

Strengthening healthcare synergy: exploring the collaborative relationship between community pharmacists and nurses

Review

Nitish Bhatia*

Department of Pharmacology, Faculty of Pharmacy, Vishwakarma University, Pune, Maharashtra 411048, India

Received: 16 September 2024; Accepted: 14 November 2024; Published: 20 June 2025

Abstract: Objective: The evolving landscape of healthcare delivery emphasizes the importance of collaborative relationships between healthcare professionals. Community pharmacists and nurses, though traditionally occupying distinct roles, are increasingly working together to provide comprehensive, patient-centered care.

Methods: This review explores the collaborative relationship between community pharmacists and nurses, focusing on their unique contributions to chronic disease management, patient education, and medication adherence. The article analyzes existing literature and highlights key interdisciplinary strategies that enhance patient outcomes.

Results: By integrating their expertise, pharmacists and nurses can improve health outcomes by addressing both the physical and psychosocial needs of patients. Their collaboration enhances the effectiveness of chronic disease management, promotes early interventions, minimizes medication errors, and fosters improved patient adherence to treatment plans.

Conclusions: The findings underscore the need for structured, proactive collaboration models that go beyond independent roles to foster a truly synergistic healthcare environment. Strengthening these interdisciplinary partnerships is crucial for achieving more efficient, holistic, and timely healthcare delivery.

Keywords: *collaborative healthcare • community nurses • community pharmacists • patient-centered care*

1. Introduction

Healthcare is a dynamic and multifaceted field that constantly evolves to meet the ever-changing needs of patients and communities.¹ In this complex healthcare landscape, community pharmacists and community nurses emerge as 2 critical pillars of healthcare

delivery.² Both professions share the goal of providing patient-centered care, yet their roles have traditionally been distinct.³ While community pharmacists primarily focus on medication management and dispensing,⁴ community nurses engage in a broader spectrum of

How to cite this article: Bhatia N. Strengthening healthcare synergy: exploring the collaborative relationship between community pharmacists and nurses. *Front Nurs.* 2025;2:201–210.

care, including health promotion, disease prevention, and the management of acute and chronic conditions.⁵ The present article explores the usefulness of collaborative relationship between community pharmacists and community nurses, shedding light on its significance, and how it can be strengthened to enhance patient care. While each profession brings unique skills and expertise to the healthcare team, the convergence of their roles can lead to more comprehensive and patient-centered care, ultimately improving patient outcomes.⁶ Understanding the dynamics of this collaboration and identifying strategies to enhance it is crucial for optimizing healthcare services in the community.⁷ By exploring the existing literature and empirical evidence, this article aims to provide insights into the benefits of this collaborative relationship and offer recommendations for its improvement.

2. Community pharmacists

Community pharmacists play a vital role in healthcare as highly accessible providers.⁸ They excel in medication management, ensuring safe and effective drug use, and go beyond mere dispensing to offer medication therapy management and patient education.² Their extensive knowledge includes drugs, interactions, and side effects, making them valuable resources for patients seeking expert advice.⁹ They excel at medication reconciliation, a crucial process in care continuity,¹⁰ preventing medication errors and adverse events. Additionally, community pharmacists serve as counselors, guiding patients on adherence, side effects, and lifestyle adjustments.¹¹ Their multifaceted roles and commitment to patient well-being make them indispensable assets in local healthcare communities.

3. Community nurses

Community nurses are pivotal in healthcare, with a focus on patient-centered care.¹² They excel in health promotion, emphasizing preventive measures like lifestyle choices, screenings, and vaccinations, conducting health assessments for early interventions. They are essential in disease prevention through immunizations and screenings.¹³ Moreover, community nurses manage acute and chronic conditions, providing ongoing care, adherence support, and complications prevention.¹⁴ They build strong patient-provider relationships, fostering trust and communication for patient engagement and empowerment.¹⁵ Additionally, they are skilled in early detection, intervening promptly to prevent complications,¹⁶ reducing hospital readmissions, and ensuring timely community care. In sum, community nurses are

versatile healthcare professionals, promoting health, preventing diseases, managing chronic conditions, and fostering patient well-being.

