Journal of Multidisciplinary Healthcare

Dovepress
Taylor & Francis Group

Open Access Full Text Article

REVIEW

The Impact of Interdisciplinary Team-Based Care on the Care and Outcomes of Chronically Ill Patients: A Systematic Review

Ruttanaporn Kongkar[1], Suebsarn Ruksakulpiwat[1], Lalipat Phianhasin[1], Chitchanok Benjasirisan[1], Atsadaporn Niyomyart[2], Bootan Hasan Ahmed[3], Wimolrat Puwarawuttipanit[1], Wanicha L Chuenkongkaew[4], Jon Adams[5]

[1]Department of Medical Nursing, Faculty of Nursing, Mahidol University, Bangkok, Thailand; [2]Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand; [3]Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, OH, USA; [4]Department of Ophthalmology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand; [5]School of Public Health, The University of Technology Sydney, Sydney, NSW, Australia

Correspondence: Suebsarn Ruksakulpiwat, Email suebsarn25@gmail.com

Objective: To examine the impact of interdisciplinary team-based care (ITBC) on chronically ill patients and their outcomes as reported in relevant contemporary literature.

Methods: In this systematic review, PubMed, MEDLINE, Web of Science, CINAHL Plus Full Text, and ten publishers were searched to identify studies published between 2019 and 2024. Titles, abstracts, and full texts were screened for eligible studies and assessed for relevance. Inclusion and exclusion criteria were implemented to ensure that only studies relevant to our objective were included. The convergent integrated analysis framework suggested by the Joanna Briggs Institute was utilized for data synthesis.

Results: Ten studies were included in the systematic review. Data synthesis revealed five major themes at different levels: 1) Patient level, including themes of Patients' Self-Improvement and Patients' Health Outcomes; 2) Interpersonal level, including themes of Providers' Work Performance and Shared Decision Making; and 3) Organizational level, including the theme of Healthcare Utilization.

Conclusion: ITBC has a significant positive impact on chronically ill patients at multiple levels. At the patient level, it enhances self-management and health outcomes. At the interpersonal level, it improves healthcare providers' performance and promotes shared decision-making. At the organizational level, it leads to more efficient healthcare utilization.

Keywords: interdisciplinary team-based care, chronic illness, patient outcomes, systematic review

Introduction

Interdisciplinary Team-Based Care (ITBC) represents a dynamic and collaborative approach[1,2] to healthcare delivery that involves professionals from diverse fields working collectively to address the complex needs of patients.[3] This model of care recognizes that the challenges faced by individuals with chronic illnesses often transcend the expertise of a single healthcare discipline.[4] Embracing a holistic perspective leverages the collective knowledge and skills of professionals such as physicians, nurses, social workers, and therapists to provide comprehensive and integrated care.[5,6] This collaborative framework fosters communication, coordination, and synergy among team members, ultimately aiming to enhance the overall quality of patient care.[5]

The application of ITBC becomes particularly crucial in the context of chronically ill patients.[7,8] Chronic illnesses present multifaceted challenges, requiring a holistic and coordinated approach to effective management.[4,7,8] Through incorporating various healthcare disciplinary expertise, ITBC seeks to tailor interventions to a patient's unique needs, considering medical aspects and psychological, social, and environmental factors.[9,10]

Received: 25 September 2024
Accepted: 8 January 2025
Published: 30 January 2025

Examining the outcomes of ITBC in the realm of chronically ill patients is essential for understanding the effectiveness of this approach. Research has suggested ITBC may lead to improved health outcomes, enhanced patient satisfaction, and more efficient resource allocation.[11] By exploring the empirical evidence surrounding the impact of ITBC on chronically ill patients, this review aims to provide a nuanced understanding of the outcomes associated with this collaborative care model.[1,2]

This systematic review has significant implications for healthcare practitioners, policymakers, and researchers. As the prevalence of chronic illnesses continues to rise, optimizing care strategies becomes imperative.[12,13] By synthesizing the existing literature on ITBC and its impact on chronically ill patients, this review seeks to contribute valuable insights that can inform future healthcare practices, policy decisions, and research directions. Understanding the significance of adopting an interdisciplinary approach is paramount for advancing patient-centered care and improving the well-being of those with chronic illnesses.

