Investigating the influence of patient demographics on the utilization of Complementary and Alternative Medications (CAM) for treating various lifestyle diseases in community and hospital pharmacies: A comprehensive literature review

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ABSTRACT

Background: Alternative and complementary medicine (CAM) is extensively utilized worldwide due to its potential in relieving both psychological and physical conditions. As the prevalence of lifestyle diseases has been increasing with each passing day, CAM plays a vital role around the globe. Objective: The current review was designed to analyze the effect of CAM usage on patients having lifestyle management diseases in various hospitals and community pharmacies. Methods: The researchers performed a systematic examination utilizing diverse search engines to locate cross-sectional studies. A manual exploration was carried out using the following electronic databases: Web of Science, Google Scholar, Science Direct, Pro Quest, Pub Med, ResearchGate and Scopus. This systematic review was according to the standards of “Preferred Reporting Items for Systematic Reviews” (PRISMA) and Meta-analysis. Results: This review included the updated studies taken from 2002 to 2023. The higher trend of CAM usage was from Western Asia. However, it covered other continents as well. Out of 26,000 patients, 18,000 were observed to be using alternative and complementary medicines. The AXIS tool served an essential...
function in cross-sectional studies by rigorously assessing the study's quality. It offers a systematic method to gauge the quality, pertinence, and reliability of clinical research within cross-sectional studies. Conclusion: The cross-sectional analysis comprised 31 research articles published from 2002 to 2023. These studies were conducted across multiple nations by researchers. CAM usage is higher in chronic diseases like Hypertension, Arthritis, Diabetes, and Asthma. The trend of CAM usage was high in West Asia.

Keywords: Demographic factors, Hypertension, Confounders, PRISMA, Hypertensive Patients, Control of Hypertension, Complementary and Alternative Medications (CAM)

1. INTRODUCTION
CAM, an umbrella term, encompasses unconventional medical practices, interventions, and products that complement or augment conventional medical treatments. It expands the theoretical scope of medicine and addresses unmet healthcare requirements (Bukhsh et al., 2018). Variations and complementary expressions are necessary to employ in specific contexts. Complementary medicine encourages utilizing biomedicines along with acupuncture, physical activity and dietary changes instead of replacing them. In contrast, alternative medicines or therapy involve utilizing a substitute rather than biomedicine or herbal products (Ernst and Fugh-Berman, 2002). According to the National Institutes of Health (NIH), Conventional or traditional medicine is considered such an approach in which healthcare providers, including those with doctorates, address ailments and symptoms using medications, radiation therapy, or surgery. It's crucial to highlight that the practice of medicine extends beyond physicians alone. Other healthcare professionals, including pharmacists, medical assistants, nurses, and clinicians, can also adopt this approach within their respective areas of expertise (Ng et al., 2023).

Complementary and Alternative Medicine (CAM) comprises a range of techniques utilized alongside traditional therapies (complementary) or as alternatives to them. Although they have proven effectiveness, many healthcare practices within CAM have not yet been fully integrated into mainstream healthcare systems. Examples of CAM therapies include acupuncture, homeopathy, herbal remedies, and spiritual healing techniques (Valtonen et al., 2023). CAM, an abbreviation for Complementary and Alternative Medicine, encompasses a diverse array of treatments, including bee pollen and ozone therapy, along with traditional Chinese medical practices. These modalities present unique diagnostic criteria and a wide spectrum of treatment options, as noted by (Ernst and Fugh-Berman, 2002). Seemingly, CAM therapies don’t rely on complex or advanced technology, provide affordable treatment facilities, and utilize the body’s inherent capacity to heal itself. In evaluating CAM treatment as an eligible expense, it’s crucial to conduct a comprehensive and unbiased assessment of its economic and health implications (Herman et al., 2005).

Globally, there’s a growing trend of individuals seeking complementary and alternative medicine (CAM) to enhance their physical and mental health (Wu et al., 2023). As the prevalence of chronic illness has been increasing with each passing day, complementary and alternative medicines are growing in popularity around the globe. Diabetes mellitus presents a considerable public health challenge globally, contributing to substantial rates of morbidity and mortality (Al-Eidi et al., 2016). Numerous research endeavors have been undertaken within the realm of complementary and alternative medicine (CAM) to tackle chronic conditions like diabetes, hypertension, and cancer, alongside addressing broader health issues within specific geographic areas (Zyoud et al., 2016). Some natural products, including herbal remedies, vitamins, and some other probiotics, psychological treatments, acupuncture, acupressure and cupping therapy that is considered to be the most widely used CAM therapies (Dehghan et al., 2020). Multiple studies indicate that higher income, education level, and female gender are correlated with an elevated utilization of complementary and alternative medicine (CAM).