4. Collaborative relationship

The collaboration between community pharmacists and nurses represents a dynamic partnership that has the potential to significantly enhance patient care and improve health outcomes. Research and empirical evidence suggest that when these 2 professions work together effectively, patients receive care that is more comprehensive, well-coordinated, patient-centered, and timely. This relationship fosters a level of care that extends beyond the capabilities of either profession working independently, offering unique advantages that improve the quality of healthcare delivery.

4.1. Specific methods of collaboration

Collaboration between community pharmacists and nurses can take many forms, as elaborated below.

4.1.1. Shared care plans

Pharmacists and nurses jointly develop treatment strategies, ensuring that both medication and overall health management are aligned with the patient's needs.

4.1.2. Regular interdisciplinary meetings

Healthcare teams meet to review patient cases, address challenges, and make adjustments to treatment plans as necessary.

4.1.3. Electronic health record sharing

Both professionals have access to shared patient data, allowing real-time updates and informed decision-making.

4.1.4. Community health programs

Nurses and pharmacists collaborate in patient education campaigns, vaccination drives, and health screenings, enhancing community outreach efforts.

4.2. Unique benefits of collaboration

Unlike independent roles, collaboration allows for a synergy that produces better patient outcomes. The combination of a nurse's patient-centered approach and a pharmacist's expertise in medication management leads to enhanced chronic disease management, timely interventions, and

reduced hospital readmissions. Furthermore, collaboration addresses gaps in care, ensuring patients receive the support they need across various health dimensions, from medication adherence to lifestyle changes.

4.2.1. Comprehensive care

The collaboration between community pharmacists and nurses ensures that patients receive comprehensive care that addresses both immediate and long-term health concerns. While nurses assess the overall health of patients, including their chronic conditions, pharmacists focus on managing and optimizing medication regimens. By working together, they provide a more holistic approach to healthcare, addressing not only symptoms but also underlying causes.¹⁷ For instance, a nurse may identify a patient's worsening symptoms, prompting the pharmacist to adjust the medication regimen to better manage the condition.

4.2.2. Well-coordinated care

Effective collaboration enables seamless communication and care coordination. Pharmacists provide essential insights into potential medication interactions or adverse effects, allowing nurses to adjust care plans in response. This collaboration minimizes medication errors and improves therapeutic outcomes.¹⁸ For example, in managing complex conditions like diabetes or heart failure, pharmacists ensure that medications complement each other, while nurses monitor patient symptoms and adjust care accordingly.

4.2.3. Patient-centered care

Collaboration leads to truly patient-centered care, where treatment is tailored to the individual's needs, preferences, and lifestyle. Pharmacists and nurses collaborate to ensure that treatment plans are personalized and realistic for the patient, enhancing engagement and adherence.¹⁹ This patient-centered approach goes beyond independent care, as pharmacists and nurses work together to address concerns, align treatment plans, and improve patient satisfaction.

4.2.4. Improved medication adherence

Medication adherence is a common challenge in chronic disease management. By working together, nurses and pharmacists can jointly monitor and support patient adherence to prescribed treatments. Nurses may identify barriers to adherence during assessments, while pharmacists can provide education and counseling

on how to properly use medications and manage side effects.²⁰ This teamwork ensures that patients follow their prescribed regimens, improving outcomes in chronic disease management.

4.2.5. Timely interventions

Collaboration between pharmacists and nurses enables more timely interventions. Pharmacists can flag potential medication-related issues, such as side effects or the need for dose adjustments, and relay this information to nurses. Nurses can then respond quickly by adjusting care or seeking further medical advice, ensuring that emerging problems are addressed promptly.²¹ This partnership is particularly beneficial in managing acute exacerbations of chronic diseases, where early intervention is critical.

5. Effective medical management

The collaboration between community pharmacists and nurses is essential for optimizing medication management, improving patient safety, and reducing the risk of adverse drug events (ADEs). It enhances the overall quality of healthcare by ensuring that patients receive the most appropriate, effective, and safe treatment.

5.1. ADE prevention

The close communication between pharmacists and nurses helps prevent ADEs. Nurses' regular interactions with patients allow them to quickly identify any side effects or medication concerns, while pharmacists use their expertise to adjust medication regimens and suggest alternative therapies.²² This joint intervention reduces the likelihood of harm to patients and ensures a safer healthcare environment.

