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Attitudes and Challenges of Bulgarian Community Pharmacists in Delivering Pharmaceutical Care to Pregnant Women

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ABSTRACT

This research explored community pharmacists' perspectives and the obstacles they encounter when delivering pharmaceutical care to pregnant women in Bulgaria. A cross-sectional online questionnaire was distributed to pharmacists in the Plovdiv region, featuring 18 Likert-scale items designed to capture their views and challenges related to this aspect of practice. Responses were obtained from 122 pharmacists. Nearly all participants (90%) believed that pharmacist-led care could significantly enhance both the well-being and health awareness of pregnant women. The notion that such care offers professional fulfillment achieved the highest average score (4.61). Nonetheless, about half of the respondents (50.8%) expressed hesitation due to concerns about bearing responsibility for therapeutic outcomes. The most prominent difficulty cited was insufficient time (mean = 4.10), followed by limited access to continuing education (83.9%) and the absence of digital medical records for pregnant women (68.9%). In summary, pharmacists in Bulgaria generally show favorable attitudes toward providing care to pregnant women, yet targeted educational programs and practical workshops are essential to strengthen their involvement in this field.

Keywords: Bulgaria, Pregnancy, Pharmaceutical care, Community pharmacists

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Introduction

Pharmacy is a continuously advancing profession in which pharmacists apply their expertise and skills to address patients' healthcare needs. Beyond their conventional responsibilities of dispensing medications and providing counseling, pharmacists play an active role in delivering pharmaceutical care—a process that involves assuming accountability for therapeutic outcomes and monitoring treatment progress. They also guide patients toward the safe and rational use of medicines [1].

Pharmaceutical care represents a cornerstone of contemporary pharmacy practice, requiring direct pharmacist–patient interaction to assess medication needs accurately and close collaboration with other healthcare providers to attain optimal therapeutic results [2]. The term "pharmaceutical care" was first introduced by Hepler and Strand in 1990, who defined it as "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life." These outcomes include: (1) curing disease, (2) alleviating or minimizing symptoms, (3) halting or delaying disease progression, and (4) preventing disease or symptom occurrence [3]. The American Pharmacists Association later refined this concept in its "Principles of Practice for Pharmaceutical Care" [4], highlighting the importance of a caring relationship with the patient [5]. In 2013, the Pharmaceutical Care Network Europe (PCNE) offered a revised definition, describing pharmaceutical care as the pharmacist's contribution to optimizing medicine use and improving health outcomes [6].

Over four decades, this concept has demonstrated the pharmacist's evolving role as an essential member of the multidisciplinary healthcare team, sharing responsibility for patient health outcomes. The model has been successfully integrated into healthcare systems across Europe for more than two decades [2, 7].

Although pregnancy is a natural physiological process, it brings about significant physiological changes to support fetal growth and ensure a successful outcome [8]. Both acute and chronic conditions often require pharmacological intervention during pregnancy. Given their accessibility, pharmacists frequently serve as the first healthcare contact for pregnant women seeking advice about medication use [9, 10]. Because many pregnancies are unplanned, women may already be using medication at the time of conception and turn to the pharmacy for guidance to ensure their safety and that of the fetus [10]. It is estimated that up to 80% of women take at least one medication during pregnancy [11]. Many expectant mothers regard pharmacists as trustworthy sources of drug-related information [12], and pharmacists play an essential role in preventing the use of contraindicated medicines during this period.

Ensuring the safe use of medications during pregnancy forms a critical component of prenatal care, with physicians and pregnant women frequently consulting pharmacists for expert input. One of the most extensive studies on medication safety in pregnancy identified physicians, package leaflets, and pharmacists as the three primary sources of drug information for expectant mothers [11].

Recognizing this importance, the International Pharmaceutical Federation (FIP) released a policy document in 2011 outlining pharmacists' contribution to maternal and child health, structured in alignment with FIP/WHO guidelines for Good Pharmacy Practice [13].

