RESEARCH ARTICLE

Comparative analysis of public perception and attitudes towards herbal and allopathic medicine: a cross-sectional study in Multan

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Abstract

Aim: The combination of old herbal medicine with modern allopathic medicine is still an issue of concern in current healthcare system. Public attitudes and beliefs towards both systems need to be explored to develop appropriate care and enhance patient outcomes. The objective of this study was to measure and compare awareness, perceptions, attitudes, and use of herbal and allopathic medicine by educated adults with a specific focus on perceived effectiveness for various health ailments, confidence levels, and integration preferences. To evaluate public perception regarding allopathic and herbal medicine. **Methods:** Descriptive cross-sectional study was carried out in December 2025 to March 2026 through an online structured questionnaire distributed via social media. The study subjects were 385 (mean age 20.12 ± 2.86 years, 60.5% female) with predominately university-level education (90.9%). SPSS version 27.0 was used for data analysis using descriptive statistics and frequency distributions. **Results:** High awareness of both herbal (84.4%) and allopathic medicine (82.1%) was found. First preference for allopathic medicine (45.5%) was followed by the concomitant use of both the systems (32.2%). Perceived effectiveness ranged extensively by condition: allopathic medicine for fever (62.6%), arthritis (58.7%), and diabetes/hypertension (58.4%), whereas herbal medicine was applied for common cold (37.4%) and skin diseases (32.5%). The majority (59.0%) said herbal medicine has fewer side effects, and 52.2% had ever used herbal medicine. Almost half (48.8%) felt allopathic medicine was overprescribed. For referral choices, 61.8% would refer to allopathic medicine and 37.4% to herbal medicine. The majority (59.7%) felt that both systems could be combined based on the condition. **Conclusion:** The study reveals evidence-based, condition-specific practice of choosing medicine, with the respondents showing orientation to the pros and cons of both systems. The results provide grounds for evidence-based integration of traditional and increased use of modern medicine, improved communication between patient and provider regarding the use of complementary medicine, and ongoing research on the safety and effectiveness of herbal medicine.

Keywords: herbal medicine • allopathic medicine • traditional medicine • patient perception • cross-sectional study • public perception

Received:28-08-2026 Accepted :30-10-26 Published:02-11-26

Introduction

The global health landscape ever more recognizes the co-existence and ultimate merger of ancient traditional herbal medicine and modern allopathic medicine. Herbal medicine as traditional medicine has been practiced for centuries and remains a central component of healthcare systems worldwide, particularly in low- and middle-income countries where it is either a primary or complementary source of healthcare[1,2]. The World Health Organization approximates that approximately 80% of the world population relies on conventional medicine for some portion of their fundamental healthcare needs[3].

There has been a lot of interest in herbal medicine in recent decades even in developing countries, fueled by several issues including concerns about side effects of synthetic drugs, use of more holistic and patient-oriented care, easier availability through commercialization, and cultural beliefs supporting natural therapeutics[4–6]. It is a resurgence that has arrived hand-in-hand by expanding healthcare spending and a progressively heavy chronic non-communicable disease burden that have a tendency to require long-term, multimodal management regimens outside the realm of traditional biomedicine[7,8].

Clinical or orthodox medicine, based on evidence-based scientific precepts, has made unprecedented gains in diagnostics, treatments, and surgery. Still, concerns exist over overprescribing, drug side effects, and the very symptom-based v/s holistic approach to treating patients[9,10]. These concerns have resulted in increasing interest in the general public in complementary and alternative medicine, and more so herbal medicines

