



## HEALTHCARE WORKER'S ROLE IN IDENTIFYING POTENTIAL INTERACTIONS BETWEEN HERBAL MEDICATIONS AND CONVENTIONAL DRUGS

Mamdouh Saad Alhumaidi<sup>1\*</sup>, Fahad Matuq Almalki<sup>2</sup>, Abdullah Mayudh Alsayyali<sup>3</sup>, Ghazi Abdullah Alshamrani<sup>4</sup>, Abdulrahman Zayed Alotaibi<sup>5</sup>, Abed Ayed Al Gethami<sup>6</sup>, Mona Ali Alqarni<sup>7</sup>, Mohammed Ali Alqarni<sup>8</sup>, Sameer Abed Alhosayni<sup>9</sup>, Omar Moidh Alsukhayri<sup>10</sup>, Iman Saud Aljabry<sup>11</sup>, Khaled Ali Alamri<sup>12</sup> Abdullah Ahmed Aljohani<sup>13</sup>

<sup>1\*,3</sup>Pharmacy Department, Children Hospital, Taif, Saudi Arabia

<sup>2</sup>Department of Public Health, Ministry of Health, Taif, Saudi Arabia

<sup>4,5</sup>Pharmacy Department, Namira General Hospital, Al Qunfudhah, Saudi Arabia

<sup>6,7</sup>Riyadh Second Health Cluster, Prince Mohammed bin Abdulaziz Hospital, Riyadh, Saudi Arabia

<sup>8,9</sup>Administration Hospitals, Childrens Hospital, Taif, Saudi Arabia

<sup>10</sup>Abu Shajrah Primary Healthcare Center, Interactive Call Center 937, Taif, Saudi Arabia

<sup>11</sup>Pharmacy Department, Children Hospital, Taif, Saudi Arabia

<sup>12</sup>Pharmacy Department, Taif Primary Health Care, Taif, Saudi Arabia

<sup>13</sup>Community Department, King Fahad General Hospital, Jeddah, Saudi Arabia

**\*Corresponding author:** Mamdouh Saad Alhumaidi,

\*Pharmacy Department, Children Hospital, Taif, Saudi Arabia. Email: amdoh2008s@hotmail.com

### Abstract

Herbal medications, sourced from plants, have been used across various cultures for their potential healing properties. Often seen as natural and safe alternatives to conventional pharmaceuticals, these remedies are frequently incorporated into daily routines without considering potential interactions with prescribed medications. Common herbal medications include Echinacea, Ginkgo biloba, St. John's Wort, Turmeric (curcumin), Garlic, Ginseng, and Milk thistle, each with its specific uses. Despite their long history of use, the safety and effectiveness of these herbs can vary, and not all are backed by solid scientific evidence. All healthcare workers play a crucial role in ensuring patient safety and optimal therapeutic outcomes by identifying and managing drug interactions with herbal medications. Their responsibilities include reviewing medications, assessing risks, educating patients, and maintaining accurate documentation. Interactions between herbal medications and conventional drugs can affect drug absorption, distribution, metabolism, and excretion. Healthcare professionals assess these interactions based on various factors, including patient characteristics and scientific evidence, and educate patients about the risks and benefits of combining herbal and conventional treatments. They also communicate with healthcare teams, report adverse events, and ensure treatment continuity during transitions of care. In summary, all healthcare workers are instrumental in recognizing, assessing, and managing potential interactions between herbal medications and conventional drugs, ensuring patient safety, effective treatment, and informed healthcare decisions in the complex healthcare landscape.

**Keywords:** pharmacists, herbal medications, drug interactions, patient safety, healthcare decisions, conventional drugs.

## **INTRODUCTION**

In recent years, there has been a surge in the use of herbal medications alongside conventional drugs among individuals seeking alternative or complementary therapies for their health concerns. Herbal medications, derived from plants, have a rich history in various cultures for their potential therapeutic effects (1). Often perceived as natural and safe alternatives to conventional pharmaceuticals, many patients incorporate herbal remedies into their daily routines without considering potential interactions with their prescribed medications.

