Razi Med J. 2025;1(2):70-75
https://doi.org/10.69667/rmj.25208
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

Original article

Utilizing Resources of Drug Information among Community Pharmacists in Benghazi and the Surroundings

Asma Buzgeia[1]*, Nazik Hamad[1], Emaduldin Ateeyah[2], Mohamed Mohamed[2], Mohamed EL Fakhri[2]

[1]*Department of Pharmaceuticals, Faculty of Pharmacy, University of Benghazi, Benghazi, Libya.*
[2]*Faculty of Pharmacy, University of Benghazi, Benghazi, Libya.*
Corresponding Email. *asma.buzgeia@uob.edu.ly*

Abstract
One of the fundamental professional duties of all pharmacists is to provide Drug Information (DI). DI refers to the finding, application, and administration of information regarding the usage of drugs. Drug information includes everything from dosage and side effects to identification, cost, and pharmacokinetics. You may also need information about the body, health, or diseases to better utilize the drug information. The focus is on understanding how pharmacists' access and apply information regarding drug use, interactions, side effects, and safety, especially during pregnancy and lactation. Additionally, the study explores pharmacists' confidence in digital and traditional DI sources and their critical role in disseminating drug information to the public. Aiming to identify common DI needs, frequently used resources, and pharmacists' trust in available information. This cross-sectional descriptive study investigates DI sources utilized by community pharmacists in Benghazi and its suburbs. It examines the types of DI resources they most frequently consult and the nature of questions they encounter in practice. The focus is on understanding how pharmacists' access and apply information regarding drug use, interactions, side effects, and safety, especially during pregnancy and lactation. Additionally, the study explores pharmacists' confidence in digital and traditional DI sources and their critical role in disseminating drug information to the public. Aiming to identify common DI needs, frequently used resources, and pharmacists' trust in available information. Regarding data collection, it is conducted between June and October 2024 via an online survey distributed through social media platforms. The study engaged 252 pharmacists, primarily from urban areas like Benghazi and surrounding areas. The results show a predominantly young, female workforce with a high reliance on online DI resources, particularly Google, Medscape, and Drugs.com; moreover, tertiary resources like the "Drug Information Handbook" and "Basic and Clinical Pharmacology" are also referenced. Despite the scarcity of comprehensive textbooks in most pharmacies, 96% of pharmacists used the internet for drug-related inquiries, with 78% trusting this information for patient advice. Key questions pertained to drug safety during pregnancy, dosages, and drug interactions. In conclusion, the findings highlight the essential role community pharmacists play in providing drug information to the public, as well as the need for enhanced access to and training in reliable DI resources to support safe, informed pharmaceutical care in Libyan pharmacies.

Keywords. *Drug Information Resources, Benghazi And Its Suburbs, Community Pharmacy, Drug Safety.*

Received: *20/03/25*
Accepted: *23/05/25*
Published: *02/06/25*

Introduction

Current developments in practice, such as expanding drug therapy management services and initiatives to acquire provider status, have given pharmacists more complicated patient care responsibilities and required all pharmacists to be more competent in addressing Drug Information (DI) needs [1]. Improving patient outcomes, ensuring the wise use of resources, and improving the quality of patient care are the objectives of offering thoroughly considered, evidence-based recommendations to support certain medication-use practices. One of the fundamental professional duties of all pharmacists is to provide DI. In actuality, DI refers to the finding, application, and administration of information regarding the usage of drugs. Drug information includes everything from dosage and side effects to identification, cost, and pharmacokinetics. You may also need information about the body, health, or diseases to better utilize the drug information [2].

DI materials can be classified as primary, secondary, or tertiary according to their originality. Primary DI sources refer to the original resources used in the study. Examples of scientific publications include journal articles, conference proceedings, patents, dissertations, and technical. Certain journal articles, such as review articles that consolidate literature, are classified as tertiary resources. Primary resource information is used to inform secondary DI sources after publication. These indexing and abstracting techniques facilitate easy retrieval of primary resources. The most effective

Razi Med J. 2025;1(2):70-75
https://doi.org/10.69667/rmj.25208
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

DI sources provide reliable and relevant information that is easy to apply [3]. DI might be population-based (to support the decision-making process for assessing pharmaceutical use for groups of patients), patient-specific, or academic (scientific purpose) [3]. Nowadays, practicing pharmacists struggle to stay up to date with the growing number of new medications as well as the growing quantity of biological papers and articles that are accessible on websites [4]. The current study's goals were to identify the most frequently asked drug information questions that community pharmacists in Libya experienced while working in community pharmacies, as well as the kinds of DI resources that they utilized to locate specific drug information.

