

Use of complementary and alternative medicine and its associated factors among people living with chronic diseases in Nepalgunj sub-metropolitan: a mixed methods study

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Research Article

Keywords: Complementary and alternative medicine, chronic disease, factors, Nepal

Posted Date: October 1st, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-10291334/v1>

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Additional Declarations: No competing interests reported.

Abstract

Background

Complementary and alternative medicine (CAM) is a broad domain of medical system which comprises diverse medical and health care systems, practices and products that are not presently considered to be a part of allopathic medicine. The use of CAM has increased substantially over the last few decades, especially among people living with chronic conditions. This study aims to find the prevalence and factors associated with CAM use among people living with chronic diseases in Nepalgunj Sub-metropolitan, Nepal.

Methods

A cross-sectional study with concurrent mixed-methods design was conducted among 284 respondents with chronic disease from November 2022 to April 2023. For qualitative study, 8 in-depth interviews and 4 key-informant interviews were conducted. Logistic regression was done for quantitative data analysis using STATA 13 and thematic analysis was done for qualitative analysis.

Results

A majority of participants (86.27%) reported ever using CAM for their chronic disease, while current use of CAM was reported by 23.59% of participants. In the multivariate model, co-morbidity (AOR = 2.11; 95% CI: 1.11-4.0) and nearby availability of CAM services (AOR = 9.8; 95% CI: 4.42–21.5) showed significant association with current CAM use. From qualitative findings four overarching themes emerged: i) CAM as a complementary strategy in chronic disease management; ii) Beliefs and motivations; iii) Social, economic, and structural influences; and iv) Limited communication with allopathic providers.

Conclusion

The study revealed high current and lifetime use of CAM. Given the pluralistic care patterns observed in this study, where most patients use CAM alongside rather than instead of conventional treatment, integrative approaches that facilitate communication between different types of providers would improve care coordination and patient safety.

Background

Complementary and alternative medicine (CAM) encompasses a diverse group of medical and health care practices, systems and products that are not generally considered part of conventional medicine, and are used either together with or in place of standard treatments.[1] Globally, the use of CAM has increased substantially over the last few decades, especially among people living with chronic non-communicable diseases who often seek additional options for symptom relief, improved quality of life and greater sense of control over their illness. [2]

People with chronic conditions such as hypertension, diabetes, cancer and musculoskeletal disorders frequently use a range of CAM modalities including herbal remedies, dietary supplements, mind-body therapies, spiritual or religious practices, traditional medical systems and various forms of bodywork. [3, 4] In Nepal, more than half of the general population has been reported to use some form of non-conventional therapy, especially Ayurveda, often influenced by cultural beliefs, accessibility of local healers and the high cost or limited availability of biomedical services.[5, 6]

Despite this widespread use, there are important concerns regarding the safety, effectiveness and coordination of CAM with conventional care for chronic disease management.[7, 8] Patients may use herbal remedies or other alternative treatments simultaneously with prescription medicines without informing their health-care providers, which can lead to harmful interactions, delay in seeking appropriate care or poor adherence to biomedical treatment regimens.[9]

The drivers of CAM use among people living with chronic diseases are multifactorial and context-specific, including sociodemographic characteristics, economic constraints, cultural norms, perceived severity of illness, previous experiences with health services and accessibility of CAM providers or products.[10, 11] In Nepal, mapping studies indicate wide availability of Ayurveda and other traditional services, but there are gaps in evidence on how people with chronic diseases in community settings integrate CAM into their overall care, and which individual and health-system factors are associated with its use.[6] There is a need for context-specific mixed-methods studies that can inform clinicians, programme planners and policy-makers about how CAM is being used alongside chronic disease care and how to respond within the health system. [12]

Therefore, this mixed-methods study was conducted to assess the use of complementary and alternative medicine and its associated factors among people living with chronic diseases in selected ward of Nepalgunj Sub-Metropolitan City. It also seeks to explore the reasons for CAM use, patients' perceptions of benefits and risks, and their communication with health-care providers, in order to generate evidence that can inform clinical practice and local health policy.

Methods

Study Design and Setting

A concurrent triangulation mixed method design was conducted from November 2022 to April 2023 in Ward 12 of Nepalgunj Sub-Metropolitan Municipality at Banke district in Nepal.

Study Population

Adults (≥ 18 years) with physician-diagnosed chronic diseases (lasting ≥ 1 year, requiring ongoing medical attention or limiting daily activities) residing in Ward 12 for at least six months were eligible. Participants critically ill, hospitalized, or with severe cognitive impairment were excluded.

Sampling Technique and Sample Size

For quantitative survey, sample size was calculated as 284 using single population proportion formula with the prevalence of use of CAM as 24% [13], 95% CI, Z value 1.96, and error 0.05. A comprehensive line listing (household census) of all individuals living with chronic diseases in Ward 12 was conducted. The research team conducted door-to-door visits to all households in the ward over 2 weeks' period. Eligible individuals were listed with their household identification number, name, age, sex, and type of chronic condition. From the sampling frame of eligible individuals, 284 participants were selected using simple random sampling.

