KNOWLEDGE AND BELIEFS TOWARD THE USE OF HERBAL MEDICINE AMONG IRAQI MEDICAL STUDENTS

Fakat Alola Ghanim Jawad [1] **Shaymaa Abdullateef Alfadhul** [2]

[1] Hilla Second Sector, Babylon Health Directorate, Babylon, Iraq
[2] Department of Community and Family Medicine, Faculty of Medicine, University of Kufa, Najaf, Iraq

Corresponding author: shaymaa.alfadhl@uokufa.edu.iq

ABSTRACT

Introduction: Herbal medicine use among medical students is common worldwide, driven by influences such as societal or cultural norms, accessibility, and interest in complementary and alternative medicine. This trend highlights the importance of medical students, as upcoming doctors, in obtaining essential insights into herbal remedies. The study aimed to assess medical students' comprehension, attitudes, and usage patterns related to herbal medication, assess associated sociodemographic determinants, and identify reasons for using herbal medicine among students. **Methods:** A cross-sectional study was conducted among 410 medical students from grades 1 to 6 at the Faculty of Medicine, University of Kufa, using convenience sampling. The study took place from February 1st, 2024, to December 31st, 2024. Data was gathered through structured interviews using a four-part questionnaire. The first section covered sociodemographic information, while the second evaluated students' knowledge of herbal medicine. The third and fourth sections assessed attitudes toward and practices regarding herbal medicine. **Results:** Data showed that 24.8% of students were currently using herbal medicine, and 48.8% of them used it for therapeutic reasons. The majority of participants (81.7%) and (83.4%) agreed that herbal medicine does not prevent or cure all diseases and emphasized the importance of consulting a doctor before using it. Most of the respondents (78.5%) disagreed that herbal medicine is always safe. **Conclusion:** Herbal medicine is widespread among medical students. Despite this, critical knowledge deficiencies regarding safety, efficacy, and potential drug interactions highlight the urgent need for targeted education and curriculum integration to ensure safe and informed use.

Keywords: Attitude; Herbal Medicine; Iraq; Knowledge; Medical; Students

INTRODUCTION

Complementary and Alternative Medicine (CAM), as defined by the National Center for Complementary and Integrative Health (NCCIH), encompasses a range of medical practices, healthcare systems, and products that are not currently considered part of mainstream medicine. These methods differ from those typically taught in Western medical schools and used for disease treatment or healing (Langevin, 2019; Unützer et al., 2023; Bodeker, 2021; and Penson et al., 2001). In contrast, conventional medicine, according to the National Cancer Institute (NCI) of the National Institutes of Health (NIH), involves the use of treatments such as drugs, radiation, or surgery by health professionals holding Doctor of Medicine (MD) or Doctor of Osteopathic Medicine (DO) degrees (Unützer et al.,2023).

Complementary and Alternative Medicine (CAM) encompasses a broad spectrum of therapeutic approaches. And systems, with cultural factors such as religion influencing their popularity in specific countries or among certain ethnic groups (Clarke et al.,2015). CAM practices like meditation and yoga are particularly popular due to their lack of adverse side effects (Subramanian& Midha,2016). Additionally, the NHIS indicated that most CAM users in the United States (U.S.) primarily engage in these therapies to enhance overall wellness rather than to address specific medical conditions (Stussman et al.,2015).

The World Health Organization (WHO) defines herbal medicine as the use of herbs, herbal materials, preparations, and finished products containing active components derived from plants or their combinations (World Health Organization,2025). Herbal medicines (HMs) consist of plant-based materials, either in their natural form or processed, used to prevent diseases or provide therapeutic benefits (World Health Organization,2019).

The use of herbal medicines varies globally and has seen a notable rise in recent years. In the Arab world, approximately 80% of the population relies on herbal remedies for the prevention and treatment of illnesses (Cecilia et al.,2017).

Several studies across the Middle East have examined the public and professional use of herbal medicine, revealing high usage rates often influenced by cultural norms and perceived safety. In Saudi Arabia, Zaidi et al. (2021) and Abdelmola et al. (2021) reported widespread use among both medical students and the general population. Al-Ghamdi et al. (2017) noted particularly high usage among women during pregnancy and the postpartum period. In Libya, Shaaboun et al. (2022) found moderate awareness among students but also identified gaps in understanding related to safety and efficacy.

