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Attitudes and Practices of Community Pharmacists toward the Risk of Medication Use by Pregnant Women: A Cross-Sectional Study in the Qassim Region, Saudi Arabia

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Abstract: Medication use during pregnancy involves inherent risks, necessitating the recognition of community pharmacists (CPs) as essential providers of safe and effective pharmaceutical care. In response to the widespread availability of CPs, the Saudi healthcare system has implemented diverse strategies to establish a network of care that interconnects community pharmacies and public health clinics. Owing to the prevalent use of medications among pregnant Saudi women, CPs play a crucial role in providing patient education and counseling to this vulnerable population. Therefore, the study aimed to explore the attitudes and practices of CPs toward the risks associated with medication use during pregnancy. A cross-sectional survey was conducted in the Qassim region of Saudi Arabia between January and April 2019. A total of 170 CPs were approached from the six governorates of the Qassim region, with 150 agreeing to participate and completing the survey, resulting in an 88.2% response rate. The CPs in this study demonstrated awareness of the potential adverse effects of teratogenic drugs, aligning with the guidelines outlined by the World Health Organization (WHO). In addition, the importance of continuous professional development (CPD) was emphasized, highlighting the need for more specific training related to maternal care. Access to reliable drug information resources in community pharmacies has emerged as a crucial factor for enabling evidence-based recommendations for pregnant women. This study sheds light on the attitudes and practices of CPs in Saudi Arabia, providing valuable insights into their role in mitigating medication risks during pregnancy. The findings underscore the importance of ongoing professional development and the necessity of robust drug information resources within community pharmacies to ensure the delivery of optimal care for pregnant women.

Keywords: community pharmacists, medication safety, antenatal medication use, attitude, practices, Qassim, Saudi Arabia.

社区药剂师对孕妇用药风险的态度和实践：沙特阿拉伯卡西姆地区的横断面研究

摘要：怀孕期间的药物使用涉及固有的风险，因此需要认识到社区药剂师（CP）是安全有效的药物护理的重要提供者。为了应对 CP 的广泛使用，沙特医疗保健系统实施了多种策

略，建立一个将社区药房和公共卫生诊所互连起来的护理网络。由于沙特孕妇普遍使用药物，CP 在向这一弱势群体提供患者教育和咨询方面发挥着至关重要的作用。因此，本研究旨在探讨 CP 对妊娠期间用药相关风险的态度和做法。2019 年 1 月至 4 月在沙特阿拉伯卡西姆地区进行了一项横断面调查。来自卡西姆地区 6 个省的 170 个 CP 进行了接触，其中 150 个 CP 同意参与并完成调查，调查结果为 88.2%反应速度。这项研究中的 CP 表现出对致畸药物潜在不良影响的认识，符合世界卫生组织(WHO)概述的指南。此外，还强调了持续专业发展（持续专业发展）的重要性，强调需要进行与孕产妇护理相关的更具体的培训。在社区药房获取可靠的药物信息资源已成为为孕妇提供基于证据的建议的关键因素。这项研究揭示了沙特阿拉伯 CP 的态度和做法，为他们在减轻怀孕期间用药风险方面的作用提供了宝贵的见解。研究结果强调了持续专业发展的重要性以及社区药房内强大的药物信息资源的必要性，以确保为孕妇提供最佳护理。

关键词：社区药剂师、用药安全、产前用药、态度、做法、沙特阿拉伯卡西姆。

1. Introduction

Although taking drugs during pregnancy is rather common, there are considerable hazards for both the mother and the fetus [1, 2]. Over-the-counter (OTC) medications, complementary and alternative medicines (CAM), and herbal products are the most frequently used medications [3]. The risk of congenital malformations and low birth weight increases with the length of time an expectant woman takes the medication and is further compounded by greater doses [4]. Pregnant women are frequently excluded from clinical studies due to ethical considerations, which leaves a lack of safety information for a drug's antenatal use [5]. Therefore, mothers-to-be should be cautious while using any medications during their pregnancy, including OTC medications.