Objective

This systematic review aims to examine the impact of interdisciplinary team-based care on chronically ill patients and their outcomes as reported in relevant contemporary literature.

Methods

Identify Relevant Studies

In this systematic review, we used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines[14] to present the identification, screening, exclusion, and inclusion flow diagram. In February 2024, a systematic search was conducted across four electronic databases—PubMed, MEDLINE, Web of Science, and CINAHL Plus Full Text—and ten publishers, namely Wiley Blackwell, Springer Nature, Hindawi Limited, Taylor & Francis Ltd, Biomed Central, Oncology Nursing Society, Oxford University Press (USA), Thailand Nursing & Midwifery Council, Routledge, and Canadian Geriatrics Society. The search aimed to identify studies published between 2019 and 2024, as this period reflects current practices, guidelines, and innovations in healthcare. By focusing on recent studies, the review aligns with the latest clinical standards and incorporates recent developments, making the findings more applicable to contemporary healthcare settings. The researcher combined the search terms and Boolean phrases (Supplementary Table 1). In addition, reference lists of the included studies were manually searched to obtain relevant studies. All references identified were stored in EndNote.

Study Selection

Titles and abstracts were screened for eligible studies. The full text was then assessed to decide whether it was relevant. Finally, inclusion criteria were implemented to guarantee that only studies considered relevant to our objective were included. Similarly, exclusion criteria were used to eliminate literature not affiliated with the review (Table 1).

Data Synthesis

In this review, the convergent integrated analysis framework suggested by the Joanna Briggs Institute (JBI) for systematic reviews was utilized for the data synthesis of the included studies.[15] In the data synthesis process, themes were extracted from the key findings of the included studies by examining the similarities and differences between the main findings. Additionally, sub-themes were abstracted based on the more specific focus of the corresponding findings as needed, following a process similar to how qualitative researchers produce themes.[15] The synthesis aimed to identify patterns in the data while considering both commonalities and discrepancies across the studies.

Data Extraction

The standardized chart for data extraction (Supplementary Table 2) developed for this review included the following data for each study: Reference, Year, Country, Study Design, Sample Size, Focus Population, Age (Mean), Objective, ITBC included in the study, Professions Involved, Main Results Describing the Impact of ITBC on Chronically Ill Patients and

Table 1 Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
• Human participants aged 18 years or older. • Original quantitative, qualitative, or mixed methods studies. • Acceptable study types include those utilizing secondary data, provided the dataset encompasses individuals with chronic illnesses. • Investigated the impact of ITBC on chronically ill patients' care or their outcomes. • Studies may involve patients, caregivers, or healthcare professionals, with a requirement that individuals with chronic illness(es) be included. In this study, chronic illnesses are defined as conditions that meet one or more of the following criteria: they are permanent, result in residual disability, are caused by irreversible pathological changes, require special rehabilitation training for the patient, or are expected to necessitate long-term supervision, observation, or care. This includes both chronic physical health conditions (such as heart disease, diabetes, and chronic respiratory conditions) and chronic mental health conditions (such as schizophrenia, bipolar disorder, and major depressive disorder). • In our study, ITBC was defined as "the structured working practices that dictate which different healthcare practitioners interact together to contribute to patient care, as well as when and how they do so".[10,11] • All settings are acceptable, including inpatient, outpatient, or home. • Described in the English language. • Studies published between 2019 and 2024.	• The study did not include the population of interest or concerned animal subjects • Conference proceedings, abstracts, review articles, theoretical papers, pilot studies, protocols, dissertations, letters to the editor, brief reports, opinions (viewpoint), statement papers, government documents, or working papers

Outcomes, The Impact of ITBC on Chronically Ill Patients and Outcomes (Theme), and Conclusion/Suggestions for Future Research. These extraction domains were chosen based on the objectives of the review and the key variables identified in the included studies. The focus was on collecting relevant data that would provide a comprehensive understanding of the effectiveness and impact of Interdisciplinary Team-Based Care (ITBC) on chronically ill patients, ensuring consistency across studies while also capturing any variations in outcomes or methodologies.