For qualitative study, a total of eight In-depth Interviews (IDI) along with four Key-Informant Interviews (KII) were conducted based on the principle of data saturation. Sample size was determined by data saturation. IDI participants were selected from survey respondents reporting CAM use, ensuring diversity in age, sex, chronic disease type, and CAM.

Data Collection Tool and Procedure

Data was collected using a structured questionnaire. The questionnaire was informed by a review of the published literature on CAM use among people living with chronic diseases, and drew on the standardized definitions of the Nepal Demographic and Health Survey (NDHS), WHO STEPS instrument for sociodemographic and disease-related items, and National Center for Complementary and Integrative Health (NCCIH) classification for the CAM-related items. It comprised three sections: (1) sociodemographic characteristics using Nepal Demographic and Health Survey (NDHS) and WHO STEPS standardized definitions; (2) chronic disease profile; (3) CAM use information (types, frequency, reasons, disclosure patterns, expenditure). The questionnaire underwent content validation by experts, face validation with potential respondents, pilot testing with 10 participants from a different ward, and translation/back-translation between English and Nepali. The English-language version of the questionnaire is provided as Supplementary Material 1. Face-to-face interviews were conducted at participants' homes by the principal investigator.

In this study following definition and description has been considered:

Following the National Center for Complementary and Integrative Health (NCCIH) framework, CAM was defined as a group of diverse medical and healthcare systems, practices, and products that are not presently considered to be part of conventional medicine.[14] For this study, CAM practices were categorized into five domains: 1. Alternative medical systems- traditional oriental medicine, homeopathy, Ayurveda. 2. Mind-body interventions- meditation, prayer, biofeedback. 3. Biologically based therapies- botanicals, herbs, special diet therapies. 4. Manipulative and body-based methods- chiropractic, massage. 5. Energy Therapies- Qi gong, Reiki, magnets.

Chronic diseases were defined as conditions that last one year or more, require ongoing medical attention or limit activities of daily living, or both.[15]

For qualitative study, participants of the study were interviewed using an Interview guide. The guide explored CAM decision-making, experiences, perceived effectiveness, and provider communication. The interviews

were conducted in Nepali by the principal investigator, audio-recorded with consent, and supplemented with field notes. The English-language version of the interview guide is provided as Supplementary Material 2.

The interview guidelines were developed with an extensive review of literature. Also, qualitative research experts were consulted for tool validation. Effort was made to conquer rich information with iterative questioning. Three IDI participants were re-contacted two weeks after their interviews. They were presented with preliminary findings and interpretations related to their interviews to verify accuracy and resonance with their intended meanings. Feedback was incorporated into final analysis. To assess coding consistency, an independent researcher with qualitative research experience but not involved in the study was provided with translated transcripts and coding instructions. Both the primary researcher and independent coder coded three transcripts (25% of IDIs) independently. Inter-coder agreement was 74.07%, which exceeds the acceptable threshold of 70% for exploratory qualitative research. The researcher maintained a reflexivity journal throughout the study, documenting personal assumptions, reactions to data, and potential influences on interpretation.

Data Analysis

Survey data was entered into in Epi- data 3.1 and statistical analysis was done using STATA MP 13 and EZR software. Descriptive analysis using frequencies and proportions was conducted to describe the sample characteristics and distribution of variables. Bivariate logistic regression examined associations between CAM use and predictor variables; variables with $p \leq 0.25$ were entered into multivariable logistic regression to compute adjusted odds ratios (AOR) with 95% confidence intervals, controlling for confounders. Statistical significance was set at $p < 0.05$.

Qualitative data were analyzed using Braun and Clark's six steps thematic analysis. R based qualitative data analysis was used for analysis. Transcription was done in Nepali language as spoken by the participants and translation was done in English language.

Ethical Considerations

Ethical approval

was obtained from the Institutional Review Committee of Patan Academy of Health Sciences and prior study approval was taken from Nepalgunj Sub-Metropolitan Office. Written informed consent was obtained from all participants after explaining study purpose, voluntary participation, confidentiality measures, and right to withdraw. Unique identification codes protected participant anonymity. Audio recordings and transcripts were stored on password-protected encrypted computers accessible only to the research team.