A Saudi study reported that 73% of the population uses herbal products, and over 25 plant species are commonly employed for treatment (AbdelKader et al., 2018). Notably, herbal medicine use appears to be more common among women across the region (Al Akeel et al., 2018).

In Iraq, herbal medicine is similarly prevalent, with studies reporting usage rates between 71.6% and 76.4% among patients (Ebrahim & Jassim, 2020; Kadhim et al., 2016; Kadhim et al., 2021).

Although global interest in herbal medicine is growing, most studies have centered on general populations or patients with specific conditions, especially in neighboring countries like Saudi Arabia. In Iraq, while herbal medicine is widely used among the general public, there is a noticeable lack of research involving medical students as future healthcare providers. Their knowledge, attitudes, and usage patterns remain largely unexplored within the Iraqi context. This creates a significant research gap, as these future doctors could influence community practices based on their level of understanding. Therefore, this study aims to evaluate how frequently medical students use herbal medicine, their knowledge and attitudes about it, and the factors that influence their choices.

METHODS

Study design and Setting

A cross-sectional study was carried out among medical students at the Faculty of Medicine, University of Kufa, between February 1st, 2024, and December 31st, 2024.

Study population:

Medical students in the Faculty of Medicine/ University of Kufa who agreed to participate in this study were included. Students who declined to give consent were excluded.

Pilot study:

A pilot study was conducted to test the questionnaire for any required modifications or other difficulties and to detect the time needed for data collection. It included 20 participants who were excluded from the study sample.

Sample size determination:

The sample size was calculated according to the formula [$n = Z^2P(1–P)/d^2$], considering a confidence interval of 95%, a precision of 5%, and the prevalence of herbal medicine use was assumed to be 53% from a previous Iraqi study (Redha et al.,2018). The required sample size was approximately 382. To ensure better accuracy and account for non-response, the study included 410 participants.

Study instruments:

Data were collected using a self-administered questionnaire completed on-site with researcher assistance. The questionnaire was developed based on a previous study (Zaidi et al.,2021) and adapted for this research. The questionnaire was translated into Arabic by a language expert to ensure clarity and accuracy. It was distributed among the medical students who were requested to complete the questionnaire.

The questionnaire was divided into four parts:

The first section focused on collecting sociodemographic details of the students, including age, gender, place of residence, marital status, academic year, presence of any chronic illness, source of herbal medicine (if used), and reasons for its use. The second section aimed to assess students' knowledge of

herbal medicine, the third evaluated their attitudes toward it, and the fourth examined their usage and practices related to herbal medicine.

Ethical consideration:

Informed consent was obtained from the students after explaining the objectives of the study to them and before they answered the questionnaire. Ethical approval was granted by the Ethics Committee of the Faculty of Medicine, University of Kufa. (Reference number is MEC-75).

Statistical analysis:

The gathered data were compiled and statistically analyzed using SPSS software, version 26. Data were summarized as tables and figures; $p \leq 0.05$ was considered significant. Continuous data is presented as mean and standard deviation (SD), while categorical data is presented as frequency and percentage.

Independent sample t-test and one-way ANOVA were used to compare the means of knowledge, practice, and attitude scores with different sociodemographic features for the students. Post HOC test was performed to determine the significant mean of the ANOVA test.

RESULTS

The current study included 410 students, with a mean age of 21.39 ± 1.806 years. Over half of them (60.2%) are females. Ninety-one-point-seven percent of them live with their family, and 94.9% of them are single. 10% of the respondents have a chronic disease, 4.9% of students purchased herbal medicine from the herbal store without consultation with a doctor, and 15.9% of them used herbal medicine for therapeutic reasons, as described in Table 1.

The study shows that only 32.4% of students had a history of using herbal medicine, while 67.6% of them have not used herbal medicine previously, as explained by Figure 1.

Figure 2 shows that only 24.8% of students were using herbal medicine at the time of the study's conduction, while 75.2% of them were not.