Results differ for racial or ethnic categories and age factors, with the common trend of non-Black status or self-identification of White people associated with a greater possibility of CAM use. CAM users are categorized as single, living with someone, or divorced. Mostly married individuals were found using the Chiropractic therapy of CAM (Conboy et al., 2005). In the United States, the average individual consults CAM practitioners approximately 19 times annually, with a one-year prevalence of CAM usage at 34%. The expenses associated with these practitioners can surpass $500 per person (Hasan et al., 2009). Globally, researchers have examined numerous factors influencing CAM; however, many variables necessitate further investigation. CAM research findings and data are dispersed and not easily accessible. Definitive studies regarding CAM factors are spread across various platforms. Researchers require
concise and readily accessible information. Centralizing all CAM data on a unified platform can enhance awareness. The research investigated how patient demographics influence the utilization of complementary and alternative medicine for managing lifestyle diseases in both community and hospital pharmacies.

2. MATERIALS AND METHODS

The systematic review received primary guidance from a range of search engines. The study search was conducted using the following electronic databases: Science Direct, PubMed, Web of Science, Scopus, Directory of Open Access Journals, and ProQuest. Additionally, Google Scholar was utilized for manual searching. Furthermore, all study protocols adhere to the PRISMA flow statement guidelines. The keywords used for finding the research studies were: ‘complementary medicine’ ‘alternative medicine’, ‘complementary and alternative medicine’, ‘complementary and alternative medicine use in Asian countries’, ‘use of complementary and alternative medicine for chronic diseases in different countries’, and role of complementary and alternative medicine for chronic diseases. We restricted our search to English-language studies on chronic diseases published between January 2006 and December 2023. Out of the 2163 studies identified, only 31 were included in the systematic review based on their adherence to the inclusion criteria.

Inclusion Criteria
The inclusion criteria were as follows:
The study was on Chronic Diseases.
The studies were published in the language English.
The study population data were considered from CAM users only.
The studies were from different countries worldwide.
The study design of the included studies was observational cross sectional.
The studies were from general population and healthcare providers.

Exclusion Criteria
The exclusion criteria were as follows:
The studies of study design other than observational cross-sectional.
The studies were published in any other languages except for English.

Data Extraction
The information retrieved from the studies included the following details: Study design, author details, country of study, year of study, disease for assessment, sample size, demographics (age group, weight, BMI, gender, occupation, family, alcohol consumption, smoking, exercise habit, marital status, main source of health payment, education level, area of residence, disability, duration of disease, current medication, hospitalized within five years, any surgery in the past two years, current report of labs and comorbidity if any), and type of cam used. To assess and mitigate potential bias, we utilized the AXIS Tool.

3. RESULTS

This review was about using complementary and alternative medicines in patients to manage lifestyle diseases. Altogether, the review informs about the usage trend of CAM and its effect on handling lifestyle diseases. Most of the studies included in the review were from Asia to check the course of usage of CAM, and some studies included were from the US and Australia to keep the difference in notice about the usage trend of CAM. The direction of complementary and alternative medicine (CAM) usage necessitates consideration of various factors. The review included the updated studies taken from 2002 to 2023. CAM utilization in Asia surpasses that of other continents, influenced by factors such as religion, culture, economics, and historical connections. Western Asia exhibits a higher prevalence of complementary and alternative medicine (CAM) usage compared to the rest of Asia, with Southern Asia following closely.

Studies indicate elevated CAM usage rates in Western and Southern Asia, potentially influencing healthcare policies and practices in these regions. Discrepancies in CAM usage trends across continents have been observed in studies from the US and Australia.
Additionally, data from multiethnic communities were considered. Geographical location significantly influences CAM usage, with patients often aligning their choices with local customs, beliefs, and religious practices. The majority of studies focused on adult patients, although data from pediatric patients was also incorporated. Responses were collected from nearly 26,000 patients as part of the study assessing CAM usage. Among the total sample size, approximately 18,000 patients have chosen to use CAM and are reporting positive outcomes.

Some of the patients were regular CAM users while some patients were not, and some discussed their CAM usage with their physician, while most of the patients were taking CAM without any physician concern. Users of CAM who used it consistently reported varied outcomes in comparison to those who used it sporadically, particularly regarding their illness management. The identification of studies involved searching through diverse databases and registers, including Science Direct, PubMed, Web of Science, Scopus, ProQuest, and Google Scholar. Initially, 1454 records were screened, from which 267 studies were identified for retrieval, and subsequently, 141 studies were assessed for eligibility. Ultimately, 31 studies met the inclusion criteria for the review. As depicted in Figure 1.

