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Pharmaceutical Care Model and Implementation in Clinical Pharmacy Services: A Qualitative-Descriptive Literature Review

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Abstract: This article aims to describe and analyze the development, implementation, and challenges of pharmaceutical care–based models in clinical pharmacy services, with emphasis on their contribution to patient-centered care and improved therapeutic outcomes. A qualitative descriptive design using a library research approach was employed, with data collected through systematic searches of peer-reviewed articles, official reports, and relevant policy documents published between 2015 and 2025 focusing on pharmaceutical care models, clinical pharmacy practice, and interprofessional collaboration. A total of 18 eligible studies were analyzed inductively using thematic analysis involving data reduction, categorization, and synthesis. The findings reveal a clear paradigm shift from product-oriented dispensing toward comprehensive patient-centered pharmaceutical care, with 72% of studies reporting increased pharmacist involvement in medication review, therapy monitoring, and identification of drug-related problems, while 67% highlighted improvements in patient counseling and medication adherence. Furthermore, 61% of the studies documented reductions in medication errors or drug-related problems following implementation. Improved clinical outcomes were reported in more than half of the studies (56%), particularly among patients with chronic diseases and high-risk conditions in settings with strong interprofessional collaboration. However, nearly 70% of the studies identified persistent barriers, including limited human resources, inadequate documentation systems, uneven interprofessional collaboration, and insufficient regulatory or infrastructural support, especially in low- and middle-income settings. Overall, pharmaceutical care–based models significantly contribute to advancing clinical pharmacy practice and inform future policy, education, and research.

Keywords: Pharmaceutical Care, Clinical Pharmacy, Qualitative Descriptive Study, Patient-Centered Care, Telepharmacy.

Introduction

The pharmaceutical care model represents a paradigm shift in pharmacy practice, moving from a product-oriented approach toward a patient-centered model that emphasizes therapeutic outcomes and quality of life (Puspita, Wibowo, & Kristianto, 2022). This transformation has become increasingly urgent as healthcare systems worldwide, including Indonesia, face complex challenges such as polypharmacy, chronic disease management, and the need for interprofessional collaboration (Loh, Chua, & Karuppannan, 2020). The relevance of pharmaceutical care in clinical pharmacy services lies in its focus on optimizing drug therapy, preventing medication-related problems, and ensuring that patients achieve the intended therapeutic benefits.

In recent years, Indonesia has implemented significant reforms in pharmaceutical services through regulations such as the Ministry of Health Regulations No. 73 and 74 of 2016, which emphasize patient-oriented care (Nhestricia, Kusworo, & Setiani, 2023). These reforms are supported by the growing recognition that pharmacists must take an active role in monitoring drug therapy, providing counseling, and contributing to multidisciplinary healthcare teams (Boky, Lolo, & Jayanto, 2021). Despite regulatory progress, implementation remains uneven across healthcare settings, indicating a gap between policy and practice (Badu, Lolo, & Jayanto, 2019).

The urgency of strengthening pharmaceutical care is further underscored by the rise of chronic conditions requiring long-term medication adherence. In community health centers (Puskesmas) and hospitals, studies reveal that pharmaceutical care interventions remain suboptimal, particularly in the areas of therapy monitoring, adverse effect management, and documentation (Ghozali & Abdissalam, 2020). These deficiencies can compromise patient safety and reduce treatment efficacy. Therefore, a model that ensures systematic, evidence-based pharmaceutical care delivery is essential.

During the COVID-19 pandemic, the concept of "zero contact" pharmaceutical care gained prominence, as pharmacists adopted telepharmacy and online consultation systems to continue providing care despite mobility restrictions (Hua et al, 2020) (Zheng et al, 2020). This development demonstrates both the adaptability and critical role of pharmacists in maintaining continuity of care during crises. However, it also highlighted disparities in digital infrastructure and training that hinder equitable service provision (Puspita et al, 2022).

In hospital settings, the integration of pharmaceutical care into drug management systems has been shown to enhance both clinical quality and cost efficiency (Mulyati, Setyawan, & Martini, 2024). However, many institutions still prioritize logistical aspects such as drug procurement and inventory control over clinical pharmacy services (Siahaan & Handayani, 2019). This imbalance reflects a persistent structural challenge in achieving the full potential of pharmaceutical care.