Growing healthcare demands have highlighted the need for continuous professional development, equipping pharmacists with skills in modern care delivery, communication, adaptability, and teamwork [14]. In Bulgaria, "Pharmaceutical Care" was introduced as an elective academic subject in 2000 within the Master of Science in Pharmacy (M.Sc. Pharm.) program and became a mandatory course in 2005 [15]. While pharmacy students gain foundational knowledge on drug safety, teratogenicity, and pharmacotherapy during pregnancy through courses such as Pharmacology, Toxicology, and Pharmacotherapy, the pharmaceutical care curriculum primarily emphasizes communication skills and self-medication counseling related to prenatal care.

The present study aimed to explore the attitudes and perceived barriers of Bulgarian community pharmacists toward the provision of pharmaceutical care to pregnant women.

Materials and Methods

Study design and setting

A cross-sectional survey was conducted between July and October 2018 among community pharmacists in the Plovdiv administrative district of Bulgaria. Invitations to participate were distributed via the Regional Pharmaceutical Chamber–Plovdiv, representing 716 active members of the Bulgarian Pharmaceutical Union (as of July 2018). Data collection was carried out through an online platform, and 122 pharmacists completed and returned the questionnaire, yielding a 17% response rate.

Survey instrument

The questionnaire used in this study was designed to evaluate pharmacists' perspectives and the challenges they encounter in providing pharmaceutical care to pregnant women. It consisted of three main parts: (1) demographic and professional background; (2) attitudes toward offering pharmaceutical care for pregnant women; and (3) perceived barriers that limit such care. Sections (2) and (3) contained 18 statements in total—nine for each section—rated on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The statements were adapted from previously validated tools examining similar topics on pharmacists' attitudes and perceived obstacles in pharmaceutical care provision [16, 17]. To maintain confidentiality and encourage honest participation, the survey did not request any personal identifiers or contact information. Each questionnaire included a short description of the study's objectives, detailed completion guidelines, and a clear statement ensuring anonymity and data protection.

Statistical methods

Data analysis was performed using SPSS version 19. Descriptive statistical methods were applied to summarize the demographic and occupational profiles of participants, as well as their responses concerning attitudes and perceived barriers. Quantitative data were expressed as means and standard deviations (SD), whereas categorical data were presented as frequencies and percentages. The internal reliability of the attitude and barrier scales was

evaluated using Cronbach's alpha coefficient. Mean values and standard deviations were then used to assess the overall tendencies in pharmacists' attitudes and the obstacles they identified.

Results and Discussion

Demographic and professional characteristics

The demographic and professional information of the respondents is summarized in **Table 1**. Most participants were female (72.9%), while males accounted for 27%. The largest proportion of respondents (60.6%) was between 20 and 29 years of age, with a mean age of 32 years (ranging from 24 to 61 years). More than half (65.6%) worked in chain pharmacies. The majority of pharmacists had between one and five years of professional experience (63.1%), followed by those with six to ten years (26.2%). Pharmacy managers represented 36.9% of the respondents. Only a small number (4.1%) reported having completed postgraduate training.

Table 1. Demographic and professional characteristics of the participating pharmacists

Characteristic		Number (n)	Percentage (%)
Gender	Female	89	72.9
	Male	33	27.1
Age category (years)	20–29	74	60.7
	30–39	32	26.2
	40–49	12	9.8
	≥50	4	3.3
Professional experience (years)	1–5	77	63.1
	6–10	32	26.2
	11–15	9	7.4
	>15	4	3.3
Type of pharmacy	Independent pharmacy	42	34.4
	Chain pharmacy	80	65.6
Professional role	Manager	45	36.9
	Staff pharmacist	77	63.1
Postgraduate qualification	Yes	5	4.1
	No	117	95.9

Attitudes and barriers toward providing pharmaceutical care for pregnant women

The survey statements were designed to evaluate pharmacists' views on delivering pharmaceutical care to pregnant women. The summarized findings related to their attitudes and the obstacles identified in this process are displayed in **Tables 2 and 3**.

Table 2. Pharmacists' attitudes towards pharmaceutical care.