On the contrary, there are medications that can be safely used during pregnancy [6]. Although little research has been conducted to convince pregnant women to avoid medication use, much current evidence suggests otherwise. It has been reported that congenital abnormalities caused by teratogenic medications account for only 2-3% of all congenital abnormalities [7]. To provide clinical guidelines for prescribers, the Food and Drug Administration (FDA) has developed a system of labeling for medication use among pregnant and/or lactating women [8]. FDA classified different drugs used in pregnancy into five categories: A, B, C, D, and X. Category A is estimated to be the safest, but some medications from categories B, C, and D are also used during pregnancy [8]. Despite this, both healthcare providers and childbearing women seem confused on the use of medications during pregnancy [1]. Many pregnant women are not well informed on the risks involved in taking certain medications, and yet others deem it safe to use due to their unrestricted availability in the market [9].

Community pharmacists (CPs) are an integral part of the healthcare workforce and frequently sought out for their awareness about safe use of medications [10]. They are crucial in providing pertinent patient education and counseling to vulnerable populations, including pregnant women [11]. CPs hold a vital position in the Saudi healthcare system. As per the new pharmacy model for Vision 2030, which was first announced in 2016, most pharmaceutical care services were to be provided through community or retail pharmacies [12]. In 2018, the Ministry of Health (MOH) of Saudi Arabia transformed pharmaceutical care services from primary health care (PHC) to private community pharmacies supported by a complete electronic service called *Wasfaty*, which enabled CPs to receive prescriptions from PHCs, dispense, and provide pharmaceutical care to patients. With regard to medication use during pregnancy, this initiative extended the role of CPs with the aim of safe medication use among pregnant women. Given the prevalence of medication use during pregnancy among Saudi women [13], the competencies of CPs assume considerable importance in ensuring safe use of high-risk medications. This study aimed to gain a comprehensive understanding of the attitudes and practices of CPs concerning the potential risks associated with medication use during pregnancy. The findings of this study may be extrapolated to facilitate efforts to enhance antenatal prescribing practices.

2. Methods

2.1. Study Design and Settings

This cross-sectional observational study was conducted in the Qassim region of Saudi Arabia, a

densely populated area of 58,046 km^2 with an approximate population of 1,370,727 individuals [14]. Data were collected from January to April 2019. The study population comprised employed CPs in the Qassim region. Institutional ethical approval was obtained from the Research Unit, Unaizah College of Pharmacy (RU-UCP-32/66/77) before the data collection.

2.2. Study Participants and Sample Size

This study focused on all community pharmacies in the Qassim region. With a 95% confidence interval, 5% margin of error, and an estimated total of 300 community pharmacies in the Qassim region, the sample size was computed. Based on a response distribution estimate of 50%, the recommended sample size was 169 CPs. The six governorates of the Qassim region—Unaizah, Buraydah, Almithnab, Alrass, Albadaya, and Albukayriyah—were randomly chosen for community pharmacies because they were the most populous and had the highest availability of CPs. Purposive sampling method was used to recruit participants for the study. We asked one fully licensed pharmacist from each pharmacy to participate. A total of 170 CPs were approached, 150 of whom agreed to participate and completed the survey, yielding a response rate of 88.2%. The sample size was estimated using a sample size calculator (Raosoft Inc., Seattle, WA, USA).