Methods

In Benghazi and its suburbs, this cross-sectional descriptive study was conducted utilizing an online self-reported electronic survey that was presented using Google Forms software. The voting link was sent electronically only between June 5 and October 19, 2024, across several pharmacist social media groups on Facebook, WhatsApp, and Telegram. Graduated pharmacists who have been employed at a private (community) pharmacy for at least a year were required to meet the inclusion requirements.

During the period of the survey, around 2000 pharmacists registered with the Syndicate of Benghazi and its suburban Pharmacists. Based on this, and to achieve a 95% confidence interval, a standard deviation of 0.5, and a margin of error of 5%, a minimum sample size of 30 pharmacists was needed. However, the sample collected was 252 participants from Benghazi and its surroundings. There were no validated surveys available for this particular circumstance. The authors created a standardized questionnaire using available literature [2,8]. The questionnaire gathered general information such as gender, age, experience duration, pharmacy location, and graduation degree, access to DI resources, frequency of access, availability of tertiary textbooks, internet use for DI, and commonly used websites, as well as questions asked by patients to pharmacists. Data has been studied, organized, calculated, and analyzed using SPSS version 23. Discrete variables are presented as numbers and percentages.

Results

The questionnaire, which was offered both online and in person, was completed by 252 pharmacists. Approximately 63.4% of the participants were between 18 and 30 years of age, with a standard deviation of 0.546, and 143 (56.5%) were female. The vast majority of participants (84.2%) had a bachelor's degree. Two hundred and thirty-three pharmacists worked in urban areas, while the remaining 19 pharmacists worked in rural areas. Most pharmacies (86.2%) offered both prescription-only and over-the-counter medications, while the remaining pharmacies (9.5% and 4%) offered prescription-only and over-the-counter medications, respectively. The results are presented in Table 1.

Table 1. Demographic data of pharmacist and general information about their pharmacy

Demographic characters		No.	Percentage
Age (yrs)	18-30	160	63.4%
	30-50	85	33.7%
	50-60	7	2.7%
Sex	Male	109	43.1%
	Female	143	56.5%
Academic degree	Bachelor	213	84.2%
	Seminary	24	9.5%
	Master of science	11	4.3%
	Doctor of Philosophy	3	1.2%
Pharmacy location	Urban area	233	92.1%
	Rural area	19	7.5%
Pharmacy type	Prescription medication only	24	9.5%
	Over-the-counter medication only	10	4%
	Both	218	86.2%

Razi Med J. 2025;1(2):70-75
https://doi.org/10.69667/rmj.25208
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

The available tertiary textbook resources in the pharmacies reported in this study were the "Drug Information Handbook" (16%) followed by "Basic and Clinical Pharmacology" (13%), then "Pharmacotherapy" and "British National Formulary"(11% and 10% respectively) while the "Pregnancy and breastfeeding textbooks" were the least (2%). Additional resources are shown in Figure 1.

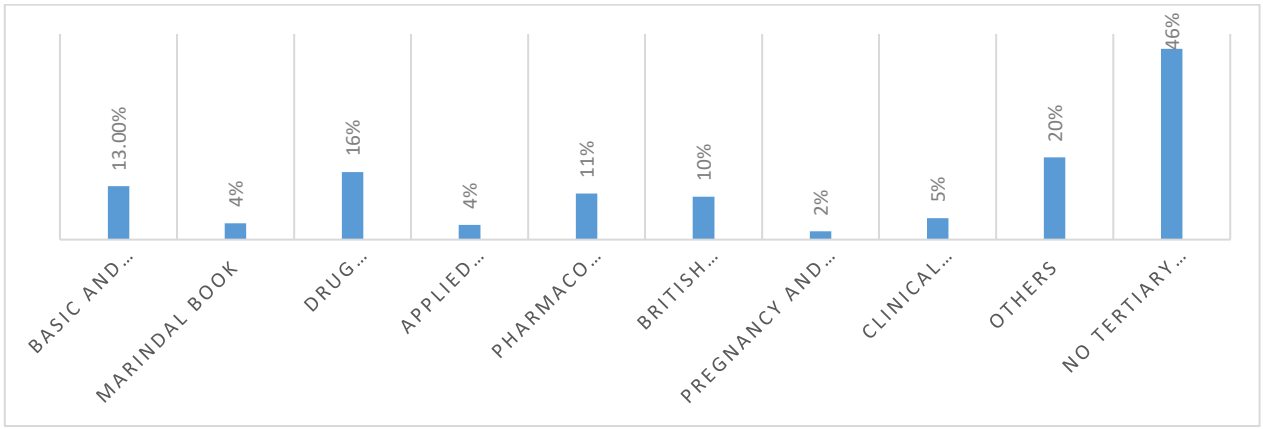

Figure 1. Tertiary textbooks are available in pharmacies. (Used by pharmacists).

