects from TM</b>	
Yes	4 (4.5)
No	55 (62.5)
Don't know	29 (33.0)

TM traditional medicine; STD sexually transmitted diseases; TB tuberculosis; \* denotes multiple responses

Table 3 identifies various parameters of user satisfaction with the use of traditional medicine. Most participants found the efficiency 45 (51.1%) and safety 41 (46.6%) of utilizing TM to be satisfactory. However, 43 (48.9%) expressed that the flexibility of TM usage was good. Nearly half (44.3%) of the participants reported satisfactory comfort levels while using TM.

**Table 3. User satisfaction with the utilization of TM.**

Variables	Frequencies (%)
<b>Efficiency of TM</b>	
Poor	10 (11.4)
Satisfactory	45 (51.1)
Good	25 (28.4)
Very good	8 (9.1)
<b>Safety for using TM</b>	
Poor	7 (8.0)
Satisfactory	41 (46.6)
Good	32 (36.4)
Very good	8 (9.1)
<b>Flexibility for the use of TM</b>	
Poor	9 (10.2)
Satisfactory	35 (39.8)
Good	43 (48.9)
Very good	1 (1.1)
<b>Affective behavior of TMP towards their clients</b>	

**Table 3. User satisfaction with the utilization of TM.**

Variables	Frequencies (%)
Poor	13 (14.8)
Satisfactory	52 (59.1)
Good	22 (25.0)
Very good	1 (1.1)
<b>Level of comfort for using TM</b>	
Poor	26 (29.5)
Satisfactory	39 (44.3)
Good	19 (21.6)
Very good	4 (4.5)

TM traditional medicine; TMP traditional medicine providers

Table 4 depicts the association between utilization of traditional medicine with socio-demographic variables where utilization of TM was found to be significantly associated with monthly income and perceived health status, serving as pivotal determinants. Participants with a monthly income of NRs 30000 or less were four times more likely to use TM compared to those with higher incomes (OR: 4.00, 95% CI: 1.049-15.260, p=0.042). Moreover, participants with a perceived good health status demonstrated a higher likelihood of using TM in contrast to those with a poorer perceived health status (OR: 8.40, 95% CI: 0.015-0.947, p=0.044).

**Table 4. Determinants of the utilization of TM.**

Variables	Use of TM		OR (95% CI)	p-value
	Yes (n=88)	No (n=15)		
<b>Age</b>				
< 41 years	47 (81.0)	11 (19.0)	2.399 (0.709-8.114)	0.159
> 41 years <sup>ref</sup>	41(91.1)	4 (8.9)		
<b>Sex</b>				
Male	46 (85.2)	8 (14.8)	0.958 (0.320-2.871)	0.939
Female <sup>ref</sup>	42 (85.7)	7 (14.3)		
<b>Marital status</b>				
Married	67 (84.8)	12 (15.2)	0.798 (0.205-3.098)	0.744
Other's <sup>ref</sup>	21 (87.5)	3 (12.5)		
<b>Ethnicity</b>				
Janajati	79 (85.9)	13 (14.1)	0.741 (0.144-3.820)	0.720
Other's <sup>ref</sup>	9 (81.9)	2 (18.2)		
<b>Religion</b>				
Buddhist	62 (83.8)	12 (16.2)	1.677 (0.437-6.441)	0.451