5.2. Patient safety enhancement

Collaborative care improves patient safety by optimizing medication regimens and preventing errors such as incorrect dosages or harmful drug interactions. Pharmacists ensure medications are aligned with the patient's health needs, while nurses monitor ongoing patient responses.¹⁷

5.3. Optimization of medication therapy

Pharmacists are experts in medication therapy management, and their involvement allows for the fine-tuning of treatment plans. Through comprehensive medication

reviews and collaboration with nurses, pharmacists can ensure that patients receive the most effective treatment while minimizing side effects.²³

5.4. Efficient resource utilization

By leveraging the unique expertise of both nurses and pharmacists, collaboration ensures efficient use of healthcare resources. Effective medication management and proactive interventions reduce hospital admissions and emergency department visits, ultimately lowering healthcare costs.²²

6. Chronic disease management

Managing chronic diseases is a complex process that requires continuous support and medication management. Collaboration between community pharmacists and nurses simplifies this process, ensuring that patients receive the care they need to manage their conditions effectively.

6.1. Complex medication regimens

Pharmacists and nurses collaborate to simplify complex medication regimens, reducing the risk of errors and improving patient adherence.²⁴

6.2. Identification of drug interactions

Pharmacists identify potential drug interactions, while nurses monitor patients' health and report adverse effects. This combined effort ensures safe and effective treatment.⁹

6.3. Patient progress monitoring

Nurses regularly assess patients' progress, while pharmacists adjust medication as necessary to optimize treatment.²⁵

6.4. Patient education and empowerment

In the management of chronic diseases, patient education plays a critical role in ensuring long-term treatment success. This type of education is highly specialized, focusing not only on medication adherence but also on lifestyle modifications that prevent disease progression. Pharmacists provide in-depth counseling on proper medication use, potential side effects, and interactions, while nurses educate patients on broader aspects of disease management, such as diet, exercise, and self-care.^{11,26} This holistic, coordinated education empowers patients to actively engage in managing their conditions,

thereby improving overall quality of life and treatment outcomes.

6.5. Preventing hospital readmissions

A key goal in chronic disease management is reducing hospital readmissions, particularly for patients with conditions like heart failure, chronic obstructive pulmonary disease (COPD), or diabetes. Collaboration between pharmacists and nurses plays a critical role in achieving this goal. Pharmacists ensure accurate medication reconciliation during transitions of care, while nurses follow up with patients in the community, monitoring their progress and addressing any emerging issues.^{10,27} This integrated care model ensures continuity of care and reduces the likelihood of readmissions, improving patient outcomes and reducing healthcare costs.

7. Patient education

Patient education is central to effective healthcare delivery, and the collaborative efforts between pharmacists and nurses amplify the benefits of education by addressing both medication-specific concerns and broader health-related topics. This collaboration ensures that patients receive comprehensive, well-rounded guidance, leading to improved adherence and health outcomes.

7.1. Medication adherence

One of the biggest challenges in chronic disease management is medication adherence. Pharmacists are skilled at providing in-depth counseling on medication use, side effects, and the importance of adherence.² Nurses, through ongoing patient contact, can reinforce these messages by identifying and addressing barriers to adherence, such as forgetfulness, concerns about side effects, or lack of understanding.²⁰ This dual approach ensures patients are better equipped to follow their prescribed regimens.

7.2. Lifestyle modifications

Chronic disease management often requires significant lifestyle changes, such as dietary modifications and increased physical activity. Nurses are well-positioned to educate patients on these aspects, tailoring advice to individual patient needs. Pharmacists can complement this by providing advice on how medications might interact with diet or exercise regimens.²⁸ Together, this coordinated effort ensures that lifestyle modifications are integrated smoothly into the patient's overall treatment plan, leading to more effective disease management.

7.3. Chronic disease management

Ongoing education is vital for patients managing chronic conditions. Nurses provide continuous, comprehensive education on managing diseases, helping patients take an active role in their care.²⁹ Pharmacists contribute by educating patients on the importance of medication reviews, monitoring for potential side effects, and making necessary adjustments.³⁰ This collaboration empowers patients to better understand and manage their health, leading to improved long-term outcomes.