Quality Assessment

The goal of quality appraisal is to evaluate the methodological rigor of each study and assess the extent to which potential biases were addressed throughout their design, execution, and analysis. For this review, two independent reviewers conducted the assessment of methodological quality using the JBI critical appraisal tools, specifically designed for application in systematic reviews.[16]

Results

Search results

1,752 articles were initially identified, with no additional articles found from other resources. Forty-four duplicate articles were identified and removed. Subsequently, the remaining 1708 articles were screened by their titles and abstracts based on the inclusion and exclusion criteria (Table 1). At this stage, 1,683 articles did not meet the inclusion criteria and were excluded, leaving 25 articles eligible for full-text screening. During the full-text screening phase, 15 articles were excluded for reasons such as not including patients with chronic illnesses (n = 1), not investigating the impact of ITBC on chronically ill patients or their outcomes (n = 7), protocols (n = 3), pilot study (n = 1), case studies (n = 2), and brief report (n = 1). Consequently, ten studies were included in the systematic review (Figure 1).

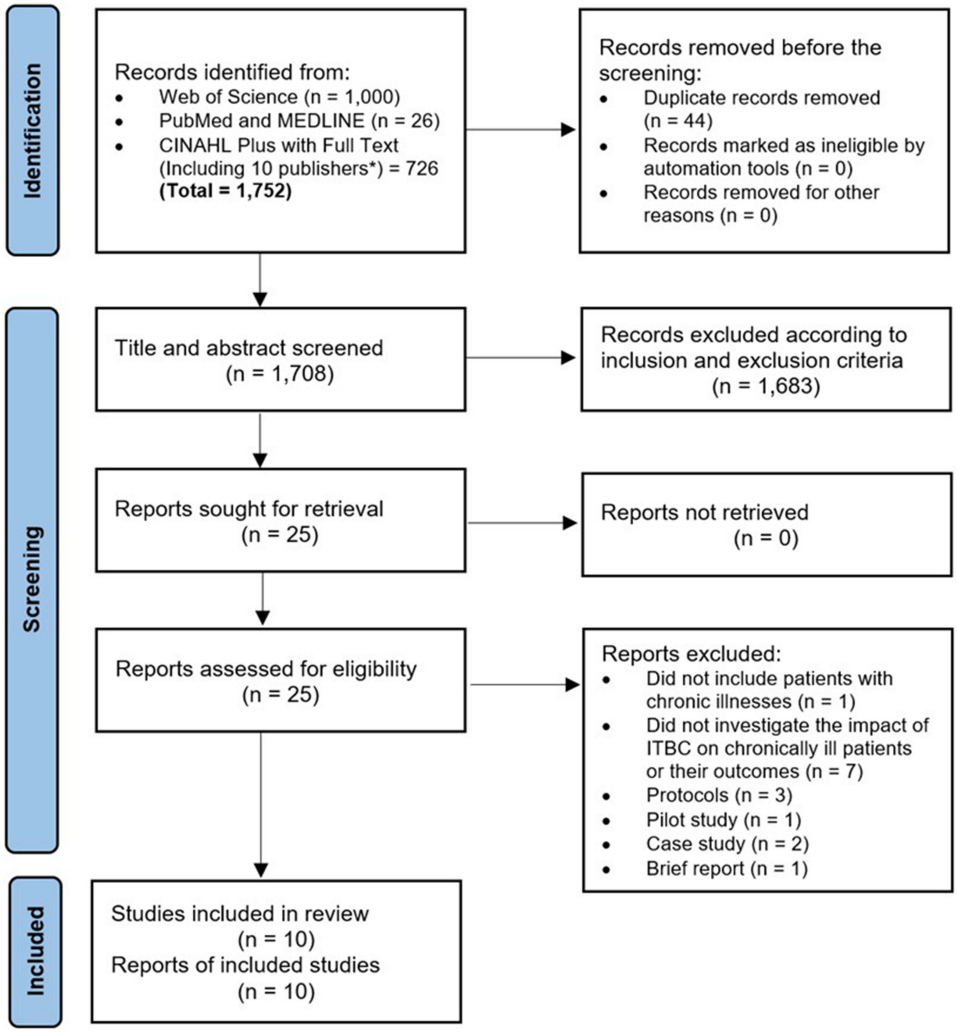

Figure 1 Flow Diagram.
Notes: Adapted from Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.[17] *Including Wiley Blackwell (n = 131), Springer Nature (n = 78), Hindawi Limited, (n = 72), Taylor & Francis Ltd (n = 44), Biomed Central (n = 30), Oncology Nursing Society (n = 26), Oxford University Press (USA) (n = 26), Thailand Nursing & Midwifery Council (n = 21), Routledge (n = 15), Canadian Geriatrics Society (n = 14).