Table 1: Descriptive analysis of students' sociodemographic characteristics (N= 410).

Demographic	**N**	**%**
Age (Mean±SD) = 21.39±1.806years		
Sex		
Male	163	39.8
Female	247	60.2
Residence		
Living with their family	376	91.7
Living in a dormitory	34	8.3

Marital status		
Single	389	94.9
Married	18	4.4
Divorced	3	0.7
Year of the study		
First	65	15.9
Second	65	15.9
Third	65	15.9
Fourth	65	15.9
Fifth	75	18.3
Sixth	75	18.3
Chronic disease		
Yes	42	10.2
No	368	89.8
Type of chronic disease		
Asthma	16	3.9
Diabetes	3	0.7
Eczema	5	1.2
Systemic Lupus Erythematosus	1	0.2
Ulcerative colitis	1	0.2
Celiac disease	2	0.5
Iron Deficiency Anemia	1	0.2
Psoriasis	1	0.2
Valvular heart disease	1	0.2
Epilepsy	4	1.0
Migraine	2	0.5
Polycystic Ovarian Syndrome	4	1.0
Ankylosing Spondylitis	1	0.2
Total	42	10.2
Source of herbal medicine used		
Prescribed by the physician	2	0.5
Pharmacy	4	1.0
Herbal store	20	4.9
Others	7	1.7

Total	33	8.0
Reason for use		
To enhance immunity	35	8.5
Therapeutic	65	15.9
Cosmetic	32	5.6
Others	9	2.2
Total	132	32.2

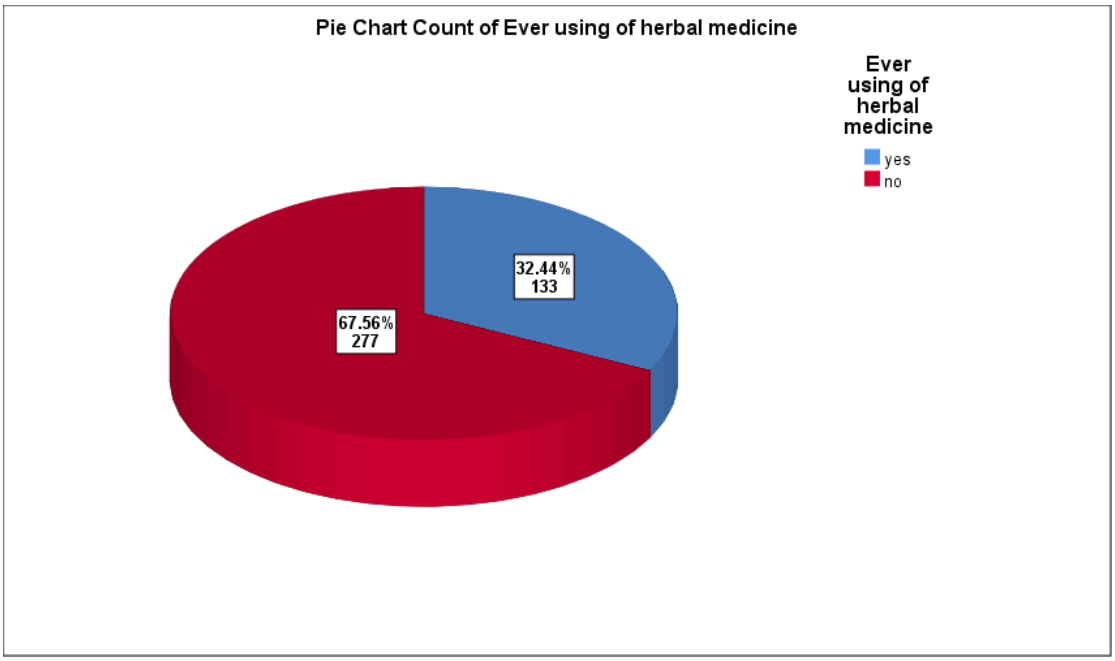

Figure 1: Distribution of students according to the history of using herbal medicine.