![Identification of studies via databases and registers](image)

**Figure 1** PRISMA flow diagram for systematic review
Table 1 Study characteristics of the included studies

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Study</th>
<th>Country</th>
<th>Disease name</th>
<th>Study design</th>
<th>Sample size (N)</th>
<th>Demographics</th>
<th>Type of CAM used</th>
<th>Outcome/conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>(Chen et al., 2016)</td>
<td>Multiethnic community</td>
<td>Epilepsy</td>
<td>Cross-sectional prospective study, gathering of figures was done by using a Multidimensional questionnaire</td>
<td>N=178</td>
<td>Pediatric patients with epilepsy (PPE) Cam users=49</td>
<td>Traditional herbs, acupuncture, aromatherapy, hypnotherapy, multivitamins, minerals, massage, Tuina, and reflexology.</td>
<td>The majority ratio of CAM users were Chinese, and the average of PPE that used anti-epileptic drugs was 1.50, while the report indicated that 49 caregivers, accounting for 27.5% of the total, were administering CAM to their PPE. Caregivers who utilized CAMs for their patients with PPEs often lacked comprehensive information regarding the effects of CAMs. Some harbored misconceptions and neglected to discuss their usage with healthcare providers. However, healthcare professionals should routinely inquire about caregivers’ use of CAM for PPEs, and this utilization should be documented. This approach ensures that the compatibility of CAMs with prescribed AEDs is monitored and assessed appropriately.</td>
</tr>
<tr>
<td>2.</td>
<td>(Ali-Shtayeh et al., 2013)</td>
<td>Palestine</td>
<td>Hypertension</td>
<td>This study employs a cross-sectional survey methodology, utilizing a semi-structured questionnaire.</td>
<td>N= 4575 Cam users= 3921</td>
<td>Gender, age group, marital status, education level, area of residence (city, village, refugee camp)</td>
<td>Biological-based therapies, herbs, honey, etc. Energy therapies (vitamins, minerals), Conventional oriental medicines (aromatherapy, homeopathy, folk remedy)</td>
<td>Herbal therapy for hypertension is highly prevalent in Palestine. 86% of hypertensive patients used one or more types of CAM for HTN management, out of which 62.1% were Herbs.</td>
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<td>3.</td>
<td>(Medagama et al., 2014)</td>
<td>Sri-Lanka</td>
<td>Type 2 Diabetes</td>
<td>A cross-sectional survey was conducted among 252 randomly selected Type 2 diabetes patients. Prior to administering a questionnaire containing demographic data, diabetes-related information, and details regarding CAM use, verbal consent was obtained from the participants.</td>
<td>N=252 Cam users=128</td>
<td>Please furnish details encompassing age, occupation, gender, and diabetes-related information. This entails the duration of diabetes, present anti-diabetic medication, presence of complications, episodes of hypoglycemia, most recent Fasting Plasma Glucose reading,</td>
<td>Supplemental herbal remedies, naturopathy, Ayurvedic medicine, and acupuncture.</td>
<td>This study primarily examines the non-commercially available types of CAMs utilized by individuals with diabetes. Sri Lanka exhibits a widespread prevalence of individuals utilizing herbal dietary supplements. Crepe ginger has been identified as being associated with significant hypoglycemia. However, the overall incidence of hypoglycemia among CAM users was not found to be increasing.</td>
</tr>
<tr>
<td>No.</td>
<td>Author(s)</td>
<td>Country</td>
<td>Study Type</td>
<td>Participants</td>
<td>Methodology</td>
<td>Outcome Measures</td>
<td>Findings</td>
<td></td>
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<td>4.</td>
<td>(Oktar et al., 2023)</td>
<td>Turkey</td>
<td>Chronic diseases</td>
<td>N=692 individuals</td>
<td>Cross-sectional observational study, logistic regression analysis carried out.</td>
<td>Referral location, age, gender, marital status, employment status, family structure, and alcohol consumption.</td>
<td>The most commonly employed CAM practices included phytotherapy, cupping therapy, acupuncture, leech therapy, hypnosis, music therapy, apitherapy, larval therapy, chiropractic, homeopathy, reflexology, prolotherapy.</td>
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<td>5.</td>
<td>(Shraim et al., 2017)</td>
<td>Palestine</td>
<td>N/A</td>
<td>N=281, Three hundred thirteen community pharmacists were asked to participate, 284 pharmacists accepted, and 281 pharmacists provided their statistics in the analysis.</td>
<td>Gender, age, education level (bachelor, master), Experience, university of graduation, pharmacy location.</td>
<td>Exercise, and Food supplements were the most frequently recommended modalities. Honey, herbs and massage came in second place. Other practices recommended by pharmacists were hijama remedies and Bloodletting – chiropractic etc.</td>
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<td>6.</td>
<td>(Wazaify et al., 2011)</td>
<td>Jordan</td>
<td>Diabetes</td>
<td>N=100 CAM users = 166</td>
<td>Comparative random sampling through surveys &amp; interviews</td>
<td>Age, gender, Residence, Education</td>
<td>Herbal products</td>
<td></td>
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<tr>
<td>7.</td>
<td>(Chu et al., 2013)</td>
<td>China</td>
<td>Coronary Artery Disease</td>
<td>N=377 CAM users</td>
<td>Parallel study by questionnaire</td>
<td>Gender, age, Educational level, Residence, Income</td>
<td>Chinomedicine (CM) [patent herbal medicine]</td>
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<td>8.</td>
<td>(Sari et al., 2021)</td>
<td>Indonesia</td>
<td>Diabetes mellitus</td>
<td>N=628 CAM users = 341</td>
<td>Intersectional Non-random sampling by in-person interviews &amp; questionnaire</td>
<td>Gender, Age, Marital status, Religion, Education level, Employment status, Income</td>
<td>Herbal products</td>
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</table>