To find specific drug information, 96% of the enrolled pharmacists used the Internet during work time; on the other hand, 4% never used it for DI purposes. Most of the time, enrolled pharmacists used generic search engines like Google to look up DI (80%), with Medscape and Drug.com being used between 28% and 25%, respectively. The FDA (9%), Mayo Clinic (10%), and Wikipedia (17%) are in the third degree, whereas WebMD and the others had the lowest percentages, as seen in Figure 2.

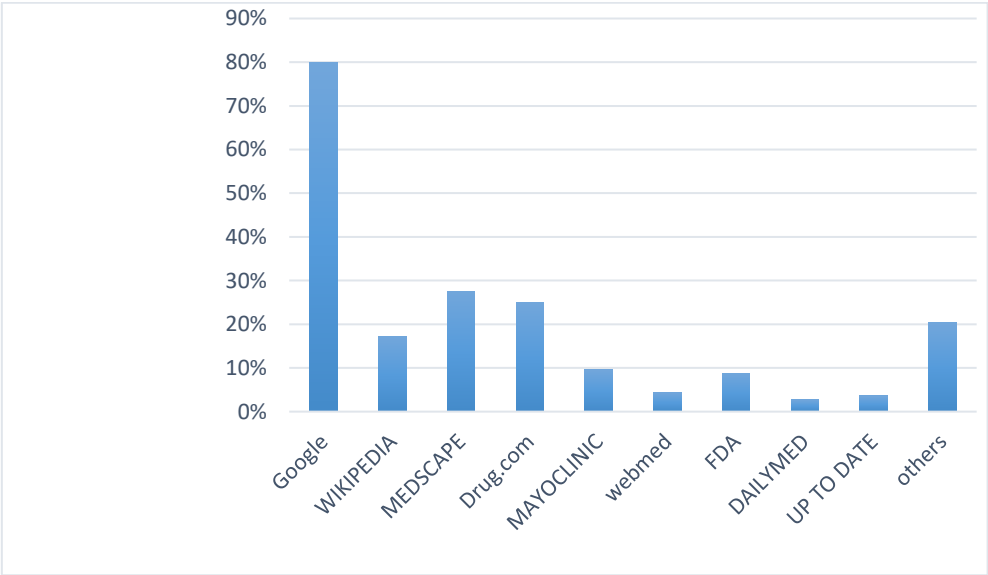

Figure 2. Websites that the participants most commonly surfed to find specific drug information while working in the pharmacy.

Pharmacists replied to the question ''Do you trust the drug information gained from the internet and forward it to the patients?" (78%) of them answered with "Yes" while the remaining (22%) answered with "No". The most common type of questions received and forced the enrolled pharmacists to seek different DI resources to get an exact answer were those related to drug use and safety during pregnancy and lactation periods (73%) followed by dose of certain drugs and drug interactions (42%) for both, pediatric safety (41%), adverse effects and route of drug administration (40%) for both, and diabetic and hypertension drugs (35% and 34% respectively). Other requests are shown in Figure 3.

Razi Med J. 2025;1(2):70-75
https://doi.org/10.69667/rmj.25208
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