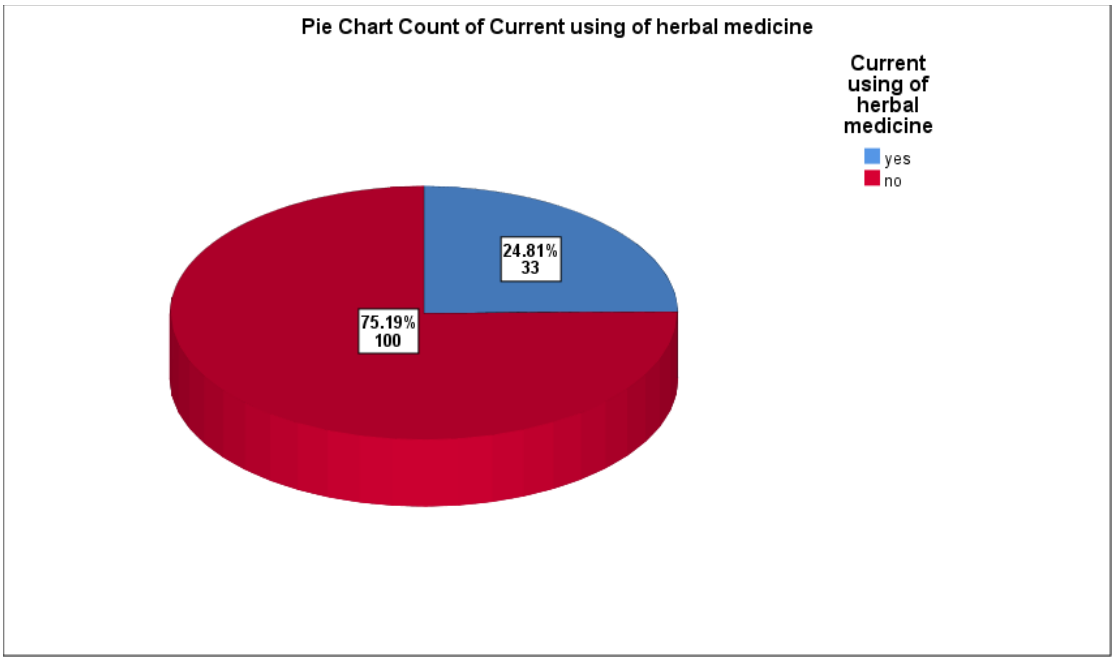

Figure 2: Distribution of students according to their current use of herbal medicine.

The study revealed that over half of the respondents (60.7%) believed herbal medicines do not originate from animal sources. The majority of participants agreed that herbal medicines do not prevent (81.7%) or cure (83.4%) all diseases and emphasized the importance of consulting a doctor before using them (70%). Most of the respondents (78.5%) did not agree that herbal medicine is always safe; meanwhile, 50.2% agreed that herbal medicine expires, as illustrated in Table 2.

Table 2: Respondents' Knowledge of Herbal Medicines (N= 410)

Statements	Yes	No	Not sure
1. Herbal medicines from animal sources	4(1.0%)	249(60.7%)	157(38.3%)
2. Herbal medicines prevent all diseases	2(0.5%)	335(81.7%)	73(17.8%)
3. Herbal medicines cure all diseases	0%	342(83.4%)	68(16.6%)
4. Herbal medicines are preferred because of fewer side effects	169(41.2%)	123(30.0%)	118(38.8%)
5. Herbal medicines are always safe	15(3.7%)	322(78.5%)	73(17.8%)
6. Overuse of herbal medicines causes adverse effects	341(83.2%)	13(3.2%)	56(13.7%)
7. Herbal medicines can be taken with conventional Medications	153(37.3%)	25.4%)104	153(37.3%)
8. Herbal medicines need consultation with doctors	287(70.0%)	58(14.1%)	65(15.9%)
9. Herbal medicines expire	206(50.2%)	39(9.5%)	165(40.2%)

Table 3 shows that a total of 45.1% of respondents expressed a neutral stance on the use of herbal medicine for maintaining and promoting health, while 42.2% were also neutral regarding its use in treating illnesses. Additionally, 36.3% of students disagreed with the notion that herbal medicines are safe simply because they are derived from natural ingredients. Over one-third (40%) of students also disagreed with the idea that herbal medicines are superior to conventional medicines. Moreover, 41.7% of students agreed that many of the health claims made by herbal medicine manufacturers lack scientific evidence. Finally, 40.5% of students disagreed with the statement that herbal medicine is safe for children.