**Table 4.** Determinants of the utilization of TM.

Variables	Use of TM		OR (95% CI)	p-value
	Yes (n=88)	No (n=15)		
Other's <sup>ref</sup>	26 (89.7)	3 (10.3)		
<b>Type of family</b>				
Nuclear	53 (82.8)	11 (17.2)	1.816 (0.535-6.160)	0.338
Joint <sup>ref</sup>	35 (89.7)	4 (10.3)		
<b>Number of family members</b>				
< 5	54 (81.8)	12 (18.2)	2.444 (0.642-9.310)	0.190
> 5 <sup>ref</sup>	33 (91.7)	3 (8.3)		
<b>Educational status</b>				
Primary and below	55 (88.7)	7 (11.3)	0.525 (0.174-4.581)	0.252
Secondary and above <sup>ref</sup>	33 (80.5)	8 (19.5)		
<b>Employment status</b>				
Employed	47 (85.5)	8 (14.5)	0.997 (0.333-2.987)	0.996
Unemployed <sup>ref</sup>	41 (85.4)	7(14.6)		
<b>Monthly income</b>				
< NRs 30000	40 (76.9)	12 (23.1)	4.000 (1.049-15.260)	0.042*
> NRs 30000 <sup>ref</sup>	40 (93.0)	3 (7.0)		
<b>Permanent resident</b>				
Yes	66 (83.5)	13(16.5)	2.167 (0.453-10.862)	0.333
No <sup>ref</sup>	22 (91.7)	2(8.3)		
<b>SHI enrollment</b>				
Yes	9 (81.8)	2 (18.2)	1.350 (0.262-6.966)	0.720
No <sup>ref</sup>	79 (85.8)	13 (14.1)		
<b>Perceived health status</b>				
Good	55 (79.7)	14 (20.3)	8.400 (0.015-12.947)	0.044*
Poor <sup>ref</sup>	33 (97.1)	1 (2.9)		
<b>Family member felt sick</b>				
Frequently	10 (90.9)	1 (9.1)	0.557 (0.66-4.702)	0.591
Rarely <sup>ref</sup>	78 (84.8)	14 (15.2)		

TM traditional medicine; SHI social health insurance; OR odds ratio; CI confidence interval; NRs Nepalese currency in rupees; \*significant at  $p < 0.05$ ; Values inside the parentheses ( ) denote percentages

## DISCUSSION

This study investigates the utilization of TM and its associated factors among people in rural communities. The findings show a higher prevalence of TM usage among the participants. In our study, it was observed that 85.4% of study participants utilized TM. It was reported that approximately 80% of Nepal's rural populations depend on traditional and herbal medicine for primary healthcare services.<sup>1,9</sup> Moreover, 85% of the rural population considers TM as their first choice for treatment.<sup>3</sup> The use of TM in Nepal always influenced by the cultural and economic factors,<sup>10</sup> and similar findings in current and previous studies reflects the enduring significance and consistency of these practices

over time. Similar patterns were observed in Ghana, with 86.1% of participants<sup>11</sup> and in Uganda, where 68% of participants utilized TM,<sup>12</sup> aligning with our study's findings. Even in urban areas where allopathic medicine is available, 15-20% of people still prefer TM.<sup>13</sup> The estimated average use of TM in the sub-Saharan African region was found to be 58.2%,<sup>14</sup> while studies in southwest Ethiopia reported a prevalence of 81.5%.<sup>15</sup> In contrast, one study reported a lower utilization of TM among participants (36.1%).<sup>16</sup> These variations in utilization of global utilization of TM can be attributed to factors such as access and availability to modern medical facilities, affordability, efficacy, knowledge, perceptions towards TM, historical traditions, cultural acceptability and belief in TM, socioeconomic status, geographical variations, and healthcare policies.

Our study revealed that the perceived health status was a significant factor associated with the use of TM, with individuals in good health using TM at higher levels (OR: 8.4, CI: 0.015-12.947,  $p=0.044$ ) compared to participants with poor health. Interestingly, this association was not found to be supported or explored by previous studies.<sup>11-13</sup> On the other hand, factors such as religion, marital status, occupation, and education status, which were found to be significantly associated with the practice of TM in some studies,<sup>15, 17</sup> did not align with our findings. This discrepancy may be due to differences in existing healthcare systems, study sample sizes, and population characteristics.<sup>16, 18</sup> Variations in local healthcare infrastructure significantly influence the utilization of traditional medicine, as differing levels of access to modern healthcare result in distinct patterns of TM usage.<sup>19</sup> Moreover, discrepancies in sample sizes across various studies can affect the generalizability and statistical robustness of the findings, with smaller or differently composed samples potentially yielding varied results.<sup>20</sup> Additionally, diverse population characteristics, such as cultural beliefs and socio-economic conditions, play a crucial role in shaping health behaviors and perceptions of TM efficacy, leading to different associations and outcomes based on regional demographics.<sup>21</sup>