Results

Socio-demographic characteristics of the study participants

Table 1
Socio-demographic characteristics of the study participants (n = 284)

Characteristics	Frequency	Percentage
Age (in years)		
<=40	29	10.21
41 to 60	129	45.42
> 60	126	44.37
Sex		
Female	153	53.87
Male	131	46.13
Marital status		
Currently married	226	79.58
Widow/Widower/separated	54	19.01
Never married	4	1.41
Educational status		
No formal education	104	36.62
Primary or below	72	25.35
Secondary or above	108	38.03
Occupation		
Homemaker	109	38.38
Employed	88	30.99
Unemployed	68	23.94
Others	19	6.69
Household income (monthly in NRs.)		
4851–14550	3	1.06
14551–24350	18	6.34
24351–36550	47	16.55
36551–48750	106	37.32
48751–97450	106	37.32
>=97451	4	1.41
Family type		

Characteristics	Frequency	Percentage
Age (in years)		
Nuclear	153	53.87
Joint	131	46.13

A total of 284 individuals living with chronic diseases participated in the study. Nearly half of the participants were aged 41–60 years (45.4%), followed by those aged above 60 years (44.4%). More than half of the participants were female (53.9%). Regarding educational status, 38.0% had attained secondary education or above, while 36.6% had no formal education. In terms of occupation, majority of participants were homemakers (38.4%), followed by employed individuals (31.0%) and unemployed participants (23.9%).

(Table 1)

Use of CAM

Table 2
Use of complementary and alternative medicines

Characteristics	Frequency	Percentage
Family use of medicine (n = 113)		
Only allopathic	83	73.45
Both allopathic and CAM	24	21.24
Only CAM	4	3.54
No any medicine	2	1.77
Heard about CAM		
Yes	256	90.14
No	28	9.86
Source of information (n = 256)		
Friend	166	64.84
Media	116	45.31
Family	73	28.52
Health professionals	4	1.56
CAM service nearby		
Available	45	15.85
Not available	239	84.15
Ever use of CAM for chronic disease		
Ever used	245	86.27
Not used	39	13.73
Current use of CAM		
Yes	67	23.59
No	217	76.41
Disease for which CAM is used		
Musculoskeletal disorder	33	46.48
Diabetes	21	29.58
Hypertension	4	5.63%
Abdominal disorders	4	5.63%
Haemorrhoids	4	5.63%

Characteristics	Frequency	Percentage
Family use of medicine (n = 113)		
Cancer	2	2.82%
Others	3	4.23%
Type of CAM		
Ayurveda	51	61.45%
Yoga	15	18.07%
Therapies	9	10.84%
Home remedies	7	8.43%
Homeopathy	1	1.20%
Forms of CAM		
Juice	22	23.91%
Tablet/capsules	17	18.48%
Powder	16	17.39%
Oil application	19	20.65%
Ceragem	7	7.61%
Crude herbs	2	2.17%
Others	9	9.78%
Reasons for CAM use		
To control illness	50	74.63
To cure illness	19	28.36
To cope with side effect of conventional medicine	11	16.42
Inform doctor about CAM use		
Not informed	50	74
Informed	17	25.37
Reason for not informing		
Doctor did not ask	26	52
Not felt important	24	48

Overall, 90.14% of participants had heard about CAM. Among those who had heard about CAM, the most common source of information was friends (64.84%), followed by media (45.31%) and family members

(28.52%). Only 1.56% reported health professionals as their source of information. Regarding availability, 15.85% reported that CAM services were available nearby. A majority (86.27%) reported ever using CAM for their chronic disease, while 13.73% had never used it. Current use of CAM was reported by 23.59% of participants. Among current CAM users, musculoskeletal disorders (49.25%) were the most common condition for which CAM was used, followed by diabetes (31.34%) and hypertension (5.97%). The main reason for CAM use was to control illness (74.63%), followed by curing illness (28.36%) and coping with side effects of conventional medicine (16.42%). Among CAM users, 74% did not inform their doctor about CAM use. (Table 2)

Factors associated with CAM use

Table 3
Association between CAM use with predictors (n = 284)

Characteristic	Prevalence of CAM		unadjusted OR (95% CI)	P-value	adjusted OR (95% CI)	P-value
	Yes	No				
	n (%)	n (%)				
Age (in years)						
< 60	33 (22.4)	114 (77.6)	1 (reference)		-	-
=>60	34 (24.8)	103 (75.2)	1.139(0.63, 2.05)	0.639	-	
Sex						
Male	28(21.37)	103(78.63)	1 (reference)		-	-
Female	39(25.49)	114(74.51)	1.25(0.69, 2.28)	0.42	-	
Marital status						
Single or separated	9 (15.5)	49 (84.5)	1 (reference)		1 (reference)	
Married	58(25.66)	168(74.34)	1.87(0.84, 4.61)	0.104	1.4 (0.58, 3.37)	0.445
Education						
Illiterate	23 (22.12)	81 (77.88)	1 (reference)		-	-
Literate	44 (24.4)	136 (75.6)	1.14(0.62, 2.13)	0.656	-	
Occupation						
Unemployed	47 (24)	149 (76)	1 (reference)		-	-
Employed	20 (22.7)	68 (77.3%)	1.07(0.57, 2.06)	0.818	-	
Family income						
<=48750	35 (20.1)	139 (79.9)	1 (reference)		1 (reference)	
> 48750	32 (29.1)	78 (70.9)	1.62 (0.8, 2.93)	0.083	1.02(0.51, 2.05)	0.957
Family type						
Nuclear	28 (18.30)	125 (81.7)	1 (reference)		1 (reference)	
*p significant at < 0.05						