Table 3: Respondents' Attitude Towards Herbal Medicines (N= 410)

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Herbal medicine can be used to help maintain and promote health.	27(6.6%)	56(13.7%)	185(45.1%)	132(32.2%)	10(2.4%)
Herbal medicine can be used to treat illness	50(12.2%)	93(22.7%)	174(42.4%)	92(22.4%)	1(0.2%)
Herbal medicines are safe because they are made from neutral ingredients	55(13.4%)	149(36.3%)	127(31.0%)	75(18.3%)	4(1.0%)
Herbal medicines are better for me than conventional medicines	120(29.3%)	164(40.0%)	97(23.7%)	25(6.1%)	4(1.0%)
A lot of health claims made by the manufacturers of herbal medicines are unproven.	8(2.0%)	24(5.9%)	118(28.8%)	171(41.7%)	89(21.7%)
I don’t feel that herbal medicines are dangerous for children	149(36.3%)	166(40.5%)	62(15.1%)	27(6.6%)	6(1.5%)

Table 4 shows that 15.9% of students answered that when they get sick, they take herbal medicine to help them get better. More than half (55.4%) of the respondents consult a doctor before taking herbal medicine. 11.7% of respondents give herbal medicine to their family members if they fall ill, and 11.7% of students use herbal medicine to address acute conditions such as severe pain. Nearly half (49%) of the students follow the usage instructions provided on the product label. Additionally, 70.2% of students consistently check the expiry date before consuming herbal medicines.

Table 4: Usage Practices of Herbal Medicines by Respondents (N= 410).

Statements	Yes	No	Not sure
When I get sick, I first take herbal medicines to help me get better	65(15.9%)	280(68.3%)	65(15.9%)
I consult a doctor before taking herbal medicines	227(55.4%)	135(32.9%)	48(11.9%)
I also give herbal medicines to my family members if they get sick	48(11.7%)	311(75.9%)	51(12.4%)
I take herbal medicine in case of acute conditions like severe pain	48(11.7%)	314(76.6%)	48(11.7%)
I take herbal medicines according to the instructions on the label	201(49.0%)	129(31.5%)	80(19.5%)
I always look at the expiry date of herbal medicines before taking them	288(70.2%)	75(18.3%)	47(11.5%)
I advise others to take herbal medicines whenever they have problems	22(5.4%)	312(76.1%)	76(18.5%)

DISCUSSION

This study reported that approximately one-quarter (24.8%) of students currently use herbal medicine. This finding is slightly higher than that of Sultan M. et al. in Saudi Arabia, who reported that 21% of medical students used herbal medicine (Sultan, 2024). In contrast, a study conducted in Libya reported that 12.1% of medical students used herbal medicine (Shaaboun et al., 2022). This indicates a much lower prevalence of use compared to the current study, possibly due to differing awareness levels or cultural attitudes.

Regarding reasons for use, the present study showed that a little less than half (48.8%) of students reported using herbal medicine for therapeutic reasons, and a smaller percentage of students (27%) used herbal medicine specifically to boost their immune system. This contrasts with a Saudi study conducted among residents of Jazan Province, which reported a much higher percentage (80.9%) of participants using herbal medicine for therapeutic purposes, while a significantly lower percentage (8.9%) used it to enhance immunity (Abdelmola et al., 2021). The populations in both studies might differ in terms of age, education, socioeconomic status, or health challenges, which could influence their reasons for using herbal medicine. Students may have a broader perspective on using herbal medicine for both therapeutic and preventive purposes, whereas residents in Jazan focus more heavily on its therapeutic benefits.