This study investigated the knowledge, perception, practice, and belief of Community pharmacists on the Usage of CAM. The knowledge scores were fair to average. This study indicates a necessity for Palestinian pharmacists to undergo additional training and education regarding Complementary and Alternative Medicine (CAM). This would serve to augment their knowledge and expertise, enabling them to deliver enhanced pharmaceutical care to their patients. Through such measures, there is a potential to enhance the health outcomes of patients.
<table>
<thead>
<tr>
<th>Source</th>
<th>Country</th>
<th>Disease</th>
<th>Study Design</th>
<th>Sample Size</th>
<th>Demographic Data</th>
<th>CAM Use</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Amariles et al., 2006)</td>
<td>Colombia</td>
<td>Obesity</td>
<td>Intersectional Randomized study</td>
<td>94 CAM users=49</td>
<td>Age, Gender, Marital status, Educational level, weight, BMI</td>
<td>Herbal products/home remedies</td>
<td>Still its safety and efficacy profile was considerable for the management of diabetes and good health.</td>
</tr>
<tr>
<td>(Devi et al., 2015)</td>
<td>India</td>
<td>Diabetes</td>
<td>Transverse randomized study by questionnaire</td>
<td>Total participa nts=252 CAM users=162</td>
<td>Age, Gender, Educational level, Family history</td>
<td>Herbal products/Dietary nutritional supplements</td>
<td>Based on demographic data, a greater proportion of females (61.1%) were utilizing CAM products to manage type II diabetes mellitus in contrast to males (49.4%). Participants (54.9%) expressed satisfaction with CAM products either alone or in combination with conventional therapy, reporting significant improvement in managing their blood sugar levels.</td>
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<tr>
<td>(Farooqui et al., 2022)</td>
<td>Saudi Arabia</td>
<td>Chronic diseases</td>
<td>Transverse survey</td>
<td>377</td>
<td>Age, marital status, employment status, education level.</td>
<td>Herbal products and spiritual therapies.</td>
<td>The study highlights the importance of health care providers being aware of CAM use among their parents and regularly assessing any potential negative consequences. Further research is needed to evaluate the safety and effectiveness of CAM in managing chronic diseases.</td>
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<tr>
<td>(Hussein et al., 2023)</td>
<td>Malaysia</td>
<td>Asthma</td>
<td>Intersectional studies</td>
<td>1280</td>
<td>Gender, ethnicity, level of education, occupation, household income, smoking, the primary source of health payment</td>
<td>Not specified.</td>
<td>The study examines the features associated with poor asthma control.</td>
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<td>(Suresh Kumar et al., 2023)</td>
<td>United Arab Emirates</td>
<td>Cardiov ascular</td>
<td>Comparative design</td>
<td>400</td>
<td>Age group, gender, marital status, BMI, employment status, field of work</td>
<td>Homeopathic, Ayurveda, acupuncture, wet and dry cupping therapy, traditional healing, massage, chiropractic therapy, and Chinese medicine, herbal medicine, vitamins honey products, relaxation</td>
<td>The sociodemographic factors were not significantly associated with the use of CAM. The study concluded that there is a need to promote awareness regarding alternative options for the management of CVDs alongside evidence-based medical techniques.</td>
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<td>(Ruyvaran et al., 2021)</td>
<td>Iran</td>
<td>Gastrointestinal (GI) disorders</td>
<td>cross-sectional randomized sampling by questionnaire</td>
<td>244 adult patients CAM users=89</td>
<td>Age, Gender, Marital Status, Education, Occupation, Residence,</td>
<td>Mineral &amp; Animal byproducts, Wet Cupping, Herbal</td>
<td>Based on the patient’s demographic data, 69.29% of CAM Users were female. The relationship between CAM use and period of ailment is direct. Significant relationship showed above age 60 years. Most of the</td>
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<tr>
<td>No.</td>
<td>Study</td>
<td>Country</td>
<td>Disease</td>
<td>Study Type</td>
<td>Sample Size</td>
<td>Duration of Disease</td>
<td>BMI</td>
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<td>15</td>
<td>(Opheim et al., 2012)</td>
<td>Norway</td>
<td>Inflammatory bowel disease</td>
<td>Cross-sectional study by questionnaire</td>
<td>240 patients CAM users = 430</td>
<td>Age, Gender, Marital status, Education, Work Status, Place of residence, Smoking, Disease duration</td>