2.3. Study Tool

A self-administered questionnaire was created in English based on various similar studies and pre-validated surveys [15, 16]. The questionnaire was divided into two parts, comprising 20 questions. In the first section, participants' demographic information was gathered, including their age, gender, place of employment, number of years working in a community pharmacy, hours spent supervising patient care, estimated percentage of patients in reproductive age, and regular checks to see if their adult female clients were pregnant. The second section covered topics such as the types of interventions recommended for specific disorders among pregnant patients, assessment of the safety of drugs to be prescribed during the first trimester of pregnancy, actions taken if a pregnant patient reported taking a teratogenic drug, the most commonly used information sources for drug safety in pregnancy, challenges, and the types of training received so far specifically for drug safety during pregnancy. Participants were asked about the safety of each medication during pregnancy with four possible responses: 'safe to use during the first trimester', 'must assess risks and benefits for specific patients', 'not safe to use during the first trimester of pregnancy', and 'I'm not sure'. This questionnaire enabled a comprehensive exploration of healthcare professionals' perspectives, practices, and information-seeking behaviors related to medication use during pregnancy, contributing to a comprehensive understanding of their attitudes and knowledge gaps in this critical area of healthcare. The questionnaire was evaluated for both internal and external validity. Two pharmacy professionals from the Unaizah College of Pharmacy (UCP) at Qassim University validated the questionnaire. The document was then reviewed for content validity, and changes were made in response to their comments. In addition, face validity was tested by distributing the questionnaire to three local CPs. The final questionnaire was designed by incorporating feedback from all the pharmacists involved. Cronbach's alpha was used to measure internal consistency, and it was found to be within acceptable limits ($\alpha = 0.75$) [17].

2.4. Data Collection

Upon receiving ethical approval, the CPs were provided with questionnaires, participant information sheets, and consent forms as part of the study procedures. The objectives and aims of the research were thoroughly explained to the participants. Sufficient time was allocated for the CPs to review and comprehend the content of the consent form before they were requested to provide their signatures, which ensured informed consent. Participants were assured of strict confidentiality regarding their involvement in the study.

To minimize the potential for control report bias arising from participants seeking external information sources, such as the internet or books, the questionnaires were collected simultaneously from all the participants. The data collection was performed by final-year pharmacy students who were members of the research team. To maintain anonymity, each participant's questionnaire was assigned a pseudonym, safeguarding the confidentiality of the gathered data. Throughout the study, no information regarding the participants' names or affiliations was disclosed.

2.5. Data Analysis

Descriptive statistics were employed to present the demographic characteristics of the respondents. Categorical data are presented as percentages, while continuous variables are expressed as mean ± standard deviation. The distribution of the data was assessed using the Kolmogorov-Smirnov test. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) Version 23.

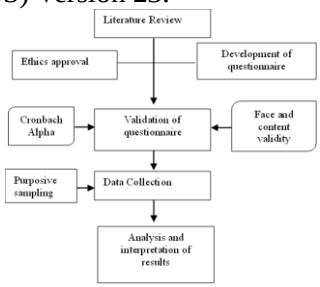

Fig. 1 Flow chart of the methodology (The authors)

3. Results

3.1. Demographic Data on the Participants

A total of 170 CPs were reached; of those, 150 agreed to participate and completed the survey, yielding a response rate of 88.2%. The majority, 85 (56.7%) of the participants, were between the ages of 25 and 35 years. Regarding work experience, the highest number of CPs (56, 37.3%) reported having between six and ten years of experience. In terms of geographical distribution, Unaizah and Buraydah were the primary locations for the CPs, with 43 participants (28.7%) practicing in these areas. Detailed demographic information on the participants is provided in Table 1.

Table 1 Demographic characteristics and work practices of CPs (N = 150) (The authors)

Variable	Frequency
Age	
25 to 35	85(56.7%)
36 to 45	48(11.3%)
46 to 55	17(32.0%)
Years of practice	
1-5	1(7%)
6-10	56(37.3%)
11-15	40(26.7%)
16-20	23(15.3%)
21-25	20(13.3%)
More than 25	10(6.7%)
Community pharmacy location	
Unaizah	43(28.7%)
Buraydah	43(28.7%)
Al-Rass	19(12.7%)
Almithnab	15(10%)
Albukaryriyah	12(8%)
Albadayea	18(12%)