It is crucial to recognize that while these herbs have been used for generations, their safety and effectiveness may vary, and not all herbal remedies are supported by robust scientific evidence. Commonly used herbal medications include Echinacea, Ginkgo biloba, St. John's Wort, Turmeric (curcumin), Garlic, Ginseng, and Milk thistle, each known for its specific health benefits. Understanding the potential health benefits of these herbs is essential, but it is equally important to approach them with caution, consult healthcare providers, and purchase herbal products from reputable sources, especially if taking conventional medications or having underlying health conditions (2).

Herbal remedies can offer numerous benefits, but they also come with the potential for interactions with prescription medications. Healthcare workers play a crucial role in identifying and managing these interactions to ensure patient safety. This review discusses the essential role of healthcare workers in recognizing potential interactions between herbal medications and conventional drugs.

## **DISCUSSION**

### ***Healthcare Workers' Role in Drug Interaction***

The role of healthcare workers in managing drug interactions is pivotal in ensuring patient safety and optimizing therapeutic outcomes. As the use of multiple medications, including herbal supplements, becomes increasingly common, the potential for drug interactions escalates, posing challenges to effective healthcare delivery. Healthcare workers, including physicians, pharmacists, nurses, and other allied health professionals, play a crucial role in identifying, assessing, and managing these interactions to prevent adverse effects and enhance treatment efficacy (3-5).

### ***Identification of Drug Interactions***

The first step in managing drug interactions is their identification. Healthcare workers must be vigilant in reviewing patients' medication lists, including prescription drugs, over-the-counter medications, and herbal supplements. This comprehensive review enables the detection of potential interactions that could affect drug efficacy or lead to adverse effects. For instance, a pharmacist might identify a potential interaction between a patient's anticoagulant medication and a newly prescribed antibiotic, which could increase the risk of bleeding (5-7).

### ***Assessment of Clinical Significance***

Once a potential interaction is identified, healthcare workers assess its clinical significance. This involves evaluating the severity of the interaction, the likelihood of its occurrence, and its potential impact on the patient's health. Factors such as the patient's age, underlying health conditions, and the therapeutic importance of the medications involved are considered. For example, an interaction that could lead to a life-threatening arrhythmia would be deemed more significant than one that causes a minor change in blood pressure (8).

### ***Risk Management and Mitigation***

Healthcare workers play a crucial role in managing and mitigating the risks associated with drug interactions. Strategies may include adjusting medication dosages, changing the timing of administration, or switching to alternative medications with a lower potential for interaction. For example, a physician might adjust the dosage of a patient's medication to account for an interaction that affects drug metabolism, thereby maintaining therapeutic efficacy while minimizing the risk of adverse effects (9).

### ***Patient Education and Counseling***

Educating patients about potential drug interactions and their implications is a critical responsibility of healthcare workers. Patients should be informed about the signs and symptoms of adverse interactions and advised to report any concerns promptly. Counseling on the proper use of medications, including adherence to prescribed regimens and the importance of disclosing all medications and supplements to healthcare providers, is essential for preventing interactions and ensuring patient safety (10-12).

### ***Collaboration and Communication***

Effective management of drug interactions requires collaboration and communication among healthcare workers across disciplines. Physicians, pharmacists, nurses, and other healthcare professionals must share information about patients' medication regimens and work together to develop safe and effective treatment plans. For example, a pharmacist might communicate with a physician about a potential interaction between a patient's medications, leading to a collaborative decision to adjust the treatment regimen (13,14).

### ***Monitoring and Follow-Up***

Ongoing monitoring and follow-up are essential for managing drug interactions. Healthcare workers should regularly review patients' medication regimens, assess for any changes that might affect the potential for interactions, and monitor patients for signs of adverse effects. Follow-up appointments provide an opportunity to reassess medication regimens, adjust treatment plans as needed, and ensure that patients are managing their medications safely and effectively (15).

### ***Challenges and Future Directions***

Despite the critical role of healthcare workers in managing drug interactions, challenges remain. The increasing complexity of medication regimens, the growing use of herbal supplements, and the limited availability of comprehensive drug interaction databases can make it difficult to identify and manage interactions effectively. Advancements in health information technology, including electronic health records and clinical decision support systems, offer promising tools for improving the identification and management of drug interactions. Additionally, ongoing education and training for healthcare workers are essential for keeping abreast of the latest developments in pharmacology and drug interaction management (16,17).