<td>Herbal remedies, Other dietary supplements, Homeopathic remedies</td>
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<tr>
<td>16</td>
<td>(Hilsden et al., 2003)</td>
<td>Canada</td>
<td>Inflammatory bowel disease</td>
<td>Cross-sectional study randomized sampling by questionnaire</td>
<td>2847 patients CAM users = 1332 patients</td>
<td>Age, Region, Type of IBD, Disease activity, Hospitalized in the past five years, Surgery in the past two years</td>
<td>Homeopathic, Herbal Therapy (&quot;Aloe Vera, Garlic, flaxseed&quot;) Naturopathy</td>
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<td>17</td>
<td>(Alaeddine et al., 2012)</td>
<td>Lebanon</td>
<td>Rheumatoid arthritis and osteoarthritis</td>
<td>Descriptive cross-sectional study by questionnaire based interview</td>
<td>320 adult patients age b/w 20-90 years</td>
<td>Age, gender, occupation, educational level, Marital status</td>
<td>82.8% herbal therapy 22.4% exercise 12.1% massage 3.4% yoga and meditation</td>
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<td>18</td>
<td>(Osamor and Owumi, 2010)</td>
<td>Nigeria</td>
<td>Hypertension</td>
<td>Quantitative study Qualitative study</td>
<td>440 Age b/w 25-90 years</td>
<td>Age, sex, occupation, educational level, religion, marital status</td>
<td>63% herbs only 21% garlic 8% herbs and prayer</td>
</tr>
<tr>
<td>19</td>
<td>(Shahjalal et al., 2022)</td>
<td>Bangladesh</td>
<td>Chronic illness</td>
<td>Cross-sectional study</td>
<td>549</td>
<td>Gender, age, schooling, marital status, location of residence, monthly income knowledge on CAM</td>
<td>Homeopathy Ayurveda Unani</td>
</tr>
<tr>
<td>20</td>
<td>(Ünsal and Gözüm, 2010)</td>
<td>Turkey</td>
<td>Arthritis</td>
<td>Descriptive cross-sectional by questionnaire</td>
<td>230</td>
<td>Age, Gender, marital status, education level, economic status</td>
<td>62.6% thermal therapy 41.5% herbal therapy 40.5% hot therapy 32.6% skin therapy 28.4% massage 12.6% cold therapy</td>
</tr>
<tr>
<td>21</td>
<td>(Bhalerao et al., 2013)</td>
<td>India</td>
<td>Epilepsy HIV RA DM</td>
<td>Treatment satisfaction questionnaire for medication</td>
<td>4664</td>
<td>Age, gender, duration of disease</td>
<td>Ayurveda most commonly use</td>
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<td>22</td>
<td>(Ali-Shtayeh et al., 2012)</td>
<td>Palestine</td>
<td>Diabetes mellitus</td>
<td>Cross-sectional random sampling by interview and questionnaire</td>
<td>1883 participants</td>
<td>97 participants were using herbs</td>
<td>Gender, age, marital status, education level, residence</td>
</tr>
<tr>
<td>23</td>
<td>(Mountifield et al., 2015)</td>
<td>Australia</td>
<td>Inflammatory bowel disease</td>
<td>Cross-sectional randomized sampling by questionnaire.</td>
<td>463 participants</td>
<td>206 participants were regular CAM users</td>
<td>Age, disability, employment, smoking, pension, marital status.</td>
</tr>
<tr>
<td>24</td>
<td>(Ceylan et al., 2009)</td>
<td>Turkey</td>
<td>Diabetes mellitus</td>
<td>Study conducted by survey during a follow-up</td>
<td>301 participants</td>
<td>81 participants were using CAM</td>
<td>Gender, Marital status, Education level, Income, Profession</td>
</tr>
<tr>
<td>25</td>
<td>(Rafi et al., 2020)</td>
<td>Bangladesh</td>
<td>Diabetes Mellitus</td>
<td>Cross-sectional study by face-to-face interview using a structured questionnaire</td>
<td>244 participants</td>
<td>86 participants were using CAM</td>
<td>Age, sex, Marital status, Education level, religion, income and residence</td>
</tr>
<tr>
<td>26</td>
<td>(Spinks et al., 2014)</td>
<td>Australia</td>
<td>Diabetes Mellitus and cardiovascular disease.</td>
<td>Cross-sectional study by postal surveys. Advertisements and rolling recruitment approaches were used to employee the individuals. Online recruitment was done by mail as well.</td>
<td>Total sample= 2669</td>
<td>Non-CAM users=1386</td>
<td>Age, gender, marital status, religion, income, education level, employment, BMI, smoking, exercise</td>
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</table>
In the last 12 months, both practitioner and product were examined (Tokem et al., 2012). Asthma Descriptive type study conducted in the hospital. 200 patients. Age, education level, working status, social insurance. Herbs, exercise, mind-body techniques such as praying and imagining methods, nutritional and vitamin supplements. 63% of patients use the CAM method, patients with enduring asthma and comorbidities use CAM and found the relation between them.