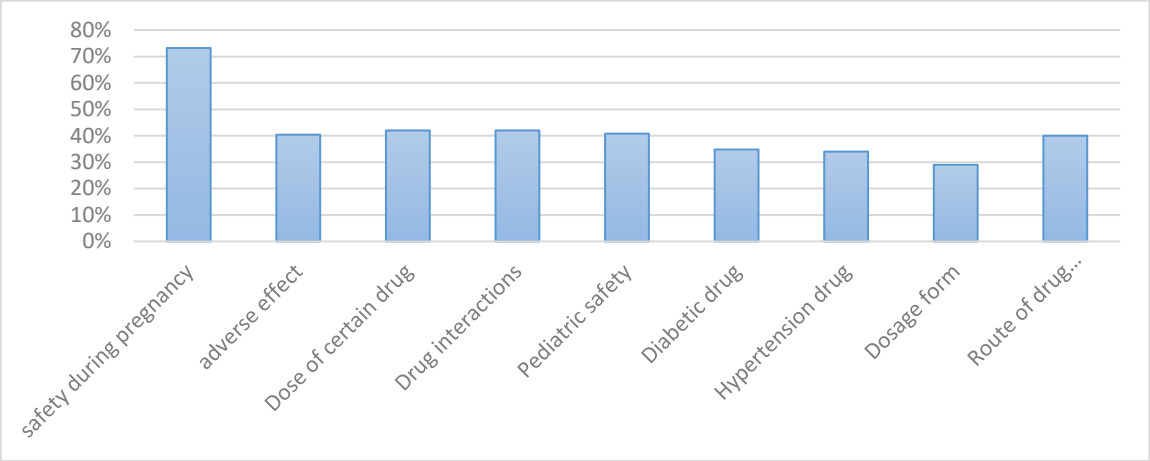

Figure 3. The participants received and looked for the appropriate answers in different resources while working in the pharmacy.

Discussion

Advancements in healthcare have resulted in a growing demand for pharmacists to serve as primary providers of drug information to healthcare professionals and the public. As key contributors to pharmaceutical care, pharmacists should be the primary source of drug knowledge. Pharmacist interventions positively impact patient care, reduce medication errors, and enhance medication adherence [5]. A recent Cochrane Database review found that pharmacist involvement can improve patient behavior, increase compliance, and support better physician prescribing. Additionally, pharmacists play an expanding role in improving patient outcomes, healthcare utilization, and reducing costs [6]. The survey results indicated that most participating pharmacists were from the urban area of Benghazi, likely due to the larger populations in this area, which require more pharmacists to meet healthcare needs. Among the respondents, 56.5% were female, and 63.4% were aged between 22 and 30 years, while 36.4% were over 30. Those findings are consistent with similar studies. For instance, in a study by Qadus in Jordan, 1,875 pharmacists participated, with ages ranging from 23 to 46. Among them, 67% were under 31, and females represented the majority (68.5%) [7]. Another study in Iraqi community pharmacies also reported that 64.4% of pharmacists were under 35 years old [2].

The majority of survey participants (92%) held a bachelor's degree, followed by 9.6% with a Seminary degree, 4.4% with a Master of Science, and 1.2% with a Doctor of Philosophy (Ph.D.). Comparatively, in a similar study conducted in Jordan, (80.1%) of pharmacists had a bachelor's degree, while (12.9%) held a Ph.D., making it the second most common qualification [7]. This data suggests that bachelor's degrees are the primary educational attainment among pharmacists in these regions, with advanced degrees being less common. Increasing access to graduate education opportunities may help further professional growth and specialization within the field.

The study found that nearly half (46%) of the pharmacies surveyed did not have tertiary drug information textbooks. Among those that did, the Drug Information Handbook was the most commonly available resource (16.4%), followed by Basic and Clinical Pharmacology (13%), Pharmacotherapy (11.2%), and the British National Formulary (BNF) (10.4%). In contrast, other studies have shown different results. For example, Al Radeef's study in Iraqi community pharmacies reported the BNF as the most frequently used textbook (47.3%) [2]. Al-Tabakha et al. similarly found that all pharmacists in their study relied on the BNF for additional drug information [8]. Conversely, in Kuwait, the BNF was available in only 15% of community pharmacies, ranking as the fourth most-used resource, a finding similar to the BNF's usage in this study. A study in Al Ain, UAE(Al-Tabakha), reported that (47.4%) of community pharmacies had access to the Drug Information Handbook [9,8]. These variations highlight differing patterns in the availability and use of tertiary drug information resources across countries.

Drug Information Handbook is a widely used reference for healthcare professionals because of its practical benefits. It provides comprehensive drug details like dosage, uses, side effects, and interactions. The handbook is organized for easy use, allowing quick access to essential information. It is also regularly updated to reflect new drug information and guidelines, making it a reliable source for current practices in patient care [10].

Razi Med J. 2025;1(2):70-75
https://doi.org/10.69667/rmj.25208
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

In response to the question, "Do you use the internet during work in the community pharmacy to obtain specific drug information?", (96.4%) answered "Yes." A similar result was reported by Al-Tabakha et al. (93%), [8] while Jaradat and Sweileh found that only 29% of surveyed community pharmacies had internet access for drug information. [11] A small percentage of pharmacists (3.6%) reported not using the Internet for drug information, citing a lack of trust in Internet-based information. A large portion of participants (80%) reported using Google as their primary source for online drug information, followed by Medscape (27.6%), and then Drugs.com also popular. Google is the most frequently used search engine overall, while Medscape is particularly valuable for pharmacists due to its pharmacy-specific content. In a study assessing online databases for answering infectious disease-related questions, Polen et al. found that Medscape ranked highest for completeness (95%) and addressed significantly more questions than other databases [12].