7.4. Patient empowerment

Patient empowerment is one of the most significant outcomes of collaborative education. By working together, pharmacists and nurses equip patients with the knowledge and skills needed to make informed decisions about their healthcare.³¹ This partnership encourages patient autonomy and fosters a sense of ownership over health decisions, which has been shown to improve adherence, reduce anxiety, and lead to better health outcomes.¹⁷

7.5. Psychosocial support

Many patients face psychosocial challenges when managing chronic conditions, such as depression, anxiety, or social isolation. Nurses, with their holistic approach, are adept at providing emotional support and addressing these concerns.²⁶ Pharmacists can also contribute by identifying psychosocial factors that may affect medication adherence, such as depression or cognitive difficulties. By collaborating, pharmacists and nurses can offer a well-rounded approach to patient care that addresses both physical and psychological needs.³²

8. Preventive care

The collaborative relationship between pharmacists and nurses plays a critical role in advancing preventive care. Through their combined efforts, they can improve community health, reduce the incidence of chronic diseases, and promote early detection of health conditions.

8.1. Vaccination services

Pharmacists have increasingly taken on roles in administering vaccinations. By collaborating with community nurses, they can help identify individuals in need of vaccinations, increase immunization rates, and prevent the spread of infectious diseases.³³ This collaboration expands the reach of vaccination programs and improves public health outcomes.

8.2. Screenings and health assessments

Community nurses, with their skills in patient assessment, work alongside pharmacists to provide on-site screenings for conditions such as hypertension, diabetes, and cholesterol.³⁴ Pharmacists offer their expertise in interpreting these results and recommending appropriate medications or interventions. This collaboration ensures early detection and timely intervention for chronic conditions.

8.3. Patient education and promotion

Nurses and pharmacists work together to educate patients on preventive health measures, the importance of vaccinations, and the benefits of regular health screenings. This coordinated effort helps patients engage in preventive practices, improving long-term health outcomes.³⁵

8.4. Efficient resource utilization

By collaborating, pharmacists and nurses ensure that healthcare resources are used efficiently. This collaboration helps healthcare organizations deliver preventive services to a larger portion of the population while reducing costs associated with preventable hospital admissions and emergency visits.¹⁷

8.5. Community health initiatives

Both pharmacists and nurses play an active role in community health initiatives, identifying at-risk populations, providing interventions, and monitoring the effectiveness of these initiatives. Their combined efforts help reduce the prevalence of chronic diseases and manage health crises such as infectious outbreaks.

9. Challenges and opportunities

While collaboration between community pharmacists and nurses offers significant benefits, there are also challenges that need to be addressed to maximize its potential. Identifying these barriers and exploring opportunities for improvement is crucial for enhancing inter-professional collaboration.

9.1. Regulatory constraints

In some regions, legal barriers may limit pharmacists' scope of practice, preventing them from providing certain clinical services. Overcoming these barriers requires advocating for regulatory changes that allow pharmacists to practice at the top of their license and engage more fully in collaborative care.²

9.2. Communication gaps

Effective communication is essential for collaboration, but gaps can arise due to differences in documentation systems or professional jargon. Standardized communication tools, such as shared electronic health records (EHRs), can help bridge these gaps and ensure that vital patient information is shared seamlessly between pharmacists and nurses.³⁶

9.3. Time constraints

The demanding schedules of pharmacists and nurses can limit opportunities for collaboration. Healthcare organizations should explore strategies such as task delegation, where responsibilities are shared to reduce workloads and create more time for collaborative activities.³⁷

9.4. Professional isolation

Pharmacists and nurses often work in professional silos, limiting opportunities for collaboration. Inter-professional education (IPE) and training programs can help foster mutual understanding and respect, breaking down these silos and promoting better teamwork.³⁸

9.5. Resource limitations

Limited staffing or financial resources can hinder collaboration. Advocating for increased funding and demonstrating the cost-effectiveness of collaborative care models may help address these challenges.³⁹

9.6. Resistance to change

Resistance to change, both at the individual and organizational level, can pose a barrier to collaboration. Identifying champions for collaboration within healthcare organizations and using evidence-based practices to demonstrate its benefits can help overcome this resistance.⁴⁰

9.7. Patient-centered opportunities

While barriers to collaboration exist, opportunities abound for patient-centered care. Patient-centered care models, such as the patient-centered medical home (PCMH), emphasize interprofessional collaboration as a core component.⁴¹ These models can serve as frameworks for fostering collaboration between pharmacists and nurses and improving patient outcomes.