Regarding the source of herbal medicine used, our study revealed that a significant proportion (60.6%) of students obtained herbal medicine from herbal stores without consulting a doctor. This indicates a tendency among students to self-medicate or rely on informal advice when using herbal remedies. The results align with the study conducted in Saudi Arabia, where an even higher percentage (72%) of medical students purchased herbal medicine from herbal stores without seeking a doctor's consultation (Zaidi et al.,2021). This comparison suggests that the trend of self-purchasing herbal medicines without professional medical advice is not limited to one region or study population but may reflect a broader behavior among students.

Regarding respondents' knowledge about herbal medicines, the current study found that more than half (60.7%) of respondents considered herbal medicines as non-animal in origin, although only a small proportion (1%) were aware that herbal medicine can indeed be derived from animals. A study conducted in Saudi Arabia revealed that 54% of respondents believed herbal medicines are solely derived from plants, while a smaller percentage (12.9%) of participants correctly recognized that herbal medicines can also originate from animal sources (Zaidi et al.,2021). This difference in perception may stem from misconceptions or a limited understanding of the sources of herbal medicines. This study showed a low percentage (3.7%) of students considering herbal medicine always safe, while one-third (37.3%) of them believed it could be safely used alongside conventional medications. This shows a relatively cautious or moderate stance concerning the safe usage of herbal medicines in conjunction with conventional treatments. In contrast to Guven et al, research conducted in Turkey which focused on the first three years of medical students found that half (50.8%) of respondents considered herbal medicine to be safe, and less than half (48.2%) of them agreed that combining herbal medicine with conventional therapy could be more effective (Guven et al.,2019). This indicates a more positive view of herbal medicine′s safety and its potential synergy with conventional treatments compared to our study. Another study among Libyan medical students revealed that only 13.8% of participants viewed herbal medicine as natural and therefore safe, with no side effects (Shaboun et al.,2022). This suggests that the majority of these students were aware that being natural does not automatically guarantee safety, as herbal medicines can still have adverse effects, interact with other medications, or be unsafe if misused. This reflects how cultural background and medical training shape students' views on herbal medicine. The cautious attitudes seen may stem from limited curriculum exposure to traditional remedies and the emphasis on evidence-based care, creating a divide between community beliefs and professional education.

A study in the Mutah region of Jordan evaluated knowledge about herbal medicine among residents and university students, finding overall low awareness of herb-drug interactions and safe usage practices. In particular, only 35% of university students could correctly identify potential adverse effects or contraindications, compared with more than 78.5% disagreed that herbal medicines are always safe. This contrast underscores the higher knowledge level among Iraqi medical students versus lay university students in Mutah (Al-Nadaf & Awadallah, 2023).

In terms of attitude, our study showed that 45.1% of respondents are neutral about botanical medicine used for health maintenance and promotion. 42.2% of them are also neutral about herbal medicine that can be used

to treat illness. More than a third of students (36.3%) reject the notion that the safety of herbal medicines is guaranteed by their neutral components. In contrast, Turkish healthcare professionals (including doctors, nurses, and allied staff) showed a high rate of CAM endorsement: 57.9% reported using at least one CAM method personally, and 84.4% recommended CAM to others. Despite this, mean holistic-CAM attitude scores were moderate, indicating professional reservations alongside practical acceptance (Sarman & Uzuntarla, 2022). In comparison, a Saudi study reported that 27.9% of students were neutral about using herbal remedies to support and enhance overall health, 22.5% were neutral about using herbal medicines to treat illness, and 38.8% disagreed that their safety is due to being made from harmless or neutral ingredients (Zaidi et al., 2021).

A study conducted in Abu Dhabi showed very low levels of disagreement, 0.7% and 1.4% regarding the role of herbal medicine in health maintenance and safety, respectively, indicating a generally favorable attitude toward herbal medicine in the region (Al Kury et al., 2020).

The present study showed that less than one-third (29.3%) of students strongly disagreed with the statement that herbal remedies are superior to modern pharmaceutical treatments. This finding is consistent with a Saudi study, which reported that 25.8% of medical students strongly disagreed that herbal medicines are better than conventional medicines (Zaidi et al., 2021).