perceived to be more harmless and safer alternatives[11,12]. The contrast of herbal with allopathic medicine has generated much controversy in medical literature. Herbal medicines are seen as innocuous since they are derived naturally, yet they are not entirely free of toxicity or harmful effects[13,14]. On the other hand, although allopathic medications are strictly tested for effectiveness and safety, side effect issues and the pharmaceutical industry's control remain in the minds of the public[15,16]. Knowledge of what people think and feel towards both medical systems is important for a number of reasons. First, treatment adherence, health-seeking behaviors, and therapeutic efficacy are all substantially affected by patient beliefs[17,18]. Second, the simultaneous use of herbal and allopathic drugs without adequate medical monitoring has the potential to provoke dangerous drug-herb interactions[19,20]. Third, cross communications between patients and healthcare providers regarding the use of complementary medicine remain a significant challenge and potentially compromise patient safety[21,22]. Attitudes towards complementary and alternative medicine have been examined in various populations with current studies showing that philosophical compatibility with holistic health care systems, dissatisfaction with mainstream medicine, and beliefs concerning control of personal health influence CAM utilization[23,24]. Attitudes of healthcare workers have been demonstrated through studies to influence traditional medicine range from suspicion to cautious acceptance, most recognizing its cultural significance but questioning issues of standardization and scientific evidence[25–27]. Despite greater global interest in integrative health care modalities that combine the best of traditional and mainstream medicine[28–30], systemic information on prevailing opinions contrasting herbal and allopathic medicines' effectiveness in addressing a range of health ailments is limited, particularly among the educated population that can access both health systems. The present study fills the gap by systematically assessing awareness, perceptions, attitudes, and practice for both systems of medicine among a sample of highly educated adults. This research will draw evidence-based responses on what people perceive and utilise herbal compared to allopathic medicine, what they think each is most skilled at curing, how much trust each has in each approach, and what they consider regarding potential integration. Such information can be utilized in the guidance of healthcare policy, improving patient-provider communication, informing educational interventions, and facilitating the development of safe, evidence-based integrative health care protocols. In addition, the current study incorporates previous research demonstrating the importance of culturally congruent provision of health care and the need for mutual understanding between traditional and conventional medical practitioners[31].

Materials & methods

A cross-sectional survey was conducted using a structured questionnaire as a google form at Department of Community Medicine, Nishtar Medical University, Multan, from December 2025 to March 2026.

Before actual data collection procedure, an application was submitted to the office of Ethical Review Board of the institution. After taking ethical approval actual data collection procedure was started.

The sample size was assessed by using WHO sample size calculation criteria keeping confidence level 95%, margin of error 5% and population proportion 50%. A non-probability random sampling technique was used. Data were collected on the google form from the students of Nishtar Medical University and Hospital, Multan and Muslim Group of Schools and Colleges. 385 subjects were included in the study after an informed consent.

Inclusion criteria comprised adults of both genders gaged 16 years and above with the ability to read and complete an online questionnaire in English.

Exclusion criteria comprised people below the age of 16 years and those who were not willing to fill the form. Those who had no internet access and those who were not able to fill the form due to educational barrier.

After the collection of data, it was analyzed using Statistical Package for Social Sciences (SPSS) version 27.0. Frequency and percentages were calculated for each variable. Chi-square test was used to study the association between the predisposing factors and symptoms of DN. A p-value of ≤ 0.05 was taken as significant. Mean and standard deviation values were calculated using Microsoft excel 2010.

Results

The study included 385 participants comprising 233 (60.5%) females and 151 (39.2%) males with a mean age of 20.12 ± 2.86 years. There were 350 (90.9%) university students, 25 (6.5%) college students, and 10 (2.5%) matriculation level students. Regarding health status, 302 (78.4%) reported no diagnosed medical conditions, while 83 (21.6%) had at least one diagnosed medical condition.

High levels of awareness were observed for both medicine types. 325 (84.4%) of participants reported awareness about herbal medicine, while 316 (82.1%) were aware of allopathic medicine. Regarding primary medicine use patterns, allopathic medicine was the most commonly used (45.5%, n=175), followed by combined use of both systems (32.2%, n=124), and herbal medicine alone (10.9%, n=42) as depicted in Figure 1. However, 11.4% (n=44) of participants also reported using neither system or skipped this question.