Statement	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)	Mean score ± SD (95% CI)
	1	2	3	4	5	
1. I believe that delivering pharmaceutical care can enhance both the health outcomes and awareness of pregnant women.	0.0%	0.0%	0.0%	41.8%	58.2%	4.58±0.50 (4.49–4.67)
2. Providing pharmaceutical care could strengthen pregnant women's understanding and appreciation of the pharmacist's professional role.	0.0%	0.8%	9%	32.8%	57.4%	4.47±0.69 (4.34–4.59)
	0.0%	0.0%	2.5%	33.6%	63.9%	4.61±0.54

3. Offering pharmaceutical care gives me a sense of personal and professional fulfillment.						(4.52–4.71)
4. I consider it my duty to help prevent and resolve health- and medication-related issues in vulnerable groups such as pregnant women.	1.6%	6.6%	12.3%	42.6%	36.9%	4.07±0.95 (3.90–4.24)
5. At present, pharmaceutical care for pregnant women is not effectively implemented in Bulgarian community pharmacies.	2.5%	9%	15.6%	43.4%	29.5.%	3.89±1.01 (3.70–4.07)
6. I do not believe that pharmaceutical care provision brings significant advantages for pregnant women.	31.1%	39.3%	9%	9.8%	10.7%	2.30±1.30 (2.06–2.53)
7. I feel uneasy about accepting the risks linked to being accountable for the treatment outcomes of pregnant women.	3.3%	24.6%	21.3%	33.6%	17.2%	3.37±1.13 (3.17–3.57)
8. Community pharmacists in Bulgaria lack sufficient expertise and competence to deliver effective pharmaceutical care.	5.7%	21.3%	23%	32%	18%	3.35±1.17 (3.14–3.56)
9. I believe I need to participate in additional training programs to effectively serve as a health adviser for pregnant women.	0.0%	3.3%	4.9%	43.4%	48.4%	4.37±0.73 (4.24–4.50)

Abbreviations: SD (standard deviation), CI (confidence interval).

Most participants (90%) agreed or strongly agreed that offering pharmaceutical care contributes to improving the health and awareness of pregnant women. The statement that providing such care gives pharmacists professional satisfaction achieved the highest mean score (4.61 ± 0.54). A large proportion of respondents (79.5%) also acknowledged that identifying and addressing health- and medication-related problems in pregnant women represents a key professional duty of pharmacists.

Furthermore, 72.9% of the pharmacists indicated that pharmaceutical care for pregnant women is currently not effectively practiced in Bulgarian community pharmacies. Approximately one-fifth (20.5%) of respondents felt that pharmaceutical care would not provide significant benefits to pregnant women, whereas 70.4% disagreed with this view. Half of the pharmacists (50.8%) expressed concern about the risks associated with taking responsibility for pregnant women's treatment outcomes, and the same proportion believed that Bulgarian pharmacists lack sufficient knowledge to deliver effective pharmaceutical care. More than 90% emphasized the need for additional training or specialized education to serve competently as health advisers for pregnant women. The internal consistency for the nine attitude items, as measured by Cronbach's alpha, was 0.587.

Table 3. Perceived barriers for providing pharmaceutical care for pregnant women.

Statement	**Strongly Disagree (%)**	**Disagree (%)**	**Neutral (%)**	**Agree (%)**	**Strongly agree (%)**	**Mean score ± SD (95% CI)**
	1	2	3	4	5	
1. Insufficient time available to deliver pharmaceutical care.	0.8%	4.9%	11.5%	49.2%	33.6%	4.10±0.85 (3.95–4.25)
2. Absence of a private area for patient consultations.	3.3%	11.5%	18%	45.1%	22.1%	3.71±1.04 (3.53–3.90)
3. Inadequate training related to providing pharmaceutical care for pregnant women.	0.8%	5.7%	9.8%	50.8%	32.8%	4.09±0.85 (3.94–4.24)
	4.1%	27%	27%	41.8%	16.4%	3.56±1.02

4. Poor communication between pharmacists and pregnant women.						(3.37–3.74)
5. Limited recognition or acceptance of the pharmacist's professional role by pregnant women.	2.5%	19.7%	19.7%	37.7%	18.9%	3.49±1.10 (3.29–3.69)
6. Insufficient knowledge regarding the safety of medications during pregnancy.	4.1%	27%	22.1%	28.7%	18%	3.30±1.17 (3.09–3.50)
7. Lack of proper documentation systems, such as software for managing patient data and other technical tools.	5.7%	23.8%	24.6%	28.7%	17.2%	3.28±1.17 (3.07–3.49)
8. Restricted access to patients' medical records.	2.5%	8.2%	20.5%	41%	27.9%	3.84±1.01 (3.66–4.02)
9. Inadequate financial support or reimbursement for the provision of pharmaceutical care.	2.5%	9.8%	13.9%	43.4%	30.3%	3.89±1.03 (3.71–4.08)

Abbreviations: SD (standard deviation), CI (confidence interval).