3.2. Community Pharmacists' Awareness about Drugs Most Commonly Used during Pregnancy

Approximately 74.7% (112) of the respondents stated that alprazolam is unsafe during pregnancy, whereas 16% (24) believed that it is taken on the basis of risk-benefit assessment. In addition, 64% (96) of CPs thought that amoxicillin is safe. Only a small percentage of CPs (5.3%) were aware that tetracycline should only be taken when the benefits may outweigh the risks. 66% (99) of the respondents understood that acetaminophen, among non-prescribed analgesics, is safe; nevertheless, they had reservations about aspirin use during pregnancy, although ibuprofen may be used if the possible benefit outweighs the potential danger. Approximately half (46%) of the CPs who participated in the study stated that using St. John's Wort during the first trimester is not advised.

A total of 79 (52.7%) CPs stated that vitamin A supplements are not safe as dietary supplements. Most CPs (129, 86%) were aware that pregnant women should not use isotretinoin. For medications that affect the central nervous system, approximately 56.3% of CPs correctly identified that lamotrigine should only be used if the possible benefit outweighs the potential danger, while approximately 87.6% of CPs correctly identified that valproic acid is unsafe. Only 10% (15) of the participants scored below 12, while 90% (135) scored between 13 and 24 (average to high). Table 2 provides more information on the CPs' understanding of medicines during pregnancy. Significant correlations between age ($p=0.025$) and the number of years in practice as a CP ($p=0.042$) were found.

Table 2 CPs' awareness about drugs most commonly used during pregnancy (The authors)

Drug	Unsafe (n (%))	Must weigh risks and benefits (n, (%))	Safe (n, (%))	Not sure (n, (%))
Acetaminophen	17 (11.3)	27 (18.0)	99 (66.0)	7 (4.7)
Alprazolam	112 (74.7)	24 (16.0)	2 (1.3)	12 (8.0)
Amoxicillin	17 (11.3)	30 (20.0)	96 (64.0)	7 (4.7)
Aspirin	53 (35.3)	49 (32.7)	25 (16.7)	23 (15.3)
Bismuth subsalicylate	61 (40.7)	40 (26.7)	10 (6.7)	39 (26.0)
Blue cohosh	48 (32.0)	48 (32.0)	10 (6.7)	44 (29.3)
Budesonide	44 (29.3)	52 (34.7)	26 (17.3)	28 (18.7)
Caffeine	59 (39.3)	47 (31.3)	28 (18.7)	16 (10.7)
Ciprofloxacin	76 (50.7)	51 (34.0)	9 (6.0)	14 (9.3)
Dextromethorphan HBr	57 (38.0)	47 (31.3)	16 (10.7)	30 (20.0)
Guaifenesin	42 (28.0)	52 (34.7)	32 (21.3)	24 (16.0)
Ibuprofen	60 (40.0)	42 (28.0)	25 (16.7)	23 (15.3)
Isotretinoin	129 (86.0)	9 (6.0)	4 (2.7)	8 (5.3)
Killed influenza vaccine	59 (39.3)	26 (17.3)	31 (20.7)	34 (22.7)
Lamotrigine	65 (43.3)	56 (37.3)	10 (6.7)	19 (12.7)
Oral contraceptives	106 (70.7)	7 (4.7)	12 (8.0)	25 (16.7)
Paroxetine	113 (75.3)	19 (12.7)	7 (4.7)	11 (7.3)
Phenobarbital	103 (68.7)	25 (16.7)	2 (1.3)	20 (13.3)
Pseudoephedrine HCl	78 (52.0)	43 (28.7)	10 (6.7)	19 (12.7)
Ranitidine	34 (22.7)	49 (32.7)	54 (36.0)	13 (8.7)
Senna	61 (40.7)	47 (31.3)	8 (5.3)	34 (22.7)
St. John's Wort	69 (46.0)	37 (24.7)	10 (6.7)	34 (22.7)
Statins	84 (56.0)	31 (20.7)	7 (4.7)	28 (18.7)
Tetracycline	128 (85.3)	5 (3.3)	3 (2.0)	14 (9.3)
Valproic Acid	87 (58.0)	31 (20.7)	8 (5.3)	24 (16.0)