In our study, only 2% of students strongly disagreed that manufacturers frequently make health claims that have not been scientifically proven. Compared with 32.9% of Saudi medical students who strongly disagreed that health-related assertions made by manufacturers often remain unverified, a higher rate of disagreement was observed in our study. This suggests significant regional variation in attitudes toward herbal medicine (Zaidi et al., 2021).

Regarding practice toward herbal medicine, a significant portion (55.4%) of respondents reported they consult a doctor before taking herbal medicines. This is a positive practice, as consulting a medical professional can help prevent potential misuse or interactions with other medications. Most of the respondents (70.2%) make it a habit to check the expiration date of herbal products before consumption. This is an encouraging finding, as it counters the common misconception that herbal medicines are inherently safe or do not expire. The awareness of expiry dates indicates a responsible approach to using these products. The findings are consistent with research of a similar nature conducted among Saudi Arabian medical students, where (47.1%) of respondents consulted doctors before taking herbal medicine and (61.3%) checked the expiration date of herbal products before consumption (Zaidi et al.,2021).

Limitations

This study has several limitations. First, its cross-sectional design prevents the establishment of causal relationships. Second, reliance on self-reported data introduces the potential for recall and social desirability biases, especially in a population undergoing professional training. Third, the sample was drawn from a single institution, which may limit the generalizability of findings to medical students across Iraq.

CONCLUSION

The finding of this study highlights that herbal medicine is standard among Iraqi medical students, with many using it for therapeutic, preventive, and cosmetic reasons. Although most students demonstrate a reasonable level of knowledge, their cautious attitudes reflect underlying concerns about safety, side effects, and interactions with conventional treatments. These concerns are likely influenced by the lack of formal education on traditional medicine within the medical curriculum.
To address this, medical education in Iraq should consider integrating reliable, evidence-based content on herbal and traditional medicine. This would not only improve students' understanding but also prepare future physicians to engage more confidently with patients who use these remedies. Further research across diverse regions and institutions is recommended to support curriculum development and ensure culturally sensitive, informed healthcare practice.

Conflict of interest

The authors declare no conflicts of interest**.**

REFERENCES

- Abdelmola, A. O., Bahri, A., Abuallut, I., Refaei, B. A., Hakami, W. K., Abutaleb, A. K., et al. (2021). Prevalence, knowledge, and perception about the use of herbal medicines in Jazan, Saudi Arabia. *Journal of Family Medicine and Primary Care, 10*, 2386–2393. https://doi.org/10.4103/jfmpc.jfmpc_1542_20
- AbdelKader, M. S., Hazazi, A. M., Elmakki, O. A., & Alqasoumi, S. I. (2018). A survey on traditional plants used in Al Khobah village. *Saudi Pharmaceutical Journal, 26*, 817–821. https://doi.org/10.1016/j.jsps.2018.03.002
- Al Akeel, M. M., Al Ghamdi, W. M., Al Habib, S., Koshm, M., & Al Otaibi, F. (2018). Herbal medicines: Saudi population knowledge, attitude, and practice at a glance. *Journal of Family Medicine and Primary Care, 7*, 865–875. https://doi.org/10.4103/jfmpc.jfmpc_155_18
- Al Kury, L., Al Shehhi, H., & Hijazi, R. (2020). Use of herbal medicine among the public in Abu Dhabi. *Arab Journal of Nutrition and Exercise, 7*(1), 19–32.
- Al-Ghamdi, S., Aldossari, K., Al-Zahrani, J., Al-Shaalan, F., Al-Sharif, S., Al-Khurayji, H., & Al-Swayeh, A. (2017). Prevalence, knowledge, and attitudes toward herbal medication use by Saudi women in the central region during pregnancy, labor, and postpartum. *BMC Complementary and Alternative Medicine, 17*, Article 196. https://doi.org/10.1186/s12906-017-1714-3
- Al-Nadaf, A. H. & Awadallah, A. (2023). Evaluation of the level of knowledge about herbal medicine use among people and university students in the Mutah region. *Mutah e-print repository*
- Bodeker, G. (2021). Complementary, alternative, or integrative health: What's in a name? *BMJ, 322*, 164–167. https://doi.org/10.1136/bmj.322.7284.164
- Cecilia, N. C., Al Washali, A., Albishty, A. A. M. M., Suriani, I., & Rosliza, A. (2017). The use of herbal medicine in Arab countries: A review. *International Journal of Public Health and Clinical Sciences, 4*, 1–14.
- Clarke, T. C., Black, L. I., Stussman, B. J., Barnes, P. M., & Nahin, R. L. (2015). Trends in the use of complementary health approaches among adults: United States, 2002–2012. *National Health Statistics Reports, 79*, 1–16.
- Ebrahim, S. M., & Jassim, U. T. (2020). Herbal use among hypertensive patients in Basra, Iraq. *International Journal of Advanced Science and Technology Research, 6*, 6–10.
- Guven, H., Kalkan, S., Hocaoglu, N., Yildiztepe, E., & Gokalp, G. (2019). Evaluation of the knowledge level and usage attitudes of the medical students on medicinal herbs and herbal products. *International Journal of Basic & Clinical Pharmacology, 8*(3), 394–401. https://doi.org/10.18203/2319-2003.ijbcp20190670