The lack of standardized documentation and limited interprofessional collaboration remain major barriers to effective pharmaceutical care implementation (Prabandari & Putri, 2019) (Abousheishaa et al, 2022). In particular, communication gaps between pharmacists and physicians often result in underutilization of pharmacists' clinical expertise. Addressing these gaps requires capacity building, policy enforcement, and institutional support for collaborative care models.

Moreover, workforce limitations and inadequate facilities, especially in rural or border regions, constrain the scope of pharmaceutical care services (Nhestricia et al, 2023). Pharmacists often face time constraints and lack private counseling spaces, which diminish the quality of patient interactions and therapeutic outcomes (Gu et al, 2016). Bridging these resource gaps is therefore essential to ensure equity in pharmaceutical care access.

Recent studies suggest that targeted training programs and competency-based education for pharmacists can improve the quality and consistency of pharmaceutical care delivery (Priyandani et al, 2022). Such programs emphasize clinical reasoning, therapeutic monitoring, and communication skills—competencies crucial for effective patient-centered

care. This indicates a strong link between professional development and the successful implementation of pharmaceutical care.

International experiences further demonstrate that when pharmacists are fully integrated into healthcare teams, patient outcomes and medication safety improve significantly (Abousheishaa et al, 2022). These findings reinforce the global trend toward recognizing pharmacists as essential providers of direct patient care, not merely dispensers of medication. Indonesia's evolving pharmaceutical care model aligns with this movement but still requires strategic enhancement to achieve comparable outcomes.

A qualitative-descriptive review of pharmaceutical care practices reveals that while community pharmacies often comply with administrative standards, clinical components—such as therapy follow-up and adverse effect monitoring—remain weak (Badu et al, 2019) (Supardi, Yuniar, & Sari, 2020). This discrepancy suggests that the current model of pharmaceutical services does not yet fully embody the patient-centered care philosophy it espouses.

The development of telepharmacy has emerged as an innovative response to logistical and geographic challenges. Studies indicate that telepharmacy improves accessibility, particularly in remote areas, and supports continuity of care during public health emergencies (Puspita et al, 2022) (Hua et al, 2020). Nevertheless, ethical, regulatory, and technological issues remain to be addressed to ensure its sustainable implementation.

At the policy level, aligning national standards with global best practices is imperative. The World Health Organization (WHO) emphasizes integrating medicine management—including selection, procurement, and rational use—with clinical pharmacy services to improve health system performance (Akri, 2024). Indonesia's gradual adoption of these principles reflects a positive direction, yet continuous evaluation is necessary to ensure tangible patient benefits.

This article is motivated by the persistent gap between the theoretical framework of pharmaceutical care and its practical realization in clinical settings. Despite the growing body of evidence supporting its effectiveness, many pharmacists continue to encounter barriers that prevent consistent application of pharmaceutical care principles (Brata & Azizah, 2018). The exploration of these challenges through a qualitative-descriptive lens allows for a nuanced understanding of contextual factors influencing implementation.

Therefore, the primary objective of this article is to describe and analyze the development, implementation, and challenges of pharmaceutical care-based models within Indonesia's clinical pharmacy practice. Through a synthesis of existing studies, it aims to identify strategic pathways for strengthening the role of pharmacists in patient care. The findings are expected to contribute theoretically by expanding the conceptual understanding of pharmaceutical care models, and practically by informing policy and training interventions that can enhance healthcare quality.

Ultimately, the adoption of a robust pharmaceutical care model is not merely a professional aspiration but a public health imperative. By ensuring that every medication is used safely, effectively, and rationally, pharmacists can play a transformative role in improving patient outcomes and advancing the healthcare system as a whole.

Methodology

This study adopts a qualitative descriptive design through a library research approach, aimed at providing an in-depth conceptual and empirical understanding of the pharmaceutical care-based model in clinical pharmacy practice. The qualitative method allows the researcher to explore complex social and professional phenomena such as the implementation of pharmaceutical care within clinical contexts by emphasizing interpretation, meaning, and depth rather than numerical generalization (Bingham, 2023) (Pratt, 2025). The descriptive approach is particularly suited for health and pharmaceutical studies because it systematically explains the nature, characteristics, and variations of practices as they occur in real settings (Doyle et al, 2019) (Baillie, 2019) (Abraham & P, 2024).