Asthma Comparative study, obtain data from 2 hospitals by questionnaire. 436 patients. Gender, age, educational level, Income, marital status, duration of HTN, comorbidity. Biological-based therapies, Natural or herbal products, reflexology, Acupuncture. As CAM treatment is not a risk-free approach and shows many adverse results, need more research.

Hypertension Comparative study. 150 participants. Gender, age, educational level, marital status, white non-Hispanic. Natural and biologically based goods, bodywork, mind-body practices, Naturopathy, Acupuncture, Homeopathy. Notice the care gap resulting from the lack of disclosure of CAM usage to the primary care provider (PCP).

Diabetes Questionnaire. 21 participants. Gender, Age, Income, Education, Ethnicity. Pharmacological CAM, Non Pharmacological CAM. More research is required to clarify the safety and efficacy of CAM among different demographics with varied civilizations.

Hypertension Comparative data from Economically marginalized rural and urban communities. 946 participants. Gender, Age, Employment, Income. Natural and biologically based goods, body-based modalities, and energy-based therapies. CAM provide optimal benefits, to improve primary care services.

It’s essential to incorporate diverse demographic factors to ensure an accurate assessment of the correlation with CAM. Such as age is the factor involved in checking the use of CAM is higher in which age group, and on this source, other demographics added as well, for example, Gender, Education level, Occupation, Mental status, Income, Job type, Family status, Residency, relationship status, and weight, etc. A wide range of demographic characteristics were encompassed in the study to check the effect of demographics on the use of CAM to indicate or conclude how demographics showed impact on CAM use. The studies conducted in the US involved white non-Hispanic participants, selected based on their population demographics. Pediatric patients from a multi-ethnic community, including those with epilepsy, were also included in the study.

The diseases included in the review were lifestyle management diseases such as Diabetes Mellitus, Hypertension, asthma, and epilepsy. The utilization of complementary and alternative medicine (CAM) typically exerts a more significant influence on the management of chronic diseases compared to acute ones. This preference stems from the potential long-term benefits that herbs and other CAM therapies offer in chronic conditions, which are crucial to effectively manage. Moreover, diverse CAM therapies...
demonstrate varying effects on the progression of different diseases. It is noteworthy that the majority of Asian studies examined in the review concentrated on lifestyle diseases such as diabetes mellitus, hypertension, arthritis, cardiovascular diseases, and asthma. Interestingly, the review also revealed that a notable portion of patients in the US using CAM were afflicted with diabetes mellitus and hypertension. As described in (Table 2).

**AXIS tool**
AXIS tool is the critical appraisal of Cross-sectional studies for the systematic evaluation of clinical research to examine trustworthiness, significance, and relevancy. The AXIS tool is a robust assessment instrument designed for evaluating the quality of interventional observational studies, encompassing cohort and case-control studies. Additionally, it serves to address the quality of study design and the potential for bias in cross-sectional studies. This tool is valuable for assessing the credibility, pertinence, and reliability of clinical research. As described in (Table 2).

| Study 1 | Study 2 | Study 3 | Study 4 | Study 5 | Study 6 | Study 7 | Study 8 | Study 9 | Study 10 | Study 11 | Study 12 | Study 13 | Study 14 | Study 15 | Study 16 | Study 17 | Study 18 | Study 19 | Study 20 | Study 21 | Study 22 | Study 23 | Study 24 | Study 25 | Study 26 | Study 27 | Study 28 |
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4. DISCUSSION
Indeed, the aim of this review was to assess the impact of CAM utilization on the demographic of patients with lifestyle-related diseases across different hospital and community pharmacy settings. The use of CAM is increasing among people, not merely to
improve a particular well-being but also to overcome many complications related to disease and other chronic conditions (Giangioppo et al., 2016). This thorough review indicates the prevalence of CAM use in various communities. The analysis is drawn from 31 studies conducted across diverse countries, highlighting notable disparities in the prevalence of CAM utilization. This review consists of the studies conducted between 2002 and 2023. It’s worth noting that although the studies spanned 21 years, the majority of publications emerged after 2012. This could signify a shift in research focus or alterations in dissemination practices.