## **CONCLUSION**

The use of herbal medications alongside conventional drugs has become increasingly popular, but it comes with the potential for interactions that can impact patient safety and treatment efficacy. Pharmacists play a crucial role in recognizing and managing these interactions by conducting thorough medication reviews and assessments, assessing risks, educating patients, communicating with healthcare providers, and maintaining meticulous documentation. By fulfilling these responsibilities, pharmacists ensure that patients receive safe and effective care while navigating the complexities of combining herbal and conventional medications. Patient safety remains at the forefront of their efforts, emphasizing the importance of informed decision-making and collaborative healthcare practices.

## **REFERENCES**

1. Lexicomp. Drug Interactions. [Internet]. Wolters Kluwer. 2022 [cited 2024 Mar 14]. Available from: <https://www.wolterskluwer.com/lexicomp-online/>.
2. Hansten PD, Horn JR. The Top 100 Drug Interactions: A Guide to Patient Management. 2022 Edition. H&H Publications; 2022.
3. Stockley IH. Stockley's Drug Interactions. 12th ed. London: Pharmaceutical Press; 2021.

4. Chatsisvili A, Sapounidis I, Pavlidou G, Zoumpouridou E, Karakousis VA, Spanakis M, et al. Potential drug-drug interactions in prescriptions dispensed in community and hospital pharmacies in East Macedonia and Thrace, Greece. *J Clin Pharm Ther.* 2014;39(4):377-83.
5. Malone DC, Abarca J, Skrepnek GH, Murphy JE, Armstrong EP, Grizzle AJ, et al. Identification of serious drug-drug interactions: results of the partnership to prevent drug-drug interactions. *J Am Pharm Assoc (2003).* 2004 Mar-Apr;44(2):142-51.
6. Obreli-Neto PR, Nobili A, de Oliveira Baldoni A, Guidoni CM, de Lyra Junior DP, Pilger D, et al. Adverse drug reactions caused by drug-drug interactions in elderly outpatients: a prospective cohort study. *Eur J Clin Pharmacol.* 2012 Dec;68(12):1667-76.
7. Björkman IK, Fastbom J, Schmidt IK, Bernsten CB; Pharmaceutical Care of the Elderly in Europe Research (PEER) Group. Drug-drug interactions in the elderly. *Ann Pharmacother.* 2002 Nov;36(11):1675-81.
8. Moura CS, Acurcio FA, Belo NO. Drug-drug interactions associated with length of stay and cost of hospitalization. *J Pharm Pharm Sci.* 2009;12(3):266-72.
9. Juurlink DN, Mamdani M, Kopp A, Laupacis A, Redelmeier DA. Drug-drug interactions among elderly patients hospitalized for drug toxicity. *JAMA.* 2003 Apr 2;289(13):1652-8.
10. Patel RI, Beckett RD. Evaluation of resources for analyzing drug interactions. *J Med Libr Assoc.* 2016 Oct;104(4):290-5.
11. Hansten PD, Horn JR. Drug interactions analysis and management. St. Louis, MO: Wolters Kluwer Health; 2012.
12. Juurlink DN. Drug interactions: what clinicians need to know. *CMAJ.* 2011;183(8):927-929.
13. Malone DC, Abarca J, Hansten PD, et al. Identification of serious drug-drug interactions: results of the partnership to prevent drug-drug interactions. *J Am Pharm Assoc (2003).* 2004;44(2):142-151.
14. Tannenbaum C, Sheehan NL. Understanding and preventing drug interactions in elderly patients. *Crit Rev Oncol Hematol.* 2014;82(1):10-26.
15. Flockhart DA. Drug interactions: Cytochrome P450 drug interaction table. Indiana University School of Medicine; 2007. Available from: <https://drug-interactions.medicine.iu.edu/MainTable.aspx>
16. Obreli-Neto PR, Nobili A, de Lyra DP Jr, et al. Adverse drug reactions caused by drug-drug interactions in elderly outpatients: a prospective cohort study. *Eur J Clin Pharmacol.* 2012;68(12):1667-1676.
17. Abarca J, Malone DC, Armstrong EP, et al. Concordance of severity ratings provided in four drug interaction compendia. *J Am Pharm Assoc (2003).* 2004;44(2):136-141.