Characteristic	Prevalence of CAM		unadjusted OR (95% CI)	P-value	adjusted OR (95% CI)	P-value
	Yes	No				
	n (%)	n (%)				
Age (in years)						
Joint	39 (29.77)	92 (70.23)	1.88 (1.04, 3.43)	0.024*	1.8 (0.98, 3.64)	0.056
Chronic disease						
Single chronic disease	27 (17.09)	131 (82.91)	1 (reference)		1 (reference)	
Co-morbid with 2 or more chronic disease	40 (31.7)	86 (68.3)	2.25 (1.24, 4.11)	0.004*	2.11 (1.11, 4.0)	0.021*
Family history of chronic disease						
Present	33 (29.20)	80 (70.80)	1.66 (0.95, 2.88)	0.07*	1.3 (0.68, 2.46)	0.417
Not present	34 (19.88)	137 (80.12)	1 (reference)		1 (reference)	
Nearby availability of CAM						
Yes	30	15	10.9(5.36, 22.25)	< 0.001*	9.8 (4.42, 21.5)	< 0.001*
No	37	202	1 (reference)		1 (reference)	
*p significant at < 0.05						

Table 3 presents the association between selected predictors and current use of CAM. In the bivariate analysis, family type (joint vs. nuclear, OR = 1.88; 95% CI: 1.04–3.43), co-morbidity (two or more chronic diseases vs. single, OR = 2.25; 95% CI: 1.24–4.11), and nearby availability of CAM services (yes vs. no, OR = 10.9; 95% CI: 5.36–22.25) were significantly associated with CAM use. Variables with p-value less than 0.25 in the bivariate analysis (marital status, family income, family type, co-morbidity, family history of chronic disease, and nearby availability of CAM) were included in the multivariate logistic regression model. Multicollinearity was assessed using the variance inflation factor (VIF), and all variables had a VIF < 2. The final model adequately fitted the data (p < 0.05). In the multivariate model, co-morbidity (AOR = 2.11; 95% CI: 1.11-4.0) and nearby availability of CAM services (AOR = 9.8; 95% CI: 4.42–21.5) showed significant association with CAM use.

Qualitative findings

Characteristics of Interview Participants

A total of eight individuals living with chronic diseases participated in in-depth interviews. Participants ranged in age from 37 to 64 years. The majority were male (n = 5), while three were female. Conditions represented included diabetes, hypertension, rheumatoid arthritis, and musculoskeletal disorders, with several participants reporting multimorbidity. (Table 4)

Likewise, four key informants comprising a CAM practitioner, an Ayurveda practitioner, a consultant physician, and a medical doctor were interviewed to provide system-level perspectives on CAM utilization. (Table 5)

Table 4
Characteristics of Study Participants who participated in depth-interviews

Code	Age (in years)	Sex	Chronic disease
IDI 1	62	Male	Diabetes
IDI 2	60	Male	Low back pain and HTN
IDI 3	45	Male	Hypertension and diabetes
IDI 4	57	Male	Hypertension and diabetes
IDI 5	57	Female	Rheumatoid Arthritis
IDI 6	54	Female	Knee and back pain
IDI 7	64	Female	Musculoskeletal
IDI 8	37	Male	Diabetes

Table 5
Characteristics of study participants who participated in key informant’s interviews

Code	Age	Sex	Post
KII 1	36	Male	CAM practitioner
KII 2	31	Female	Aayurveda practitioner
KII 3	33	Male	Consultant physician
KII 4	37	Male	Medical doctor

Four overarching themes emerged regarding the use of complementary and alternative medicine (CAM) among individuals living with chronic diseases: i) CAM as a complementary strategy in chronic disease management; ii) Beliefs and motivations driving CAM utilization; iii) Social, economic, and structural influences; and iv) Limited communication with allopathic providers.

Theme 1: CAM as a Complementary Strategy in Chronic Disease Management

Participants described using CAM for a wide range of chronic conditions, most commonly diabetes and hypertension, followed by rheumatoid arthritis, musculoskeletal pain, gastrointestinal disorders, respiratory illnesses, and gynecological complaints. Both patients and practitioners noted that individuals with long-term conditions frequently explored CAM either alongside or after allopathic treatment.

"I have diabetes and take the ayurvedic medication." (IDI 1)

"Currently I am using alternative medicine for rheumatoid arthritis." (IDI 5)

Ayurvedic practitioners reported receiving patients with arthritis, digestive disorders, anorectal diseases, and respiratory problems. However, allopathic providers suggested that although CAM use was common among diabetic and hypertensive patients, it was less consistently relied upon for conditions such as COPD.

Most participants practiced pluralistic care, combining CAM with biomedical treatment rather than fully replacing prescribed medicines. Yoga, pranayama, herbal preparations (such as methi, gurjo, and tulsi), Ceragem therapy, and occasionally spiritual healing practices like jharfuk were commonly reported.