The review underscores that Complementary and Alternative Medicine (CAM) sees greater adoption in Asia compared to other continents, a phenomenon attributed to religious, cultural, economic, and historical factors. Despite the availability of conventional medicines, CAM remains prevalent in Asia. This observation aligns with findings from a cross-sectional study among pharmacy and non-pharmacy students in Pakistan conducted between 2016 and 2017, which indicated widespread CAM usage in Asia. The popularity of CAM products can be attributed to mass media and cultural beliefs, with patients often perceiving them as safe and effective. However, it’s important to emphasize the necessity of consulting qualified healthcare professionals and integrating CAM with conventional treatments (Ashraf et al., 2019).

Moreover, some other findings carried out in the United States, Australia, and England through telephonic investigations and questionnaires stated that the main factor driving CAM usage among the majority of the population was the dissatisfaction with the conventional therapy, fear of side effects related to conventional medicines, and the spiritual, religious, and philosophical beliefs of patients, which is kind of similar to our findings regarding the use of CAM (Astin, 1998; Vincent and Furnham, 1996). Research carried out in England examined the utilization of complementary and alternative medicine (CAM), revealing a lower prevalence compared to a parallel study conducted in Japan, where a higher rate of CAM usage was reported in Asia. The reason for this high usage ratio of CAM in Japan is the cultural aspects and their beliefs that complementary therapies are more beneficial as they provide better health outcomes and have the potential to avoid disease (Hunt et al., 2010; Yamashita et al., 2002).

Furthermore, this review states that, in comparison to all of Asia, Western Asia has shown an increased prevalence in the use of CAM, followed by Southern Asia. This higher CAM usage in western Asia correlates with a cross-sectional study conducted in Saudi Arabia from 2017 to 2018, which showed that CAM use is highly prevalent among arthritis patients. One of the primary reasons behind the extensive adoption of CAM therapy among the Saudi population is their profound religious and spiritual convictions (Almuhareb et al., 2019). It’s intriguing to observe the diversity in trends regarding CAM utilization across different continents. Recently, analyses from the United States and Australia were considered to explore this matter further. According to recent studies incorporated in this review, it seems that CAM usage in Australia has declined compared to a population-based survey conducted in 2005. This decline could be attributed to enhancements in the healthcare system over time, leading to improved health outcomes through conventional therapies.

Nevertheless, it remains noteworthy that despite these advancements, a considerable number of individuals continue to choose CAM therapies to attain supplementary benefits (Xue et al., 2007). A multiethnic community contributed some statistics as well to this review. A similar cross-sectional study was conducted from 2002 to 2003 among patients belonging to urban multiethnic groups, according to which the use of herbal remedies was prevalent but varied substantially among ethnic groups. Research indicates that Asians exhibit the highest frequency of herbal medication usage compared to other ethnicities, with African Americans reporting the lowest usage rates. This implies that cultural and religious beliefs, alongside awareness and affordability of herbal products, likely influence their utilization. These conclusions are substantiated by empirical data and hold relevance in discussions concerning herbal medication usage (Kuo et al., 2004).

This study examined both adult and pediatric patients, encompassing nearly 26,000 individuals. Among them, some consistently used complementary and alternative medicine (CAM), while others did not exhibit regularity in CAM usage. In a European study conducted in 2014, data were gathered from a larger participant pool, yielding somewhat comparable findings which was around 40 thousand, from 21 countries and it showed a high prevalence of use of CAM regarding demographic data, predominantly age, gender, and educational level. This revealed that elders, females, and people with higher educational levels tend to depend on CAM therapy for treatment of chronic conditions because of their cultural beliefs and better knowledge related to CAM products (Fjaer et al., 2020). The majority of patients were discovered to be using CAM without divulging this information to their physician although some patients consulted the CAM usage with their physician.

The results of this review are consistent with a cross-sectional survey conducted in Singapore in 2003, suggesting the reliability of the data. Incorporating multiple sources of information is crucial for broadening comprehension and bolstering the study’s validity.
A study was conducted in Saudi Arabia in 2015 (AlGhamdi et al., 2015). In this cross-sectional and descriptive survey, it was observed that a noteworthy portion of patients refrained from informing their physician about their utilization of complementary and alternative medicine (CAM). The reason was discovered is poor physician-patient relationship, a lack of trust towards the physician, or a lack of response from the physician side, which leads to increased self-usage of CAM products among patients. The rationale for gathering this information is that it offers a rapid and cost-efficient method for obtaining consistent data from a sizable population. It’s easy to analyze the results, and participants can answer questions anonymously.