One of the most significant obstacles identified in providing pharmaceutical care was the shortage of time, which received the highest mean score (4.10 ± 0.85). Other notable barriers included the lack of additional training (83.9%) and the absence of access to the pregnant woman's electronic medical records (68.9%). Moreover, 73.7% of respondents considered insufficient financial support for pharmaceutical care services a major hindrance. Nearly half of the pharmacists (45.9%) believed that the absence of specialized software or technical tools negatively influences the provision of care, while 24.6% were uncertain. More than half of the respondents indicated that poor communication between pharmacists and pregnant women (58.2%), as well as women's limited willingness to receive such services (56.6%), were additional challenges. The reliability of the nine barrier statements, measured by Cronbach's alpha, was 0.756.

According to the surveyed pharmacists, the most prominent barriers to implementing pharmaceutical care for pregnant women include insufficient time, lack of access to patient databases, inadequate training, and limited funding for this service. Common organizational constraints within pharmacies—such as staff shortages, absence of private consultation spaces, and time limitations—further hinder the delivery of pharmaceutical care. These findings align with international studies, which consistently identify lack of time as a leading obstacle [16-19]. Additionally, limited reimbursement and restricted access to patient health information have been cited by various authors as key barriers to the broader adoption of pharmaceutical care [19, 20].

Across Europe, countries such as Belgium, the Netherlands, and France are recognized for their well-established pharmaceutical care systems [21]. In Bulgaria, certain aspects of pharmaceutical care have already been introduced and evaluated positively in several studies, including those focused on pregnant women [22-27].

Effective communication plays a vital role in the successful delivery of pharmaceutical care for pregnant women. Over half of the pharmacists who participated in this study reported experiencing communication-related challenges when interacting with pregnant women. Developing strong communication skills and demonstrating empathy and professionalism are essential components of competent practice [28, 29]. The growing use of modern information and communication technologies worldwide can further enhance resource efficiency and facilitate better management of pharmaceutical care [30].

A recent survey from Belgium involving 63 community pharmacists examined attitudes, barriers, and counseling practices concerning pharmaceutical care during preconception, pregnancy, and lactation. The main challenges identified were difficulty in determining women's reproductive status (71%) and insufficient education (67%) [31]. A follow-up study by the same researchers showed that a blended learning approach combining e-learning and in-person training effectively reduced these barriers and improved pharmacists' knowledge [32].

Despite being the most accessible healthcare professionals, pharmacists still exhibit gaps in knowledge and counseling practices related to medication use during pregnancy, as confirmed by several studies [33, 34] Providing effective guidance for pregnant women requires access to accurate, evidence-based information, which would strengthen the practical implementation of pharmaceutical care in this field.

The present findings highlight the need for targeted educational programs on counseling pregnant women. Continuous professional training organized by the Bulgarian Pharmaceutical Union (BPhU), in collaboration with

pharmaceutical faculties, could significantly improve pharmacists' competence and confidence regarding drug use in pregnancy.

Conclusion

In conclusion, Bulgarian community pharmacists generally express positive attitudes toward providing pharmaceutical care for pregnant women. Establishing a structured framework and professional standards for such care, as outlined in the Good Pharmacy Practice Rules of the BPhU, remains a key priority. However, the lack of a clear legal definition and limited interdisciplinary collaboration between pharmacists, physicians, and other healthcare professionals continues to impede progress. Pharmacists should take a proactive role in counseling pregnant women on the safe and rational use of medications, vitamins, and supplements. The BPhU is well-positioned to lead initiatives that promote the development and practical implementation of pharmaceutical care programs tailored to pregnant women.

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