"I practice yoga and pranayama... I use aloe vera juice and 'methi'." (IDI 3)

"...sometimes, I do 'Jharfuk' to comfort myself regarding my illness." (IDI 6)

The duration of CAM use varied considerably from a few months to nearly six years. Some participants used CAM continuously, while others used it intermittently, particularly during episodes of discomfort.

"It has been almost 6 years." (IDI 1)

"I use the ayurvedic medicine when I experience discomfort... I do not use it daily." (IDI 8)

These findings indicate that CAM was largely integrated into ongoing self-management practices rather than being a one-time or experimental intervention.

Theme 2: Beliefs and motivations driving CAM utilization

Dissatisfaction with allopathic medicine was reported by participants, particularly due to perceived side effects, incomplete symptom relief, and fear of long-term dependence. Several participants reported discontinuing biomedical treatment after experiencing adverse effects or inadequate improvement.

"After taking allopathic medicines... I experienced adverse effects, so I switched." (IDI 1)

"Allopathic medication does good for one but it deteriorates another thing." (IDI 4)

Participants expressed concern that biomedical drugs might damage organs such as the liver or kidneys, especially when taken long term for chronic diseases like diabetes and hypertension. Missing or doubling doses was also perceived as risky.

In contrast, CAM was widely regarded as natural, safe, and free from harmful side effects. Herbal remedies were often equated with everyday food substances.

"CAM medicines do not create discomfort." (IDI 8)

"It is like milk, curd, carrot... people believe there is nothing harmful in these medicines." (KII 1)

Yoga and herbal therapies were also associated with feelings of lightness, improved digestion, increased energy, and overall well-being. Many participants described subjective improvement in blood pressure or blood sugar control after incorporating CAM into their routines.

"Since using alternative treatments, my blood pressure is maintained." (IDI 3)

However, some participants suggested temporary benefits, with symptoms recurring after discontinuation or over time.

Theme 3: Social, economic, and structural influences

CAM use was strongly shaped by family, peer networks, and community narratives. Participants frequently reported initiating CAM after recommendations from relatives, friends, or neighbors who shared positive experiences.

"My mother also has diabetes and we take the same medication." (IDI 1)

"A lot of my friends recommended this medication to me." (IDI 4)

Practitioners described a pattern whereby one satisfied patient would influence many others, creating a chain of referrals. Anecdotal success stories such as discontinuing insulin after CAM treatment further reinforced community confidence.

"One of our neighbor was also using insulin injections but was reportedly cured of her condition completely after using CAM." (IDI 4)

In some cases, the presence of public figures or perceived experts seeking CAM strengthened trust.

"We saw an Indian professor of diabetes there... even Rajnikant was there." (IDI 1)

Accessibility also played a significant role. Participants described procuring medicines from nearby border towns, facilitated by the open border and social media promotion.

"There is influence of open border... villagers return with bags full of medicines." (KII 4)

Economic considerations further influenced decisions. Long-term biomedical treatment and periodic investigations were perceived as financially burdensome, whereas herbal remedies and home-based treatments were viewed as comparatively affordable.

"Regular medication and checkups every three months can add up to the economic burden." (KII 4)

Thus, CAM was not only a therapeutic choice but also a socially reinforced and economically negotiated practice.

Theme 4: Limited communication with allopathic providers

Communication regarding CAM use between patients and allopathic providers was inconsistent. Many participants reported not disclosing their CAM use unless explicitly asked.

"The doctor didn't ask, so I also didn't tell." (IDI 6)

"Till now none of the doctors have asked me." (IDI 8)

Some participants avoided follow-up visits after starting CAM, particularly when they felt symptomatically improved.

Others who disclosed CAM use described negative reactions from doctors, including strong advice to discontinue alternative therapies.

"They shouted at me and strongly advised me to stop." (IDI 1)

Allopathic providers acknowledged that patients often feared medication side effects and were influenced by external advice. They also noted difficulty in convincing patients with strong beliefs in CAM.

"It is hard to convince those people who have strong belief in alternative treatment." (KII 4)

Some physicians reported actively inquiring about CAM use when clinical indicators were uncontrolled; however, such inquiry was not routine practice.

Discussion

Our study found that 23.6% of participants were currently using CAM, while 86.3% reported having ever used CAM for their chronic diseases. This prevalence is broadly consistent with CAM-use patterns in Nepal, where more than half of the population uses CAM, often alongside conventional treatment, particularly for long-term or chronic conditions.[16, 17]

The high lifetime use (86.3%) compared to current use (23.6%) in the present study suggests that many patients may have experimented with CAM at some point but did not continue regular use which is similar to the findings from other studies.[18, 19] This pattern may reflect the exploratory nature of CAM utilization, where patients trial different therapies in search of symptom relief or disease control. The qualitative findings support this interpretation, revealing that some participants used CAM intermittently, particularly during episodes of discomfort, rather than as a continuous treatment strategy.