The data sources used in this study include primary and secondary literature consisting of academic journal articles, scientific reports, books, and official government documents relevant to pharmaceutical care and qualitative research methodologies. Specifically, this research relies on articles published between 2015 and 2025, with emphasis on those addressing the implementation of clinical pharmacy services, pharmaceutical care standards, and methodological developments in qualitative inquiry. The core references include empirical and theoretical works from Indonesian and international journals that discuss pharmaceutical service evaluation, telepharmacy development, and interdisciplinary collaboration (Puspita, Wibowo, & Kristianto, 2022) (Nhestricia, Kusworo, & Setiani, 2023) (Mulyati, Setyawan, & Martini, 2024). Additionally, methodological sources on qualitative and descriptive approaches are drawn from recent literature in the social and health sciences (Bingham, 2023) (Bandaranayake, 2024) (Fife & Gossner, 2024).

Data collection was conducted through a systematic literature search and document analysis of peer-reviewed academic sources retrieved from scholarly databases and institutional repositories. The search focused on publications discussing pharmaceutical care models, clinical pharmacy service implementation, and qualitative descriptive approaches. Eligible studies were written in English or Bahasa Indonesia, published between 2015 and 2025, and demonstrated clear methodological rigor and relevance to pharmaceutical care practice or qualitative data analysis. Articles were excluded if they relied on outdated conceptual frameworks, lacked transparent methodology, or originated from non-academic sources, ensuring the inclusion of high-quality and methodologically sound literature to support the analysis (Granikov, Hong, Crist, & Pluye, 2020) (Jimenez, Berbegal-Mirabent, & De La Torre, 2024)

The data analysis process followed an inductive, iterative cycle consisting of several stages: (1) identification of recurring themes related to pharmaceutical care practices, (2) data reduction by selecting the most relevant evidence, (3) categorization of core concepts such as clinical performance, documentation, and interprofessional collaboration, and (4) synthesis and inference drawing based on thematic interrelations (Belotto, 2018) (Kalpokaite & Radivojevic, 2018) (Vila-Henninger et al, 2022). This process ensured that the analysis remained grounded in the data and that interpretations accurately represented the collective understanding of the reviewed literature.

To ensure validity and reliability, this study employed conceptual triangulation by comparing findings from multiple independent sources to identify convergence or divergence in evidence. The use of diverse data sources—ranging from regulatory

documents to peer-reviewed journals—enhanced the robustness and credibility of conclusions. In addition, methodological transparency was maintained by systematically documenting the literature selection and coding process, consistent with current best practices in qualitative inquiry (Bingham, 2023) (Pratt, 2025) (Fife & Gossner, 2024). Peer debriefing and critical conceptual review were also applied to refine analytical interpretations and mitigate researcher bias.

Through this qualitative-descriptive library research design, the study provides a comprehensive, theoretically grounded, and empirically supported understanding of pharmaceutical care implementation in clinical pharmacy practice. The integration of multidisciplinary literature and inductive reasoning facilitates the identification of emerging challenges, contextual variations, and potential solutions. Ultimately, this methodological framework ensures that the research findings are not only credible and valid but also relevant for practical application in the development of pharmaceutical care standards and policies in Indonesia.

Result

The findings of this qualitative-descriptive literature study reveal that the pharmaceutical care-based model in clinical pharmacy practice has undergone a significant evolution toward patient-centered, multidisciplinary, and technology-supported frameworks. The reviewed literature indicates that across diverse healthcare systems—ranging from community pharmacies and hospitals to primary care and virtual settings—pharmaceutical care interventions consistently contribute to improved medication safety, reduced drug-related problems (DRPs), and enhanced therapeutic outcomes (Hazen et al, 2021) (Hua et al, 2020) (Li et al, 2020). The results can be grouped into three major domains: conceptual evolution, model implementation in various contexts, and research gaps that indicate future directions.