Description of Included Studies

Table 2 shows that the majority of the included studies were published in 2019, 2020, and 2021, with each year contributing three studies (n = 3, 30.0% for each year). Five studies were conducted in the United States (n = 5, 50.0%), two in Canada (n = 2, 20.0%), and one each in China, Spain, and Thailand (n = 1, 10.0% each). Most studies were either randomized controlled trials (n = 3, 30.0%) or quasi-experimental studies (n = 3, 30.0%). There was one retrospective study (n = 1, 10.0%), one prospective study (n = 1, 10.0%), one cross-sectional study (n = 1, 10.0%), and one non-randomized controlled trial (n = 1, 10.0%).

Sample sizes ranged from 1 to 1,000 participants in most studies (n = 9, 90.0%), with one study having a sample size between 1,000 to 5,000 participants (n = 1, 10.0%). Two studies focused on chronic illnesses in general (n = 2, 20.0%), while the rest focused on specific chronic conditions such as chronic kidney disease, low back pain, coronary heart disease, and others, each being the focus of one study (n = 1, 10.0% each).

Regarding Interdisciplinary Team-Based Care (ITBC), most studies employed a variety of approaches (n = 8, 80.0%), with only two using specific interventions (n = 2, 20.0%). The professions involved in ITBC were diverse. General physicians and/or specialists were involved in nine studies (32.14%), nurses and/or nurse practitioners were involved in

Table 2 Characteristics of Included Studies

Characteristics	Number of Included Studies (N)*	Percentage (%)
Publication Year		
2023	1	10.00
2022	0	0.00
2021	3	30.00
2020	3	30.00
2019	3	30.00
Country		
United States	5	50.00
China	1	10.00
Spain	1	10.00
Canada	2	20.00
Thailand	1	10.00
Study Design		
Retrospective Study	1	10.00
Prospective study	1	10.00
Cross-sectional	1	10.00
Non-randomize control trial	1	10.00
Randomized controlled trial	3	30.00
Quasi-experimental study	3	30.00
Sample Size		
1–1,000	9	90.00
1,000–5,000	1	10.00
Focus Population		
Chronic Kidney Disease	1	10.00
Chronic conditions (not specified)	2	20.00
Low back pain	1	10.00
Coronary heart disease	1	10.00
Hyperglycemia, acute exacerbation of COPD, hypertensive urgency, congestive heart failure, chronic kidney disease (CKD)	1	10.00
Hypertension, hyperlipidemia, ischemic heart disease, arthritis, atrial fibrillation, cancer, osteoporosis, CKD, depression, asthma, Alzheimer's disease/dementia, stroke	1	10.00
Diabetes, hypertension, hyperlipidemia	1	10.00
Ischemic or hemorrhagic stroke or transient ischemic attack with hypertension	1	10.00
Coronary heart disease and other chronic illnesses (peripheral arterial disease, atrial fibrillation, diabetes, chronic obstructive pulmonary disease, end-stage renal disease	1	10.00

(*Continued*)

Table 2 (Continued).