Continuation of Table 2					
Vitamin A	79 (52.7)	24 (16.0)		26 (17.3)	21 (14.0)

3.3. Community Pharmacists' Practices for Treating Disorders in Pregnant Women

Of the CPs surveyed, 80 (53.3%) indicated a preference for referring patients with generalized anxiety disorder (GAD) to specialists, 90 (60.0%) expressed a similar preference for patients experiencing depressed mood, and 95 (63.3%) for those diagnosed with major depressive disorders. In cases of the flu, 98 (65.3%) CPs recommended OTC treatments. Moreover, 56 (37.3%) CPs dispensed prescribed medications for asthma and urinary tract infections. For cases of chronic insomnia, 76 (50.7%) CPs leaned toward specialist referral. For a comprehensive overview of CP recommendations regarding the management of various conditions, please refer to Table 3.

Table 3 Community pharmacists' practices for treating disorders in pregnant women (The authors)

Disorders	OTC (n (%))	Prescription (n (%))	Specialist referral (n (%))	Counselling (n (%))	Others (n (%))
Generalized Anxiety Disorder	16 (10.7)	50 (33.3)	80 (53.3)	3 (2.0)	1 (.7)
Depressed Mood	14 (9.3)	39 (26.0)	90 (60.0)	7 (4.7)	
Major Depressive Disorder	16 (10.7)	29 (19.3)	95 (63.3)	8 (5.3)	2 (1.3)
Urinary Tract Infection	26 (17.3)	56 (37.3)	65 (43.3)	1 (.7)	2 (1.3)
Asthma	31 (20.7)	56 (37.3)	60 (40.0)	3 (2.0)	
Diabetes	25 (16.7)	48 (32.0)	72 (48.0)	5 (3.3)	
Flu	98 (65.3)	14 (9.3)	30 (20.0)	8 (5.3)	
Hypertension	18 (12.0)	59 (39.3)	69 (46.0)	4 (2.7)	
Chlamydia	24 (16.0)	52 (34.7)	70 (46.7)	3 (2.0)	
Frequent/severe headaches	53 (35.3)	35 (23.3)	52 (34.7)	10 (6.7)	1 (.7)
Chronic insomnia	22 (14.7)	39 (26.0)	76 (50.7)	13 (8.7)	

Note: The total percentage may not be 100 as multiple answers were allowed.

A total of 90.7% (136) of the CPs did not prescribe a drug during pregnancy because they felt they lacked sufficient knowledge of the drug's possible effects on the fetus. In cases where pregnant patients ingested a teratogenic drug during the first trimester of pregnancy, 82% (123) of the CPs reported making specialist referrals. Table 4 provides a description of drugs for pregnant women suggested by CPs.

Table 4 CPs' practice of prescribing/suggesting drugs for pregnant women (The authors)

Questions	Frequency	%
Have you ever prescribed/suggested a medication during pregnancy without sufficient information on its impact on the fetus?		
No	136	90.7%
Yes	14	9.3%
Are there medical conditions in pregnancy that you refrain from prescribing because of insufficient information?		
No	123	82.0%
Yes	27	18.0%

3.4. Community Pharmacists' Barriers to Accessing Information about Medication's Effects on Fetuses

Barriers identified by CPs encompassed time constraints, with 126 (84%) indicating a lack of time to access information regarding the effects of medication on the fetus. Monetary limitations were also noted as some CPs faced challenges in subscribing to reliable scientific journals, purchasing textbooks, and securing internet subscriptions to databases such as PubMed. The FDA website emerged as the most frequently used source of drug-related information among CPs (77.8%), followed by Micromedex (25%). Additionally, CPs reported using books and journal articles as resources to enhance their understanding of drug safety during pregnancy. Further insights into the obstacles faced by CPs in learning about the impacts of medication on fetuses are provided in Fig. 2.