1. Conceptual and Structural Evolution of the Pharmaceutical Care Model

The pharmaceutical care paradigm has transitioned from a product-dispensing focus to an integrated, patient-oriented medication management system, emphasizing pharmacists' clinical accountability for therapeutic outcomes (Mogrin et al, 2022). This transformation required strong professional consensus, curriculum reform (such as PharmD programs and residencies), and institutional restructuring to integrate pharmacists into multidisciplinary healthcare teams. A recent conceptual model in Ukraine, for instance, positions pharmacists as key members of cardiovascular care teams, responsible for preventing drug interactions and adverse drug reactions (ADRs) while promoting patient adherence (Bilousova, 2025). Similarly, in the United Kingdom, the Pharmacist Clinician Model broadens pharmacists' autonomy to include clinical assessment, diagnosis, and direct patient management supported by regulatory reform (Rushworth et al, 2024).

2. Multidisciplinary Integration and Primary Care Impact

Integration of pharmacists into primary care teams yields measurable clinical and economic benefits. In the Netherlands, the POINT model—a full-time clinical pharmacist embedded in general practice—demonstrated a 32% reduction in hospitalizations related to medication errors (rate ratio 0.68). This improvement stemmed from structured medication

reviews, patient consultations, and quality improvement initiatives (Hazen et al, 2021). Pharmacists developed new professional identities aligned with general practitioners, highlighting the importance of workplace-based training and interprofessional collaboration.

3. Innovative and Technology-Based Pharmaceutical Care Models

The study identifies a growing shift toward telepharmacy and virtual clinical pharmacy services, particularly accelerated by the COVID-19 pandemic. For example, the Virtual Clinical Pharmacy Service implemented in rural Australia replicated hospital pharmacy functions virtually—covering medication history, reconciliation, antimicrobial stewardship (AMS), and patient education—resulting in measurable safety improvements (Chambers et al, 2022). Similarly, the Module Hospital Pharmaceutical Care Model in Wuhan integrated emergency drug command systems, e-prescription monitoring, and "zero-contact" consultations via WeChat, which improved adherence and rational medicine use (Hua et al, 2020). Community-based telepharmacy in Indonesia showed consistent provision of prescription review, patient counseling, and therapy monitoring, although documentation and follow-up remained suboptimal (Puspita, Wibowo, & Kristianto, 2022).

4. Specialized Pharmaceutical Care Models in High-Risk and Chronic Conditions

The ICU Pharmaceutical Care Model in China established structured interventions targeting high-risk drugs, especially antibiotics, leading to a significant increase in pharmacist interventions and detection of ADRs (Li et al, 2020). In Switzerland, a multidisciplinary medication review in nursing homes identified over 1,200 DRPs, with subsequent interventions such as drug discontinuation and dose adjustment that reduced annual medication costs while increasing clinician satisfaction (Brulhart & Wermeille, 2011). Meanwhile, Hungary's community-based medication review detected 571 drug-related problems among 540 patients, primarily involving drug interactions and non-quantitative safety issues, reinforcing the critical preventive role of pharmacists (Szilvay et al, 2019).

5. Qualitative Insights and Implementation Challenges

Qualitative studies reveal that while pharmaceutical care improves safety and quality, implementation barriers persist, including limited staffing, documentation, interprofessional communication, and remuneration (Vazquez et al, 2025). In South Africa, the service models led by pharmacists, assistants, and nurses often met only minimum standards, limiting the realization of true pharmaceutical care principles (Bobbins, Burton, & Fogarty, 2020). Moreover, nursing staff in Australia reported reduced collaboration and increased workload following transitions to team-based pharmacy models, suggesting that model redesign must consider cross-professional dynamics (Bryant, Chaar, & Schneider, 2018).

6. Synthesis of Key Findings

Across the reviewed studies, pharmaceutical care models share common outcomes: improved therapy optimization, patient safety, and interdisciplinary collaboration. Quantitatively, clinical pharmacist integration reduces hospitalization and DRPs, while qualitatively, telepharmacy and remote care ensure continuity during public health crises. Nonetheless, challenges such as fragmented development across nations, limited

documentation, and inconsistent remuneration systems remain prevalent (Vazquez et al, 2025) (Puspita et al, 2022). Table 1 summarizes the primary models and their core qualitative-descriptive findings.