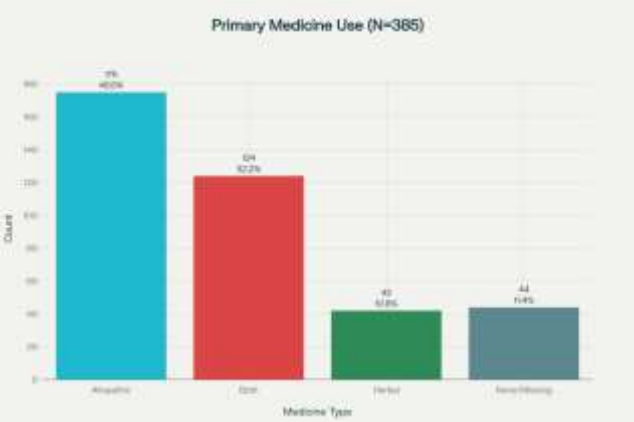


Figure 1. Prevalence of use of Allopathic and Herbal medicine.

Participants' perceptions of medicine effectiveness varied significantly across different health conditions. For common cold, 37.4% (n=144) perceived herbal medicine as more effective, following allopathic medicine at 33.0% (n=127), then 22.3% (n=86) considered both equally effective. For fever, allopathic medicine was preferred by 62.6% (n=241) participants compared to 13.2% (n=51) for herbal medicine and 17.7% (n=68) for both. For arthritis, allopathic medicine was perceived as more effective by 58.7% (n=226), followed by 12.5% (n=48) for herbal medicine and 18.2% (n=70) for both. For diabetes and hypertension, 58.4% (n=225) preferred allopathic medicine over 14.8% (n=57) for herbal medicine, and 18.2% (n=70) for both. For skin conditions, herbal medicine was perceived as more effective by 32.5% (n=125), allopathic medicine by 31.4% (n=121), and both by 28.3% (n=109). Perceived efficacy is shown in Figure 2.

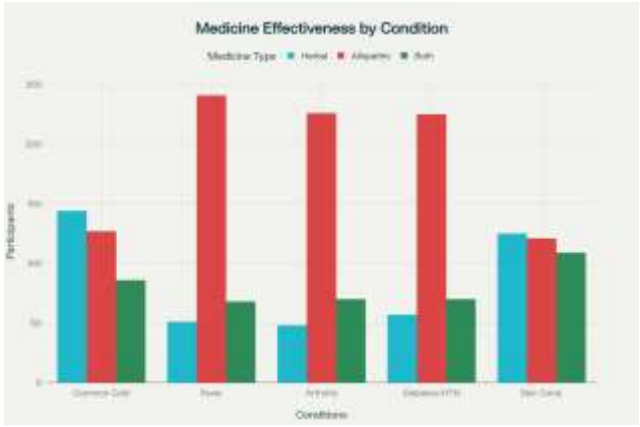


Figure 2. Perceived Efficacy of Allopathic and Herbal medicine in different medical conditions.

Various beliefs regarding Allopathic and Herbal medicines are listed in the Table 1.

Table 1. Various beliefs regarding allopathic and herbal medicines

Variable	n	Percentage
Belief: Herbal has fewer side effects (Strongly Agree/Agree)	227	59.00%
Belief: Herbal has fewer side effects (Neutral)	79	20.50%
Belief: Herbal has fewer side effects (Disagree/Strongly Disagree)	79	20.50%
Trust herbal medicine sold in area – Yes	201	52.20%
Trust herbal medicine sold in area – No	184	47.80%
Think allopathic medicine over-prescribed – Yes	188	48.80%
Think allopathic medicine over-prescribed – Not Sure	136	35.30%
Think allopathic medicine over-prescribed – No	60	15.60%
Ever used herbal medicine – Yes	201	52.20%
Ever used herbal medicine – No	184	47.80%
Experienced side effects from Allopathic	126	32.70%
Experienced side effects from Herbal	19	4.90%
Experienced side effects from Both	38	9.90%
Experienced side effects from None	202	52.50%
Consult doctor before herbal use – Never	177	46.00%
Consult doctor before herbal use – Sometimes	138	35.80%
Consult doctor before herbal use – Always	68	17.70%
Would refer to others – Allopathic	238	61.80%
Would refer to others – Herbal	144	37.40%
Both systems can be used together – Depends on condition	230	59.70%
Both systems can be used together – Yes	105	27.30%
Both systems can be used together – No	50	13.00%