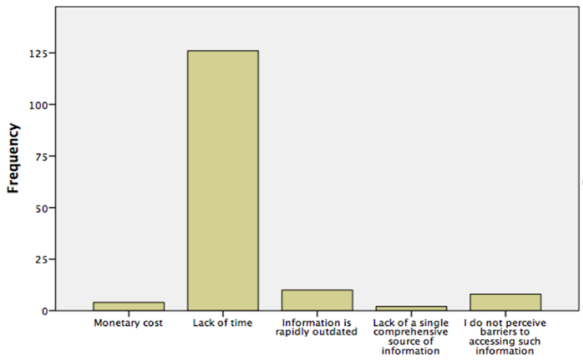

Fig. 2 CP barriers to accessing information about medication's effect on the fetus (The authors)

3.5. Community Pharmacists' Self-Reported Training on Teratogenic Effects of Selected Drug Categories Used during Pregnancy

More than half (87, 58%) of the participants

claimed to have adequate training on the use of OTC drugs during pregnancy. Table 5 provides information on the CPs' training on drug usage during pregnancy.

Table 5 Self-reported training of CPs on the effects of teratogenic potential of the following categories (The authors)

Categories	Comprehensive (n (%))	Adequate (n (%))	Barely adequate (n (%))	Inadequate (n (%))	Non-existent (n (%))
Prescription Medication	26 (17.3)	75 (50.0)	26 (17.3)	17 (11.3)	6 (4.0)
OTC Medication	30 (20.0)	87 (58.0)	18 (12.0)	10 (6.7)	5 (3.3)
Dietary Supplements or Herbal Remedies	23 (15.3)	56 (37.3)	35 (23.3)	29 (19.3)	7 (4.7)

4. Discussion

This study aimed to examine the attitudes and practices of CPs regarding medication use during pregnancy. CPs frequently encountered pregnant and breastfeeding patients in their daily work routine. The majority of participants were relatively young and had 6-10 years of experience as CPs, which aligns with previous reports [15]. CPs play a crucial role in the healthcare system, serving as a direct source of drug information for the public. Additionally, they have the responsibility of ensuring safe use of medications among special populations, such as pregnant women, by providing guidance on the rational use of drugs and preventing adverse drug reactions [10]. A recent review of 14 articles emphasized the involvement of CPs in maternal and child health services, including providing advice on breastfeeding, addressing symptoms such as back pain, and advising on nutritional interventions, such as vitamin use during pregnancy [18]. The CPs demonstrated awareness of potential side effects of vitamin A supplements, which are recommended by the World Health Organization (WHO) solely for pregnant women in areas where vitamin A deficiency is a significant public health concern, particularly to prevent night blindness [19].

The use of antibiotics during pregnancy can have adverse effects on the neonatal gut microbiome and subsequently impact the health of infants, leading to conditions such as childhood atopy, intestinal disorders, metabolic abnormalities, brain abnormalities, and infections [20]. A recent retrospective study conducted at Johns Hopkins Aramco Healthcare (JHAH), Saudi Arabia, found that approximately 48% of pregnant women received antimicrobials at some point during their pregnancy, which could pose risks to both the women and their foetuses [21]. Therefore, it is crucial for CPs to provide counseling on the rational use of antibiotics, including medications such as amoxicillin and tetracycline, by specifically monitoring pregnant women. However, a notable observation from this study was that a significant number of CPs demonstrated a lack of awareness regarding the use of tetracycline among pregnant women, thereby increasing the potential risk of drug-related issues.