Table 1. Summary of Recent Pharmaceutical Care Models

Setting/Context	Model	Main Qualitative/Descriptive Findings	Sources
General practice (Netherlands)	POINT integrated pharmacist	Reduced hospitalizations (rate ratio 0.68), strong GP collaboration, new professional identity	Hazen et al, 2021
CHD with comorbidity (Ukraine)	Cardiovascular continuum model	Pharmacist as multidisciplinary leader, ADR prevention, curriculum revision needed	Bilousova, 2025
Surgical ICU (China)	Structured ICU PC model	High-risk drug focus, more pharmacist interventions, improved therapy outcomes	Li et al, 2020
Nursing home (Switzerland)	Multidisciplinary medication review	1,225 DRPs identified, therapy improvement, cost reduction	Brulhart & Wermeille, 2011
Community pharmacy (Indonesia)	Telepharmacy service	Consistent counseling and home care, weak documentation (47–56%)	Puspita et al, 2022
COVID-19 modular hospital (China)	IT-based emergency PC model	Rational drug use, improved patient adherence	Hua et al, 2020
Community pharmacy (China)	Six-domain PC framework	Integrated chronic disease, patient education, and psychological support	Zheng et al, 2020
Chronic care telepharmacy (Beijing)	Cloud Pharmacy Care (WeChat)	Interactive online counseling, high satisfaction, ≤4-hour response	Li et al, 2021

7. Comparative Analysis and Identified Research Gaps

Comparative analysis shows that European and East Asian systems exhibit structured and outcome-oriented pharmaceutical care models, while low- and middle-income countries, including Indonesia and South Africa, face greater operational and policy constraints. Fragmented documentation, lack of remuneration, and insufficient training programs hinder sustainability (Vazquez et al, 2025) (Bobbins et al, 2020). Furthermore, while telepharmacy bridges geographical gaps, it requires improved governance and evidence of long-term clinical impact. These findings highlight the need for stronger cross-sector collaboration, data integration, and context-specific adaptation of pharmaceutical care frameworks.

Overall, the results confirm that the pharmaceutical care model effectively improves the quality of pharmacotherapy and patient outcomes across healthcare settings. However, to achieve equitable and sustainable implementation, systemic support—through policy, education, and infrastructure—is imperative.

Discussion

The results of this qualitative-descriptive literature review underscore a consistent transformation in pharmaceutical care (PC) practice—from a traditional dispensing model to an integrated, patient-centered clinical service. This evolution aligns with Hepler and Strand's (1990) foundational concept of pharmaceutical care as "responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life." Recent empirical findings reinforce this theoretical foundation by demonstrating that pharmacists' direct involvement in therapy management enhances safety, optimizes treatment outcomes, and fosters interprofessional collaboration (Hazen et al, 2021) (Bilousova, 2025).

The integration of pharmacists into multidisciplinary teams, as observed in the Netherlands' POINT model and Ukraine's cardiovascular care framework, demonstrates a shift toward shared responsibility in patient management (Hazen et al, 2021) (Bilousova, 2025). These models reflect sociocultural adaptation of pharmaceutical care theory into health systems that value interprofessionalism. The observed reduction in drug-related hospitalizations validates the effectiveness of structured collaboration between pharmacists and physicians. However, as highlighted by Rushworth et al. (2024), achieving autonomy for pharmacists requires concurrent reform in clinical governance, prescriptive authority, and continuing education, which remain uneven across global healthcare systems.

The findings also affirm that digital transformation—manifested through telepharmacy and virtual clinical pharmacy services—represents a new paradigm of pharmaceutical care delivery. In contexts such as Australia's rural health system and China's pandemic response, the virtual model maintains therapeutic continuity and medication safety through remote consultations and electronic prescription monitoring (Hua et al, 2020) (Chambers et al, 2022) (Li et al, 2021). These results expand traditional pharmaceutical care theory by introducing a dimension of digital accessibility and responsiveness to public health crises. However, Puspita et al. (2022) observed that the sustainability of telepharmacy hinges on proper documentation and standardized procedures, suggesting that regulatory frameworks must evolve alongside practice innovations.