Discussion

This cross-sectional study provides comprehensive insights into public perceptions, attitudes, and usage patterns of herbal and allopathic medicine among our educated population. The high awareness levels for both herbal (84.4%) and allopathic (82.1%) medicine reflects dual medical system reality, despite which, allopathic medicine remained the primary choice (45.5%) for acute and serious conditions[23,26,44]. However, usage of both systems by a significant population (32.2%) highlights the growing trend

toward integrative healthcare system[28,30]. Our findings align with studies from Saudi Arabia[44] and Pakistan[53], which reported herbal medicine usage rates of 62% and over 60% respectively, though our study showed slightly lower overall usage (52.2%). A key finding of our study is the condition-specific variation in perceived effectiveness. Allopathic medicine was preferred for acute conditions requiring rapid symptom relief (fever: 62.6%) and chronic conditions requiring long-term management (arthritis: 58.7%, diabetes/hypertension: 58.4%) reflecting public awareness of allopathic medicine's strengths in providing rapid, targeted therapeutic effects, particularly for conditions with evidence-based treatments[8,12]. On other hand, herbal medicine was perceived as more effective for common cold (37.4%) and showed comparable effectiveness to allopathic medicine for skin conditions (32.5% vs. 31.4%) suggesting that participants believe in herbal medicine's potential benefits for self-limiting conditions and those affecting the skin where topical herbal preparations have traditional use[16,33]. The relatively high proportion selecting "both" for skin conditions (28.3%) suggests recognition of potential synergistic or complementary benefits of combining both systems for certain conditions[13,23].

The majority belief regarding herbal medicine's fewer side effects (59%) is also consistent with literature[12,13,27]. The relatively low rate of reported side effects from herbal medicine in our study (4.9%) compared to allopathic medicine (32.7%) may reflect actual differences in adverse event rates, but may also indicate under-reporting, or use of herbal medicines for less serious conditions[14,24,27]. The finding that nearly half of participants (48.8%) perceive allopathic medicine as over-prescribed aligns with growing concerns about poly pharmacy, antibiotic resistance, and medicalization of normal life experiences[9,10]. A critical finding is the low rate of healthcare provider consultation before herbal medicine use, with 46.0% never consulting and only 17.7% always consulting their doctors, aligns with studies from Saudi Arabia[44], India[29], and other regions[21,22,28,32].

The finding that 59.7% believe both systems can be integrated "depending on condition" reflects a patient-centered view that aligns with contemporary integrative healthcare models supported by global policy initiatives and researches advocating for evidence-based integration of traditional and modern medicine[1,2,10,25,30]. However, 13.0% of participants believed both systems should not be combined, which may reflect concerns about drug-herb interactions[12,27]. Similar to studies from South Africa[23], Iran[21], and Saudi Arabia[44,47], we found high awareness and utilization of herbal medicine alongside conventional treatments. However, our study uniquely examines condition-specific preferences, revealing a more nuanced pattern of medicine selection than binary choice studies. The belief patterns we observed align with Astin's[23] and McFadden et al.'s[13] findings that philosophical congruence with holistic healthcare and perceived naturalness of herbal medicines drive utilization more than dissatisfaction with conventional medicine alone. However, our data suggest both push factors (concerns about allopathic over-prescription and side effects) and pull factors (beliefs about herbal medicine safety and effectiveness for specific conditions) contribute to herbal medicine adoption.