Characteristics	Number of Included Studies (N)*	Percentage (%)
Interdisciplinary Team-Based Care (ITBC) included in the study		
A collaborative nephrology telemedicine (approach)	1	10.00
The multipronged intervention (Training of the professionals of the participating practices, a suggested clinical pathway, and the creation of a community of practice) (intervention)	1	10.00
Interdisciplinary care program for the management of low back pain (approach)	1	10.00
Nurse-led community-based multidisciplinary program (approach)	1	10.00
A multidisciplinary team conducted the self-administrated medication (SAM) education during the patient's hospitalization (approach)	1	10.00
Healthcare team structure (approach)	1	10.00
Tailored education based on the individual's medical conditions, medications, and potential lifestyle modifications (approach)	1	10.00
Interventions according to different professions (four interventions from the internal medicine physician, two interventions from the team care nurses, three interventions from the hospital pharmacists, and two interventions from the general practitioners) (intervention)	1	10.00
Uniting Community and Chronic Care Model Teams Early to End Disparities (SUCCEED) (approach)	1	10.00
A heart team consultation (approach)	1	10.00
Professions Involved in ITBC		
General physicians and/or specialists	9	32.14
Nurses and/or nurse practitioners	7	25
Pharmacist	4	14.29
Physician assistants	2	7.14
Nutritionists	2	7.14
Physiotherapists	2	7.14
Kinesiologists	1	3.57
Community health workers	1	3.57

Notes: *One study may report more than one characteristic; the total number of included studies can be > 10.

seven studies (25.00%), and pharmacists were involved in four studies (14.29%). Additionally, physician assistants, nutritionists, and physiotherapists were each involved in two studies (7.14% each). Kinesiologists and community health workers were each involved in one study (3.57% each).

Assessment of Methodological Quality

The included studies were assessed for methodological quality using the JBI critical appraisal checklist.[16] The findings indicate that the methodological aspects were adequately reported across the studies, with an average score of 90.95%. Supplementary Table 2 provides comprehensive details of the quality appraisal for each study.

Table 3 The Impact of ITBC on Chronically Ill Patients' Care and Outcomes Themes

Reference	The Impact of ITBC on Chronically Ill Patients and Outcomes (Theme)				
	Patient Level		Interpersonal Level		Organizational Level
	Patients' Self Improvement	Patients' Health Outcome	Providers' Work Performance	Shared Decision Making	Healthcare Utilization
[18]		✓			
[14]	✓	✓			
[19]			✓		
[15]	✓	✓			✓
[16]	✓		✓		✓
[20]			✓		✓
[21]		✓			✓
[22]		✓			✓
[23]	✓	✓			
[24]		✓		✓	✓
Included Studies (n, %)	4 (40%)	7 (70%)	3 (30%)	1 (10%)	6 (60%)

Description of the Impact of Interdisciplinary Team-Based Care on Chronically Ill Patients' Care and Outcomes

A summary of the findings on the impact of ITBC on chronically ill patients' care and outcomes is provided in Table 3 and Figure 2. According to the data synthesis, five major themes have emerged at different levels: 1) Patient level, including the themes of Patients' Self-Improvement and Patients' Health Outcomes; 2) Interpersonal level, including the themes of Providers' Work Performance and Shared Decision Making; and 3) Organizational level, including the theme of Healthcare Utilization. The summary of each theme is articulated below.

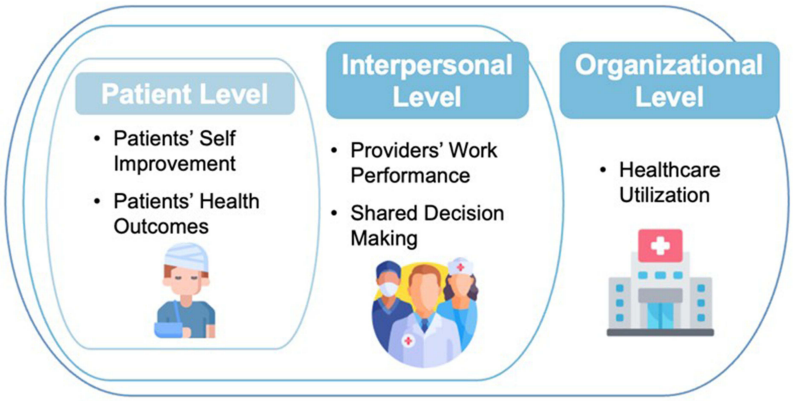

Figure 2 Impact of Interdisciplinary Team-Based Care on Chronically Ill Patients' Care and Outcomes on Different Levels.