Our study also identified a significant association between the use of TM and income levels, contrary to previous research where higher-income individuals were found to utilize TM more.<sup>1</sup> In our study, individuals with lower incomes used TM (OR: 4, CI: 1.049-15.260,  $p=0.042$ ) significantly more than those with higher incomes. Economic challenges and limited access to modern healthcare often lead low-income individuals to turn to TM. On the other hand, high-income individuals might choose TM for its cultural importance, personal

preferences, or as a complementary method alongside conventional treatments. TM is deeply rooted in many cultures, making it more accessible and affordable. Additionally, many people also view it as a natural and safe option.<sup>22</sup> This finding is consistent with a study from Bangladesh,<sup>23</sup> suggesting that the may be influenced by the lack of accessible and cost-effective medical services in developing countries, coupled with a faith and belief in TM.<sup>13, 24</sup> The primary forms of TM practice in our study were herbal medication, traditional healers, and homeopathic medicine, which aligns with findings from previous studies.<sup>1, 5, 14, 25</sup> Increased accessibility to TM is likely to enhance its utilization. This is evident in Ghana, where a majority of TM users acquired it close to their homes, from herbal practitioners, and through relatives as supported by our study.<sup>26</sup>

The beneficial impacts of TM were notably observed in treating bites and wounds, skin infections, infertility/sexual weakness and major non-communicable or chronic diseases.<sup>1, 15, 18</sup> The uses of TM in Africa extend to the treatment of various conditions, including abdominal cramps, abortion, chest pain, fungal infections, gastritis, goiter, hemorrhoids, herpes zoster, hypertension, joint pain, and liver disease.<sup>16</sup> The therapeutic properties of herbs play a crucial role in their use for various diseases. For instance, herbs like Aloe vera commonly used to treat bites and wounds due to its antimicrobial, anti-inflammatory, and wound healing properties, which aid in tissue regeneration and infection prevention.<sup>27</sup> Similarly, turmeric (*Curcuma Longa*) is favored for their ability to reduce pathogens and inflammation.<sup>28</sup> Whereas, in managing the chronic diseases, herbs like ginger, garlic are chosen for their antioxidant, anti-inflammatory, and metabolic-regulatory benefits, which supports overall health and symptom management.<sup>29</sup> Despite the reported benefits of TM, our study noted a relatively low rate of side effects associated with its use, in contrast to the findings of another study where nearly one-fourth (22.7%) of participants experienced side effects from TM.<sup>30</sup> This may be due to people being unaware of the side effects of the TM.<sup>13</sup>

Consequently, emphasizing public interventions and raising awareness about the potential side effects associated with TM use becomes crucial for ensuring its safe and informed practice. In addition, most importantly the disclosure of TM use between patient and medical person is needed to know its safety issues.

We have noted some limitations. This study adopted

a cross-sectional research design, limiting the cause-and-effect relationship between study variables. Face-to-face interviews were used as a tool of data collection, which may introduce response bias. Since the study focused on a specific rural community, it may limit the broader applicability of the findings to diverse populations with different healthcare settings. The findings regarding efficacy, safety, and side effects of TM are based on respondents' self-reported responses rather than objective clinical diagnoses or experiments. Thus, longitudinal studies are needed to address these changes over time. However, our study provides valuable insights into the utilization of TM in rural communities. It underscores the proper utilization of TM might be beneficial for the immediate cure and management of health problems in rural areas where access to proper treatment is very difficult.

## CONCLUSIONS

In conclusion, the study demonstrates a high prevalence of traditional medicine utilization among the participants, reflecting its deep-rooted cultural acceptance, accessibility, and perceived benefits within the community. Most users relied on traditional medicine due to ancestral practices, faith, low cost, and the belief that it has minimal side effects, with herbal medicine being the most practiced form. Most participants reported satisfactory levels of efficiency, safety, flexibility, and comfort in using traditional medicine, indicating a generally positive user experience. Utilization was significantly associated with lower monthly income and perceived good health status, suggesting that economic factors and individual health perceptions play a pivotal role in the continued use of traditional medicine. Overall, these findings highlight the importance of traditional medicine as a complementary healthcare resource and underscore the need for appropriate regulation, standardization, and integration with modern healthcare services to ensure safe and effective use.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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