- Kadhim, A. K., Abbas, A. N., & Hussain, S. A. (2016). Use of herbal drugs as alternative medicine: Experience of Iraqi patients. *Spatula DD, 5*(4), 1–7.
- Kadhim, A. K., Qaragholi, Z. M., Hamad, G. K., Omran, S., & Hamid, A. (2021). A cluster survey on the use of herbs in the Iraqi society. *Plant Cell Biotechnology and Molecular Biology, 22*(33–34), 54–60.
- Langevin, H. M. (2019). Complementary, alternative, and integrative medicine. *DeckerMed Neurology*.
- Penson, R. T., Castro, C. M., & Seiden, M. V. (2001). Complementary, alternative, integrative, or unconventional medicine? *The Oncologist, 6*, 463–473. https://doi.org/10.1634/theoncologist.6-5-463
- Redha, N. A., Rasheed, R. R., & Hussain, F. S. (2018). Perception, attitudes, and knowledge among medical, dental, pharmacy, and nursing students towards the use of herbal medicine in Iraq. *International Journal of Scientific Research, 74*(6).
- Sarman, A. & Uzuntarla, Y. (2022). Attitudes of healthcare workers towards complementary and alternative medicine practices: a cross-sectional study in Turkey. *European Journal of Integrative Medicine, 49*, 102096
- Shaaboun, S., Salama, L., Salama, R., Abdrabba, F., & Shaboun, F. (2022). Knowledge, attitude, and use of complementary and alternative medicine among final-year pharmacy and medical students in Benghazi, Libya. *Ibnosina Journal of Medicine and Biomedical Sciences*.
- Stussman, B. J., Black, L. I., Barnes, P. M., Clarke, T. C., & Nahin, R. L. (2015). Wellness-related use of common complementary health approaches among adults: United States, 2012. *National Health Statistics Reports, 85*, 1–12.
- Subramanian, K., & Midha, I. (2016). Prevalence and perspectives of complementary and alternative medicine among university students in Atlanta, Newcastle upon Tyne, and New Delhi. *International Scholarly Research Notices, 2016*, 9309534. https://doi.org/10.1155/2016/9309534
- Unützer, J., Klap, R., Sturm, R., et al. (2023). Complementary and alternative medicine (CAM). *American Journal of Psychiatry, 157*, 1851–1857.
- World Health Organization. (2025). *Traditional, complementary, and integrative medicine*. https://www.who.int/health-topics/traditional-complementary-and-integrative-medicine#tab=tab_1
- World Health Organization. (2019). *Global report on traditional and complementary medicine 2019*. World Health Organization.
- Zaidi, S. F., Khan, M. A., Saeed, S. A., Zahrani, K. A., Ahmadi, A. A., Yamy, T. A., Khan, A., & Ahmed, K. (2021). Knowledge, attitude, and practice regarding herbal medicine among medical students in Saudi Arabia. *RADS Journal of Pharmacy and Pharmaceutical Sciences, 9*(1), 25–39.