10. Steps to strengthen bonds

To enhance collaboration between pharmacists and nurses, healthcare organizations, policymakers, educational institutions, and practitioners must work together. Key steps to strengthen interprofessional bonds include the following.

10.1. IPE

Integrating IPE into the training curriculum for pharmacists and nurses prepares future professionals for collaborative practice, improving teamwork and communication skills.⁴²

10.2. Care coordination tools

Investing in technology like EHRs and health information exchange platforms supports seamless communication between pharmacists and nurses, enhancing patient care coordination.⁴³

10.3. Policy support

Policymakers should advocate for policies that incentivize integrated care models and address regulatory barriers to collaboration.⁴⁴

10.4. Team-based care

Healthcare teams that integrate pharmacists and nurses can align their roles with care delivery models, improving both patient outcomes and care efficiency.²⁸

10.5. Measurement and evaluation

Implementing performance metrics can help organizations assess the effectiveness of collaboration, enhancing patient care, safety, and satisfaction.⁴⁵

10.6. Continuing education and training

Ongoing training programs that focus on developing interprofessional skills help pharmacists and nurses stay current in their fields and work together more effectively.⁴⁶

10.7. Research and evidence-based practice

Conducting research on collaborative care efforts will continue to strengthen interprofessional bonds and identify best practices that can be adopted across healthcare systems.⁴⁷

11. Conclusions

In conclusion, the collaborative partnership between community pharmacists and community nurses holds great potential in healthcare delivery, supported by robust research.⁴ Together, they provide comprehensive, patient-centered, and timely care, excelling in medication management, prevention, and patient education. However, challenges such as regulatory constraints and communication gaps exist.⁴⁸ Strengthening this partnership requires concerted efforts, including IPE, care coordination tools, policy support, and research. This collaboration adapts to an evolving healthcare landscape, offering efficient and patient-centered care. Nurturing these collaborations is crucial for meeting evolving patient needs and enhancing community healthcare services.

11.1. Key points

11.1.1. Comprehensive care

Collaboration between community pharmacists and nurses allows for a more holistic understanding of patients' health, addressing both symptoms and underlying causes.

Implication for nursing practice

Nurses can incorporate pharmacists' expertise in medication management into patient care plans, leading to more comprehensive assessments and interventions.

11.1.2. Well-coordinated care

Effective collaboration facilitates seamless communication and care coordination, minimizing the risk of medication errors and optimizing therapeutic outcomes.

Implication for nursing practice

Nurses and pharmacists should establish efficient communication channels to ensure timely information exchange for better patient care.

11.1.3. Patient-centered care

Collaboration leads to patient-tailored care plans that align with individual needs and preferences, improving patient engagement and outcomes.

Implication for health and social care policy

Policymakers should encourage healthcare organizations to adopt patient-centered care models that promote collaboration between nurses and pharmacists.

11.1.4. Improved medication adherence

Collaborative medication management strategies can monitor and support patients' medication adherence, reducing the challenges of managing chronic conditions.

Implication for nursing practice

Nurses can work closely with pharmacists to identify and address barriers to adherence, improving patient compliance.

11.1.5. Timely interventions

Close partnership allows for prompt identification and resolution of medication-related issues and changes in patients' health conditions, preventing delays in interventions.

Implication for future research

Further research can explore the impact of collaborative interventions on reducing healthcare costs and improving patient outcomes.

Ethical approval

Ethical issues are not involved in this paper.

Conflicts of interest

There is no conflicts of interest.

References

1. Mosadeghrad AM. Factors influencing healthcare service quality. *Int J Health Policy Manag.* 2014;3:77–89.
2. Ilardo ML, Speciale A. The community pharmacist: perceived barriers and patient-centered care communication. *Int J Environ Res Public Health.* 2020;17:536.
3. Babiker A, El Hussein M, Al Nemri A, et al. Health care professional development: working as a team to improve patient care. *Sudan J Paediatr.* 2014;14:9–16.
4. Goode JV, Owen J, Page A, Gatewood S. Community-based pharmacy practice innovation and the role of the community-based pharmacist