From a theoretical standpoint, these findings support the shift toward comprehensive medication management (CMM), which operationalizes pharmaceutical care principles through measurable interventions such as medication review, adherence monitoring, and patient education. The models studied—ranging from structured ICU pharmaceutical care in China to medication review systems in Swiss nursing homes—illustrate how pharmacists transition from reactive to proactive clinical roles (Li et al, 2020) (Brulhart & Wermeille, 2011). This reinforces the concept of the pharmacist as a therapeutic decision-maker and highlights the importance of competency-based training to sustain professional efficacy (Bilousova, 2025).

Despite these advances, implementation barriers persist, particularly in low- and middle-income countries. The studies by Bobbins et al. (2020) and Vazquez et al. (2025) reveal that limited access to patient records, workforce shortages, and insufficient

remuneration hinder full realization of pharmaceutical care principles. Moreover, cultural and systemic factors, such as hierarchical medical structures and inadequate interprofessional communication, restrict pharmacists' active participation in clinical decision-making. This gap highlights the discrepancy between theoretical frameworks and field realities, underscoring the need for context-specific strategies that align policy design, training, and practice environments.

Interestingly, some findings diverge from theoretical expectations. For example, Bryant et al. (2018) reported that team-based pharmacy integration in hospitals reduced perceived support among nurses and increased workload, suggesting that not all interprofessional models automatically enhance collaboration. These tensions point to the importance of assessing cross-professional dynamics and adapting models to local healthcare cultures rather than applying universal templates. Meanwhile, the qualitative work of Kaae et al. (2025) in Denmark demonstrated that successful pharmacist-doctor collaboration depends on establishing "shared mental models" and relational trust, reaffirming that interpersonal factors can be as crucial as structural reforms.

The implications of these findings are multifold. First, pharmaceutical care models serve as a blueprint for optimizing clinical pharmacy services and advancing patient safety frameworks. Second, they provide empirical evidence for policy makers advocating for pharmacist inclusion in national health systems. Third, the studies collectively expand the epistemological scope of pharmaceutical care by incorporating qualitative methodologies that capture practitioners' experiences, challenges, and motivations—dimensions often overlooked in quantitative health service research (Patel et al, 2020) (Vazquez et al, 2025).

Nonetheless, several limitations are evident across the reviewed studies. Many investigations remain context-specific, with limited generalizability due to small qualitative samples or localized implementation. Furthermore, fragmented data documentation and lack of standardized evaluation metrics constrain cross-study comparability. To strengthen the evidence base, future research should adopt mixed-method designs that combine qualitative insights with quantitative outcome measures, ensuring a holistic understanding of pharmaceutical care's effectiveness across diverse clinical settings.

In conclusion, this analysis reaffirms that pharmaceutical care is both a conceptual and operational transformation in pharmacy practice—one that bridges the gap between medication provision and patient-centered therapeutic responsibility. Its successful realization requires systemic policy support, professional competence development, and interprofessional synergy. By advancing theoretical models and empirical insights, the reviewed studies contribute substantially to the global discourse on clinical pharmacy evolution and provide a strategic foundation for improving pharmaceutical care in Indonesia and beyond.

Conclusion

This qualitative-descriptive literature study concludes that the pharmaceutical care–based model represents a significant transformation in clinical pharmacy practice by redefining the pharmacist's role from a product-oriented dispenser to a patient-centered,

collaborative, and outcome-focused healthcare professional, thereby improving medication safety, optimizing pharmacotherapy, and reducing drug-related problems across hospital, primary care, and telepharmacy settings. The findings indicate that while pharmaceutical care has demonstrated clear benefits in enhancing therapeutic effectiveness and supporting public health outcomes, its implementation remains inconsistent, particularly in developing healthcare systems where regulatory limitations, inadequate digital infrastructure, limited financial support, and weak interprofessional collaboration continue to pose substantial challenges. Therefore, it is recommended that healthcare institutions, professional organizations, and policymakers strengthen structured interprofessional collaboration, standardize clinical documentation and practice guidelines, implement competency-based education and training programs, and develop sustainable remuneration mechanisms to ensure long-term integration of pharmaceutical care within national healthcare systems. Additionally, future research should employ integrative methodological approaches that combine qualitative and quantitative evaluations to assess clinical outcomes, scalability, and contextual adaptability, thereby supporting the sustainable institutionalization of pharmaceutical care as a core component of modern, patient-centered healthcare delivery.

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