The use of low-dose aspirin is crucial for preventing serious maternal health complications associated with preeclampsia, such as eclamptic seizures, stroke, organ damage, and death [22]. However, the participants expressed uncertainty regarding the use of aspirin during pregnancy. A recent evaluation of a novel live continuing pharmacy education program aimed at supporting healthy pregnancies and motivating pharmacists to implement relevant interventions in their practice showed an increase in pharmacists' comfort level in identifying and advising patients who may benefit from progesterone injection for the prevention of preterm birth and low-dose aspirin for the prevention of preeclampsia [23]. In the Saudi healthcare system, continuous professional development (CPD) is well established, with the Saudi Commission for Health and Services (SCFHS) requiring all practicing pharmacists to participate in CPD programs and earn a minimum of 20 CPD points per year through educational and training activities. Therefore, providing CPs with valuable CPD programs and training can enhance their knowledge and confidence in counseling pregnant women, thus enabling them to offer effective reproductive health services at the community level [24, 25]. The self-reported training of the study participants indicated adequacy of the knowledge of OTC medications compared with prescription medicines, dietary supplements, and herbal remedies used during pregnancy. This further emphasizes the need for targeted training programs for CPs in these specific areas.

The majority of CPs participating in this study expressed a preference for referring patients to specialists to ensure the safe use of drugs affecting the central nervous system (CNS) during pregnancy. The decision to prescribe antidepressants during pregnancy presents significant challenges, with general practitioners often contacting pharmacies for guidance on drug use in pregnant patients [26], highlighting the importance of pharmacists' knowledge, training, and research in this area [27]. Although the concept of pharmaceutical care is relatively new to Saudi community pharmacies, the general regulations encompass legal requirements such as the need for prescriptions to dispense prescription-only medicines [28]. In line with these regulations, most study participants reported practicing safe medication management, referring pregnant women who had ingested a teratogenic drug to specialists.

Among the barriers, lack of time was the most cited reason for not accessing information and upgrading

knowledge on safe use of medication during pregnancy. It is noted that there is no legislative requirement to have drug information resources for community pharmacies in Saudi Arabia; however, many chain pharmacies have subscriptions to drug databases such as Micromedex, UpToDate, and Lexicomp as drug information resources for community pharmacists. Since CPs are in a prime position to encourage safe use of medicines, access to drug information resources is critical for them to stay up to date [29]. Ideally, it should be mandated by policy for every community pharmacy to maintain updated and convenient drug information sources. Furthermore, regulatory authorities must ensure that community pharmacists demonstrate adequate skills in using drug information sources to address medication-related queries.

The present study has several limitations that should be considered. First, the study was conducted exclusively in the Qassim region of Saudi Arabia, which may restrict the generalizability of the findings to community pharmacists in other regions of the country. Therefore, caution should be exercised when extrapolating the results to the broader population of Saudi Arabia. Secondly, the use of a self-administered questionnaire introduces the possibility of information sharing among participants, which could lead to socially desirable responses. To mitigate this potential bias, future research could employ direct observation of pharmacists' practices instead of relying solely on self-assessment tools. This approach would provide a more objective and accurate assessment of their knowledge and behaviors.

5. Conclusion

In conclusion, this study revealed that CPs in Saudi Arabia possess a moderate level of knowledge regarding drugs used in pregnancy. The findings of this study provide a baseline understanding for future research to delve deeper and gather more comprehensive data in this area. The results underscore the urgent need for continuing education and professional development initiatives to bridge the knowledge gaps and enhance pharmacists' role in promoting antenatal health. Furthermore, there is a clear demand for an expanded scope of practice for CPs in Saudi Arabia. Based on the outcomes of this study, it is recommended that well-structured nationwide professional development programs be implemented to support CPs in delivering patient-centered care throughout the country. In addition, efforts should be made to reduce the administrative burden on CPs and ensure the availability of high-quality literature to facilitate effective counseling on medication use for pregnant women in Saudi Arabia.

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