- practitioner in the United States. *Pharmacy (Basel)*. 2019;7:106.
5. Griffin CD, CPHQ, & CCM. A primary care nursing perspective on chronic disease prevention and management. *Del J Public Health*. 2017;3: 78–83.
 6. Epstein RM, Street RL Jr. The values and value of patient-centered care. *Ann Fam Med*. 2011;9:100–103.
 7. Aveling EL, Martin G, Herbert G, Armstrong N. Optimising the community-based approach to health-care improvement: comparative case studies of the clinical community model in practice. *Soc Sci Med*. 2017;173:96–103.
 8. Hedima EW, Adeyemi MS, Ikunaiye NY. Community pharmacists: on the frontline of health service against COVID-19 in LMICs. *Res Social Adm Pharm*. 2021;17:1964–1966.
 9. Ansari J. Drug interaction and pharmacist. *J Young Pharm*. 2010;2:326–331.
 10. Redmond P, Grimes TC, McDonnell R, Boland F, Hughes C, Fahey T. Impact of medication reconciliation for improving transitions of care. *Cochrane Database Syst Rev*. 2018;8:CD010791.
 11. Murphy AL, Gardner DM, Jacobs LM. Patient care activities by community pharmacists in a capitation funding model mental health and addictions program. *BMC Psychiatry*. 2018;18:192.
 12. Greene SM, Tuzzio L, Cherkin D. A framework for making patient-centered care front and center. *Perm J*. 2012;16:49–53.
 13. Ross A, Bevans M, Brooks AT, Gibbons S, Wallen GR. Nurses and health-promoting behaviors: knowledge may not translate into self-care. *AORN J*. 2017;105:267–275.
 14. Massimi A, De Vito C, Brufola I, et al. Are community-based nurse-led self-management support interventions effective in chronic patients? Results of a systematic review and meta-analysis. *PLoS One*. 2017;12:e0173617.
 15. Molina-Mula J, Gallo-Estrada J. Impact of nurse-patient relationship on quality of care and patient autonomy in decision-making. *Int J Environ Res Public Health*. 2020;17:835.
 16. Vaismoradi M, Tella S, Logan PA, Khakurel J, Vizcaya-Moreno F. Nurses' adherence to patient safety principles: a systematic review. *Int J Environ Res Public Health*. 2020;17:2028.
 17. Waszyk-Nowaczyk M, Guzenda W, Dragun P, et al. Interdisciplinary cooperation between pharmacists and nurses – Experiences and expectations. *Int J Environ Res Public Health*. 2022;19:11713.
 18. Makowsky MJ, Schindel TJ, Rosenthal M, Campbell K, Tsuyuki RT, Madill HM. Collaboration between pharmacists, physicians, and nurse practitioners: a qualitative investigation of working relationships in the inpatient medical setting. *J Interprof Care*. 2009;23:169–184.
 19. Coulter A, Oldham J. Person-centred care: what is it and how do we get there? *Future Hosp J*. 2016;3:114–116.
 20. Jimmy B, Jose J. Patient medication adherence: measures in daily practice. *Oman Med J*. 2011;26:155–159.
 21. Rankin A, Cadogan CA, Patterson SM, et al. Interventions to improve the appropriate use of polypharmacy for older people. *Cochrane Database Syst Rev*. 2018;9:CD008165.
 22. Dalton K, Byrne S. Role of the pharmacist in reducing healthcare costs: current insights. *Integr Pharm Res Pract*. 2017;6:37–46.
 23. Jarab AS, Al-Qerem W, Mukattash TL, Abuhishmah SR, Alkhodour S. Pharmacists' knowledge and attitudes toward medication therapy management service and the associated challenges and barriers for its implementation. *Saudi Pharm J*. 2022;30:842–848.
 24. Mardani A, Griffiths P, Vaismoradi M. The role of the nurse in the management of medicines during transitional care: a systematic review. *J Multidiscip Healthc*. 2020;13:1347–1361.
 25. Khan AN, Khan MU, Shoaib MH, Yousuf RI, Mir SA. Practice nurses and pharmacists: a perspective on the expectation and experience of nurses for future collaboration. *Oman Med J*. 2014;29:271–275.
 26. Jasemi M, Valizadeh L, Zamanzadeh V, Keogh B. A concept analysis of holistic care by hybrid model. *Indian J Palliat Care*. 2017;23:71–80.
 27. Kim J, Lin A, Absher R, Makhoulouf T, Wells C. Comprehensive and collaborative pharmacist transitions of care service for underserved patients with chronic obstructive pulmonary disease. *Chronic Obstr Pulm Dis*. 2021;8:152–161.
 28. Dilles T, Heczkova J, Tziaferi S, et al. Nurses and pharmaceutical care: interprofessional, evidence-based working to improve patient care and outcomes. *Int J Environ Res Public Health*. 2021;18:5973.
 29. Farley H. Promoting self-efficacy in patients with chronic disease beyond traditional education: a literature review. *Nurs Open*. 2019;7:30–41.
 30. Rutter P. Role of community pharmacists in patients' self-care and self-medication. *Integr Pharm Res Pract*. 2015;4:57–65.
 31. Chen J, Mullins CD, Novak P, Thomas SB. Personalized strategies to activate and empower patients in health care and reduce health disparities. *Health Educ Behav*. 2016;43:25–34.