Ayurveda was the most commonly used form of CAM (76.1%), which aligns with Nepal's cultural context where Ayurvedic medicine is deeply embedded in Hindu and Buddhist traditions and has been practiced for centuries.[20] Studies from Nepal have documented the widespread availability of Ayurvedic services and their integration into health-seeking behavior, particularly among populations with limited access to biomedical care or those who prefer traditional approaches due to cultural beliefs.[21, 22]

The study found significant association between CAM use and participants with two or more chronic conditions. This finding is consistent with other studies demonstrating a strong association between multimorbidity and CAM utilization. [23, 24] The increased CAM use among individuals with multimorbidity may be explained by several factors. People with multiple conditions often experience greater symptom burden, increased medication regimens, and higher risk of polypharmacy-related side effects, which may motivate them to seek additional or alternative treatment options.[25] Likewise, patients with chronic conditions often seek CAM when conventional treatments fail to adequately control symptoms, when they experience medication side effects, or when they desire a more holistic approach to health management.[25] The qualitative findings in this study support these explanations, as participants expressed dissatisfaction with allopathic medicines due to perceived side effects and incomplete symptom relief, particularly when managing multiple conditions simultaneously.

Our study revealed that nearby availability of CAM services was significantly associated with CAM use. The qualitative data also revealed that participants accessed CAM services and products from nearby border towns, often facilitated by the open border between Nepal and India.[26] This cross-border health-seeking behavior has been documented in a previous study which shows that Nepalese frequently utilize health services in neighboring Indian states due to proximity, perceived quality, or affordability. [27]

A prominent theme in the qualitative findings was the belief that CAM, particularly herbal remedies, is natural, safe, and free from harmful side effects. This perception of CAM as safer than conventional medicine is widely reported in the literature. [28, 29] However, this perception may not always align with scientific evidence, as certain herbal preparations can interact with conventional medications, cause adverse effects, or delay appropriate medical care.[8]

Social networks emerged as powerful determinants of CAM adoption. Participants frequently initiated CAM use based on recommendations from friends (64.8%), family members (28.5%), or neighbors who shared positive experiences. The qualitative data revealed chains of referrals, where one satisfied patient would influence multiple others, creating community-level patterns of CAM utilization. This finding aligns with social network theory, which posits that health behaviors are shaped by the information, norms, and social support provided by one's network members.[30, 31] Notably, health professionals were identified as information sources by only 1.6% of participants who had heard about CAM. This finding highlights a significant gap in provider-patient communication about CAM and suggests that most patients are making CAM-related decisions without professional guidance.

A concerning finding from this study is that 74% of CAM users did not inform their doctors about their CAM use. This non-disclosure pattern is consistent with international literature, which indicates that the majority of CAM users do not disclose their use to conventional healthcare providers. [32, 33]

Research on factors influencing CAM disclosure has identified several key determinants, including the quality of patient-provider relationships, fear of negative reactions or judgment from providers, perceptions that CAM use is not medically relevant, and providers' failure to initiate discussions about CAM. [33, 34] Our study's qualitative data supports these findings, as participants described negative reactions from doctors when

CAM use was disclosed, including being "shouted at" and strongly advised to discontinue alternative therapies.

Our study has some limitations. The study was conducted in a single ward of Nepalgunj Sub-Metropolitan City, which may limit generalizability to other regions of Nepal with different cultural contexts, healthcare infrastructure, or CAM availability. There may have been recall bias and social desirability bias, which could affect the accuracy of self-reported CAM use prevalence and patterns.

Implications for Practice and Policy

The findings have several important implications. Healthcare providers working with chronic disease patients in Nepal should routinely inquire about CAM use in a non-judgmental manner and provide evidence-based counseling about potential benefits, risks, and interactions with conventional treatments. In addition, health system planners should consider developing integrative care models that coordinate conventional and traditional medicine services. Given the pluralistic care patterns observed in this study, where most patients use CAM alongside rather than conventional treatment, integrative approaches that facilitate communication between different types of providers may improve care coordination and patient safety. Moreover, community-level interventions that engage trusted sources of health information, such as community health volunteers and peer networks, may be effective in promoting informed decision-making about CAM use.

Conclusion

This mixed-methods study revealed high current and lifetime use of complementary and alternative medicine (CAM) among chronic disease patients in Nepalgunj Sub-Metropolitan City, Nepal. Use was primarily driven by multimorbidity, joint family structures, and local service availability. Patients seek Ayurveda and other CAM for symptom control and to counter allopathic side effects, guided by strong social network influences. However, most fail to disclose usage to healthcare providers. Health systems should implement routine CAM screening and provider training. Future research should expand to multiple geographic regions to assess how urban-rural differences, ethnic diversity, and healthcare system characteristics influence CAM utilization.