These findings have several important implications. First, healthcare providers should adopt a non-judgmental, inquiry-based approach to discussing complementary medicine use with patients. Incorporating questions about herbal medicine use into routine patient histories can facilitate safer, more comprehensive care planning and help identify potential drug-herb interactions[21,22,29]. Second, medical education should include training on common herbal medicines, their evidence base, potential risks and benefits, and effective patient communication strategies regarding integrative healthcare approaches[17]. Third, regulatory frameworks for herbal medicines require strengthening to ensure product quality, safety, and accurate labeling[24,27,30]. Fourth, research investment in traditional medicine is needed to build an evidence base for efficacy, safety, optimal dosing, and potential synergies or interactions with conventional treatments. The WHO Traditional Medicine Strategy 2025-2034[31] emphasizes evidence-based integration, which requires clinical research on herbal medicines using rigorous methodologies. Finally, healthcare systems should explore models for safe, evidence-based integration of herbal and conventional medicine, potentially including inter-professional collaboration between conventional practitioners and traditional medicine experts, as demonstrated successfully in several countries[10,28,30].

This study's strengths include a relatively large sample size, comprehensive assessment of multiple dimensions of perception and practice, condition-specific analysis of perceived effectiveness, and beliefs regarding both systems. However, there are several limitations. The study included only the educated population and neglected the others particularly older adults and those with lower education levels who may have different perceptions and usage patterns. The cross-sectional design precludes causal inferences about relationships between variables. Self-reported data may be subject to recall bias and social desirability bias, particularly regarding actual herbal medicine use and side effects experiences. The online survey methodology excluded individuals without internet access. Moreover, the study did not assess specific herbal products used, their sources, or other detailed information. Future research should employ longitudinal designs to examine how perceptions and practices evolve over time, particularly with increased healthcare provider communication or educational interventions. Studies should also include diverse populations across age groups, education levels, and

geographical regions to capture broader perspectives. Qualitative research exploring the reasoning behind condition-specific medicine selection would provide deeper insights into decision-making processes. Finally, intervention studies testing strategies to improve patient-provider communication about herbal medicine use and evaluating integrative healthcare models are needed.

Conclusion

This study reveals that educated adults demonstrate condition-specific approaches to selecting herbal versus allopathic medicine. High awareness of both medical systems coexists with utilization patterns, beliefs about herbal medicine safety, and openness to integration when clinically appropriate. However, there are communication gaps between the patient and the healthcare provider especially regarding concurrent use of both systems. These findings highlight the need for healthcare systems to improve communication, enhance regulatory frameworks for herbal medicines, expand medical education on integrative approaches, and increase research on traditional medicine safety and efficacy. The future of healthcare likely lies not in choosing between herbal and allopathic medicine, but in identifying optimal, condition-specific approaches that combine the strengths of both systems while maintaining patient safety and therapeutic effectiveness.

Availability of data and materials

The raw data supporting the conclusions cannot be made publicly available due to ethical restrictions and respondents' privacy concerns as the data-set contains personal information of the respondents.

Acknowledgments

None.

Funding

None.

Conflicts of interest

The authors declare no conflicts of interest.

Ethical approval of studies and informed consent

This study was approved by the Institutional Ethical Review Board (IERB) of Nishtar Medical University, Multan, Pakistan (Reference No. 13024/NMU). All participants provided informed consent to participate and consent to publish the results of this study.

Ethical considerations

This study was approved by the Institutional Ethical Review Board (IERB) of Nishtar Medical University, Multan via reference no. 13020/NMU.

Consent for participation

All participants gave informed consent for participation in this study.

Consent for publication

All participants gave consent for the publication of the results of this study.

Declarations

Ai (Claude Sonnet 4.6) was used for improving language and grammatical errors.

Conflict of interest

None.

Funding

None.

Acknowledgements

Not applicable.

Peer and provenance statement

Not Applicable

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