32. Schwenker R, Deutsch T, Unverzagt S, Frese T. Identifying patients with psychosocial problems in general practice: a scoping review. *Front Med (Lausanne)*. 2023;9:1010001.
33. Bach AT, Goad JA. The role of community pharmacy-based vaccination in the USA: current practice and future directions. *Integr Pharm Res Pract*. 2015;4:67–77.
34. Rahayu SA, Widiyanto S, Defi IR, Abdulah R. Role of pharmacists in the interprofessional care team for patients with chronic diseases. *J Multidiscip Healthc*. 2021;14:1701–1710.
35. Tak CR, Marciniak MW, Savage A, Ozawa S. The essential role of pharmacists facilitating vaccination in older adults: the case of Herpes Zoster. *Hum Vaccin Immunother*. 2020;16:70–75.
36. Sheehan J, Laver K, Bhojti A, et al. Methods and effectiveness of communication between hospital allied health and primary care practitioners: a systematic narrative review. *J Multidiscip Healthc*. 2021;14:493–511.
37. Rosen MA, DiazGranados D, Dietz AS, et al. Teamwork in healthcare: key discoveries enabling safer, high-quality care. *Am Psychol*. 2018;73:433–450.
38. Green BN, Johnson CD. Interprofessional collaboration in research, education, and clinical practice: working together for a better future. *J Chiropr Educ*. 2015;29:1–10.
39. Wainberg ML, Scorza P, Shultz JM, et al. Challenges and opportunities in global mental health: a research-to-practice perspective. *Curr Psychiatry Rep*. 2017;19:28.
40. DuBose BM, Mayo AM. Resistance to change: a concept analysis. *Nurs Forum*. 2020;55:631–636.
41. Reynolds PP, Klink K, Gilman S, et al. The patient-centered medical home: preparation of the workforce, more questions than answers. *J Gen Intern Med*. 2015;30:1013–1017.
42. van Diggele C, Roberts C, Burgess A, Mellis C. Interprofessional education: tips for design and implementation. *BMC Med Educ*. 2020;20 (suppl 2):455.
43. Reisman M. EHRs: the challenge of making electronic data usable and interoperable. *P T*. 2017;42:572–575.
44. Alderwick H, Hutchings A, Briggs A, Mays N. The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: a systematic review of reviews. *BMC Public Health*. 2021; 21:753.
45. De Rosis S, Ferrè F, Pennucci F. Including patient-reported measures in performance evaluation systems: patient contribution in assessing and improving the healthcare systems. *Int J Health Plann Manage*. 2022;37(suppl 1):144–165.
46. Mlambo M, Silén C, McGrath C. Lifelong learning and nurses' continuing professional development, a metasynthesis of the literature. *BMC Nurs*. 2021;20:62.
47. Bosch B, Mansell H. Interprofessional collaboration in health care: lessons to be learned from competitive sports. *Can Pharm J (Ott)*. 2015;148:176–179.
48. Liu W, Gerdtz M, Manias E. Creating opportunities for interdisciplinary collaboration and patient-centred care: how nurses, doctors, pharmacists and patients use communication strategies when managing medications in an acute hospital setting. *J Clin Nurs*. 2016;25(19–20):2943–2957.