Abbreviations

CAM
Complementary and Alternative Medicine
NCCIH
National Center for Complementary and Integrative Health
NDHS
Nepal Demographic and Health Survey

Declarations

Human Ethics and consent to participate

Ethical approval was received from Institutional Review Committee of Patan Academy of Health Sciences. All procedures involving human participants were conducted in accordance with the ethical standards of the institutional research committee and with the Declaration of Helsinki. All participants provided informed consent prior to participation.

Clinical trial number

Not applicable.

Acknowledgements

The authors sincerely thank the Female Community Health Volunteers (FCHVs) and all study respondents for their valuable participation. We are also grateful to Mr. Akhilesh Karna for his coordination and support, and to Ms. Shrijana Shrestha for her help throughout the study.

Authors contributions

Conceptualization: MD and KB; Project administration: MD; Investigation: MD, KB and TPA; Methodology: MD, KB and TPA; Formal analysis: MD and KB; Writing - original draft: SKU, KB; Writing -review & editing: MD, KB, TPA, SKU and BT.

Funding

The study received no funding.

Availability of data and materials

The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

References

1. National Cancer Institute. Complementary and alternative medicine (CAM) [Internet]; 2024 Oct 31 [cited 2025 Mar 17]. Available from: <https://www.cancer.gov/about-cancer/treatment/cam>
2. World Health Organization. WHO global report on traditional and complementary medicine 2019 [Internet]. Geneva. 2019 [cited 2025 Mar 17]. Available from: <https://www.who.int/publications/i/item/978924151536>

3. Clarke TC, Black LI, Stussman BJ, Barnes PM, Nahin RL. Trends in the use of complementary health approaches among adults: United States, 2002–2012. *National health statistics reports*. 2015(79):1. <https://pmc.ncbi.nlm.nih.gov/articles/PMC4573565/>
4. Molassiotis A, Fernadez-Ortega P, Pud D, Ozden G, Scott JA, Panteli V, et al. Use of complementary and alternative medicine in cancer patients: a European survey. *Ann Oncol*. 2005;16(4):655–63. <https://doi.org/10.1093/annonc/mdi110>.
5. Thorsen RS, Pouliot M. Traditional medicine for the rich and knowledgeable: challenging assumptions about treatment-seeking behaviour in rural and peri-urban Nepal. *Health Policy Plann*. 2016;31(3):314–24. <https://doi.org/10.1093/heapol/czv060>.
6. Dhimal M, Karki S, Sah AK, Jha A. Mapping the availability of Ayurveda and other complementary medicine services centers in Nepal. Kathmandu: Nepal Health Research Council. 2018. <https://nhrc.gov.np/wp-content/uploads/2019/04/Mapping-the-Availability-size.pdf>
7. Jaiswal K, Bajait C, Pimpalkhute S, Sontakke S, Dakhale G, Magdum A. Knowledge, attitude and practice of complementary and alternative medicine: A patient's perspective. *Int J Med Public Health*. 2015;5(1). <https://www.ijmedph.org/Uploads/Volume5Issue1/IntJMedPubHealth-5-1-19.pdf>
8. Fasinu PS, Rapp GK. Herbal Interaction With Chemotherapeutic Drugs-A Focus on Clinically Significant Findings. *Front Oncol*. 2019;9:1356. <https://doi.org/10.3389/fonc.2019.01356>.
9. Bahall M. Prevalence, patterns, and perceived value of complementary and alternative medicine among cancer patients: a cross-sectional, descriptive study. *BMC Complement Altern Med*. 2017;17(1):345. <https://doi.org/10.1186/s12906-017-1853-6>.
10. Shafiq N, Gupta M, Kumari S, Pandhi P. Prevalence and pattern of use of complementary and alternative medicine (CAM) in hypertensive patients of a tertiary care center in India. *Int J Clin Pharmacol Ther*. 2003;41(7):294–8. <https://doi.org/10.5414/cpp41294>.
11. Chang M-Y, Liu C-Y, Chen H-Y. Changes in the use of complementary and alternative medicine in Taiwan: a comparison study of 2007 and 2011. *Complement Ther Med*. 2014;22(3):489–99. <https://doi.org/10.1016/j.ctim.2014.03.001>.
12. Wanqing DU, Liuding W, Min J, Xiao L, Bo LI, Yunling Z, et al. Mixed methods research in complementary and alternative medicine: a scoping review. *J traditional Chin Med = Chung i tsa chih ying wen pan*. 2022;42(4):652–66. <https://doi.org/10.19852/j.cnki.jtcm.20220602.002>.
13. Chhabhi R, Do Y, Ahn D, Lee K, Kim C. Changing pattern of complementary and alternative medicine in Tikapur Nepal: a hope for future health. *Altern Integr Med*. 2014;3:1–5. <https://doi.org/10.4172/2327-5162.1000153>.
14. Dybdahl R, Lien L. Mental health is an integral part of the sustainable development goals. *Prev Med Commun Health*. 2017;1(1):1–3. <https://doi.org/10.15761/PMCH.1000104>.
15. Centers for Disease Control and Prevention. About chronic diseases [Internet]; 2025 Mar 4 [cited 2024 Jan 17]. Available from: <https://www.cdc.gov/chronic-disease/about/index.html>
16. Shenoy N, Shankar P, Partha P. A study on the use of complementary and alternative medicine therapies in and around Pokhara sub-metropolitan city, western Nepal. *J Nepal Health Res Counc*. 2003;1(01). <https://doi.org/10.33314/jnhrc.v1i1.18>.