On the contrary, different studies gathered data through computer-assisted personal interviews (CAPI) (Barnes et al., 2004). Studies revealed that the use of CAM was high in those patients that were in misery from chronic diseases like hypertension, diabetes, asthma, chronic kidney diseases, and arthritis (Farooqui et al., 2022). This arises from their capacity to offer an alternative or supplementary approach to managing chronic illnesses, particularly in cases where conventional treatments are scarce or insufficient. In a separate study, patients with other chronic gastrointestinal disorders exhibited notably lower usage of herbs and botanicals, with individuals suffering from IBD showing greater adherence to conventional drug therapies (Fábián et al., 2018). In a separate study carried out in Scotland, the varieties of CAM employed included herbal products as well as non-herbal therapies like osteopathy, hypnotherapy, and reiki, among others (Shakeel et al., 2008).

The extensive embrace of CAM in Asia stems from its alignment with cultural traditions, being perceived as natural and less intrusive. Because of their religious associations and customs, patients in the United Arab Emirates were more captivated in cupping therapy, herbal medicines, and honey products. Probiotics, hypnosis, acupuncture, and massage therapy were more widespread among Australian patients. In contrast to Asian patients, American patients received diverse types of cures, including massage therapy, naturopathy, mind-body practice, body-based systems, energy therapies, and pharmaceutical and non-pharmacological complementary and alternative medicine. The upshot is that patients were employing a variety of complementary and alternative medicine (CAM) depending on their beliefs, needs, religions, and traditional values. The Malaysian people most commonly reported using biological and natural products as complementary and alternative medicine (CAM) to address chronic conditions.

The first choice for alternative treatment in Malaysia is now honey, garlic, ginseng kucing, ginkgo biloba, and other natural items that are widely available in this nation and are being used more frequently (Rifaat et al., 2018). It is believed that natural products and herbs have therapeutic potential against numerous chronic illnesses, such as cancer and inflammation (Golden et al., 2023). According to reports, Malaysians reportedly spend RM1.2 billion yearly on imported herbal products. Research has demonstrated the efficacy of massage treatment in managing persistent pain and illnesses, such as cancer patients’ discomfort and exhaustion, hypertension, autoimmune disorders like multiple sclerosis and asthma, and autoimmune conditions, including HIV and breast cancer (Zakaria et al., 2021).

Additional research has incorporated CAM therapy as part of prenatal care, only 36.2% of respondents to our most recent poll believed CAMs were unsafe to use while pregnant. Even though only a minute number of CAMs showed to be teratogenic, most have not undergone enough testing to rule out harmful effects on the fetus, and as a result, CAM use should be avoided during pregnancy (MacLennan et al., 2006). Some studies in India showed that participants were satisfied with the usage of CAM along with conventional therapy. A study conducted on Diabetic patients in Bangladesh showed significant results with 76% of patients. In comparison, a review which conducted in Saudi Arabia, Lebanon, Turkey, and Egypt revealed that the 39.3% ratio of participants in these countries is found using CAM therapies since diagnosis with Type 2 Diabetes mellitus, however, when comparing this study with research conducted in the UK, Canada, and Germany, it was found that CAM usage was less prevalent (Radwan et al., 2020).

5. CONCLUSION

This review has been undertaken to determine the effect of patient’s demographical data on utilizing Complementary and Alternative medicine for managing different lifestyle diseases in various communities. It includes 31 studies, conducted between 2002 and 2023 from different countries. CAM is frequently used in Asia due to religious, economic, cultural, and historical aspects. There is a high rate of CAM use among arthritis patients in West Asia, which correlates with a study in Saudi Arabia.

The use of CAM varies in England, Norway, and Australia. The use of herbal medication varied among ethnic groups. Herbal medication usage is higher in Asians as compared to Africans and Americans. The pediatrics data showed that CAM usage is not limited to adults only. Most of the patients don't discuss their CAM usage with their physicians. The utilization of CAM is prevalent
among individuals with chronic diseases such as hypertension, diabetes, asthma, and arthritis. In the United Arab Emirates, patients’ engagement with CAM, including practices like cupping therapy and herbal remedies, is influenced by their beliefs, religion, and traditional values. Similarly, Malaysians employ CAM as a natural and biological approach to managing chronic conditions.

Limitations of the study
This study was the systematic review on the topic, but it is meta-analysis.

Authors’ Contributions
This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Conflict of interest
The authors declare that there is no conflict of interests.

Data and materials availability
All data sets collected during this study are available upon reasonable request from the corresponding author.

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