In response to the open question, "Do you trust the drug information obtained from the internet and share it with patients?", a significant proportion (77.6%) answered "yes." This reflects a widespread belief that internet sources, especially those from government, universities, and non-profit organizations, provide high-quality drug information. However, this information must be current and supported by relevant references. In this study, the most frequently requested information from clients, provided by pharmacists, related to drug use and safety during pregnancy and lactation (73.2%). Al-Tabakha et al. [8] also reported similar findings. However, a study in Palestine found that the most common question concerned drug pricing (30%), with only 6% of inquiries focused on drug safety during pregnancy and lactation [11]. This suggests that patient concerns may vary across different settings. Evaluating medication safety for pregnancy or lactation is a challenge that most physicians encounter, as many women require drug therapy during these periods. Such questions may often be directed to pharmacists, who regularly assist women of reproductive age. Pharmacists may be the first healthcare professionals a woman consults after learning she is pregnant, moreover, a physician might seek a pharmacist's guidance on safer treatment options for pregnant or breastfeeding women [13].

The current study has some limitations. Certain members of the targeted population may not have been included in the online survey, which could restrict the generalizability of the findings, and the 252 pharmacists surveyed may not fully represent all pharmacists working in Benghazi and its suburbs at the time. Additionally, the response rate could not be determined, potentially introducing nonresponse bias. Therefore, the findings should be interpreted cautiously.

Conclusion

In conclusion, the study found that most pharmacists prefer using specific websites to gather information about medicines. They also consult pharmaceutical textbooks if available in their pharmacies. Additionally, the study revealed that consumers frequently turn to community pharmacists for drug-related questions. The pharmacist needs to be educated about the various DI resources and how to evaluate information obtained, particularly via the Internet.

Conflict of interest. Nil

References

1- Wang F, Troutman WG, Seo T. Drug information education in doctor of pharmacy programs. Am J Pharm Educ. 2006; 70(3):51.
2- Radeef, Mohanad Yasir, and Khalid Saud Saleh. "Drug Information Resources in Iraqi Community Pharmacies (Conference Paper)." Iraqi Journal of Pharmaceutical Sciences 31.Suppl. 2022: 25-31.
3- Malone PM, Kier KL, Stanovich JE. Drug information: a guide for pharmacists, 4th ed. New York:McGraw-Hill; 2012
4- Wang F, Troutman WG, Seo T, Peak A, Rosenberg JM. Drug information education in doctor of pharmacy programs. Am J Pharm Educ. 2006 J15;70(3):51.
5- Pedersen C.A., Schneider P.J., Scheckelhoff D.J. ASHP national survey of pharmacy practice in hospital settings: Prescribing and transcribing-2013. Am. J. Health-System Pharmacy : AJHP: Official J. Am. Soc. Health-System Pharm. 2014;71:924–942.
6- Burkiewicz J.S., Vesta K.S., Hume A.L. Update in handheld electronic resources for evidence-based practice in the community setting. Annals Pharmacotherapy. 2005;39(12):2100–2104.
7- Qadus S, Naser AY, Al-Rousan R, Daghash A. Utilization of drug information resources among community pharmacists in Jordan: A cross-sectional study. Saudi Pharm J. 2022;30(1):1-7.
8- Al-Tabakha MM, Akoulah LH and Fahelelbom KM. Drug Information in Community Pharmacy and Outpatient Pharmacy in Al Ain City, U.A.E.: A Descriptive Study. Int J Pharm. 2013;3(2):316-322.
9- Ball DE, Al-Othman F. Drug information resources at private community pharmacies in Kuwait. Med Princ Pract. 2007;16(2):107-9.

10- Bryson ML, Ipema HJ. Book Review: Drug Information Handbook: A Comprehensive Resource for All Clinicians and Healthcare Professionals, 22nd Edition. *Annals of Pharmacotherapy*. 2013;47(9):1235.
11- Jaradat N, Sweileh W. Drug Information for Community Pharmacies: Survey on Needs and Use of Drug Information with Special Focus on New Information Technology. An-Najah Univ. J. Res. (N.Sc).2003;17(2):287-300.
12- Polen HH, Zapantis A, Clauson KA, Jebrock J, Paris M. Ability of online drug databases to assist in clinical decision-making with infectious disease therapies. BMC Infect Dis. 2008;8:153.
13- Leung HY, Saini B, Ritchie HE. Medications and pregnancy: The role of community pharmacists - A descriptive study. PLoS One.2018;13(5):e0195101.