17. Aryal I, Adhikari S. Awareness and Attitude Regarding Complementary and Alternative Medicine among Middle Aged Adults. 2021. <https://doi.org/10.33314/jnhrc.v19i2.3306>
18. Mao JJ, Palmer CS, Healy KE, Desai K, Amsterdam J. Complementary and alternative medicine use among cancer survivors: a population-based study. *J cancer survivorship: Res Pract*. 2011;5(1):8–17. <https://doi.org/10.1007/s11764-010-0153-7>.
19. Chin JW, Abdullah R, Tan BWW, Wong KW, Khor BH. Prevalence and patterns of complementary and alternative medicine usage among adults with chronic kidney disease: A systematic review and meta-analysis. *J Integr Med*. 2025;23(4):370–81. <https://doi.org/10.1016/j.joim.2025.05.001>.
20. Maskey NM, Kharel P, Tobgay S. South Asian export potential in traditional health services: A case study of Bhutan and Nepal. Dhaka: South Asia Network of Economic Research Institutes (SANEI). 2010. <https://www.researchgate.net/publication/322115422>
21. Thakur SK, Sah MK. Harnessing Nepal's Traditional Knowledge: Strengthening the Ayurveda ecosystem and exploring opportunities for global collaboration. *Int J Ayurveda Res*. 2025;6(3):172–82. <https://doi.org/10.1016/j.jaim.2016.07.002>.
22. Kafle PP, Pant P, Dhakal N. Assessment of Health Seeking Behavior Regarding Complementary and Alternative Medicine in Solukhumbu District, Nepal. *Nepal Med Coll J*. 2021;23(1):23–30. <https://doi.org/10.3126/nmcj.v23i1.36223>.
23. Nahin RL, Rhee A, Stussman B. Use of Complementary Health Approaches Overall and for Pain Management by US Adults. *JAMA*. 2024;331(7):613–5. <https://doi.org/10.1001/jama.2023.26775>.
24. Alwhaibi M, Bhattacharya R. Type of Multimorbidity and Complementary and Alternative Medicine Use among Adults. 2015;2015:362582. <https://doi.org/10.1155/2015/362582>
25. Bishop FL, Lewith GT. Who Uses CAM? A Narrative Review of Demographic Characteristics and Health Factors Associated with CAM Use. *Evidence-based Complement Altern medicine: eCAM*. 2010;7(1):11–28. <https://doi.org/10.1093/ecam/nen023>.
26. Jaiswal P. Nepal and the Great Powers. Synergy Books India; 2019.
27. Bashyal K, Bashyal LK. Nepali Patient Treatment in India: Motivation and Experience. <https://www.mbmec.edu.np/uploads/medias/NepaliPatientTreatmentinIndiaMotivationandExperience.pdf>
28. Kav T. Use of Complementary and Alternative Medicine: A survey in Turkish Gastroenterology Patients. *BMC Complement Altern Med*. 2009;9(1):41. <https://doi.org/10.1186/1472-6882-9-41>.
29. Al-Nimri R, Akour A, Kasabri V, Al-Samydai A. The use of complementary and alternative medicine in fertility and gynaecological disorders in Jordan: a mixed-method descriptive study. *J Pharm Health Serv Res*. 2022;13(4):315–25. <https://doi.org/10.1093/jphsr/rmac039>.
30. Berkman LF, Kawachi I, Glymour MM, Social. epidemiology: Oxford university press; 2014. <https://doi.org/10.1093/med/9780195377903.001.0001>
31. Liu W, Sidhu A, Beacom AM, Valente TW. Social network theory. *Int encyclopedia media Eff*. 2017;1:1–12. <https://doi.org/10.1002/9781118783764.wbieme0092>.
32. Robinson A, McGrail MR. Disclosure of CAM use to medical practitioners: a review of qualitative and quantitative studies. *Complement Ther Med*. 2004;12(2–3):90–8. <https://doi.org/10.1016/j.ctim.2004.09.006>.

33. Davis EL, Oh B, Butow PN, Mullan BA, Clarke S. Cancer patient disclosure and patient-doctor communication of complementary and alternative medicine use: a systematic review. *Oncologist*. 2012;17(11):1475–81. <https://doi.org/10.1634/theoncologist.2012-0223>.
34. Shelley BM, Sussman AL, Williams RL, Segal AR, Crabtree BF. They don't ask me so I don't tell them': patient-clinician communication about traditional, complementary, and alternative medicine. *Ann Fam Med*. 2009;7(2):139–47. <https://doi.org/10.1370/afm.947>.

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