https://doi.org/10.2147/JMDH.S497846

Patient Level

Patients' Self Improvement

ITBC was found to be a significant factor in improving the self-improvement of chronically ill patients, as demonstrated by four studies.[18,21–23] For instance, a pre-post quasi-experimental study conducted on 284 patients with three or more chronic diseases aimed to examine the long-term effect of a patient-centered interdisciplinary care intervention (including nurses, nutritionists, and kinesiologists) for people with multimorbidity. The results indicated that both emotional well-being (measured by the Health Education Questionnaire) and eating behavior improved.[23] Similarly, a randomized controlled trial examined the effectiveness of a nurse-led multidisciplinary program on self-management behaviors, self-efficacy, health-related quality of life, and unplanned health service utilization among Chinese patients with coronary heart disease in communities. The intervention significantly improved self-management behaviors and self-efficacy of patients with coronary heart disease.[18]

Patients' Health Outcome

Seven included studies have similarly found that ITBC significantly impacts the health outcomes of chronically ill patients.[18–20,22–25] A non-randomized controlled trial conducted on 55 patients with hypertension aimed to assess the positive impact of an interdisciplinary telehealth team (including a nephrologist and a clinical pharmacist) on difficult-to-control hypertension in chronic kidney disease patients.[24] The results showed a mean reduction in systolic and diastolic blood pressure. Moreover, thirty-one percent of participants were discharged to primary care management, on average, within 8±5 months, with a sustained effect. Similarly, a study by Towfighi A. et al (2021) aimed to describe the impact of a pharmacist and health coach chronic disease management program (tailored education based on the individual's medical conditions, medications, and potential lifestyle modifications) on the clinical outcomes of diabetes, hypertension, and hyperlipidemia.[19] The study found statistically significant improvements following the intervention from baseline to 1 year in HbA1c, systolic and diastolic blood pressure, total cholesterol, and LDL cholesterol. However, the mean systolic blood pressure improved from 143 mmHg at baseline to 133 mmHg at 12 months in the intervention group, and from 146 mmHg at baseline to 137 mmHg at 12 months in the usual care group, with no significant differences in the change between the groups.

Interpersonal Level

Providers' Work Performance

ITBC has been shown to impact not only patients' care and outcomes but also the providers' own work performance.[21,26,27] For example, a study conducted in Thailand assessed the differences between inpatients receiving self-administered medication (SAM) education under the guidance of a multidisciplinary team and those receiving standard nurse-administered medication in terms of medication knowledge, adherence, medication errors, and hospital readmission.[21] The results revealed that no medication errors occurred during hospitalization in the study group, while minimal errors were found in the control group. Another cross-sectional social network analysis evaluated how the structure of a team and the level of collaboration between different providers impacted patient outcomes conducted among 4,453 healthcare providers, including medical doctors (MDs), nurse practitioners (NPs), and physician assistants (PAs).[27] Regarding providers' work performance, the results found that practices with only MDs had lower centralization and higher MD-to-MD connectedness. Conversely, NPs and PAs were more connected to all providers in the practice but exhibited a higher degree of centralization than the MDs.

Shared Decision Making

Shared decision-making is one of the emerging subthemes at the interpersonal level. A prospective study identified the impact of the Heart Team (HT) approach (consultation with physician, cardiologist, cardiothoracic surgeons, etc.) on the decisions and outcomes of patients with complex coronary artery disease.[25] The results show that of the 166 patients discussed at HT meetings, 79 (47.6%) decided to undergo percutaneous coronary intervention, 49 (29.5%) underwent coronary artery bypass grafting, 1 (0.6%) underwent hybrid revascularization, and 34 (20.5%) were treated with optimal medical therapy.[25]

Organizational Level

Healthcare Utilization

The healthcare utilization theme emerged during the data synthesis at the organizational level, as mentioned in six included studies in which ITBC had an impact.[18–21,25,27] For example, a randomized controlled trial examined the differences between inpatients receiving self-administered medication education under the guidance of a multidisciplinary team and those receiving standard nurse-administered medication regarding medication knowledge, adherence, medication errors, and hospital readmission. Regarding healthcare utilization, the study found that the study group had a significantly 20% lower 60-day readmission rate than the control group.[21] In addition, another descriptive study of various chronic diseases evaluated how the structure of a team and the level of collaboration between different providers impacted patient outcomes and found that a higher degree of centralization was associated with higher rates of hospitalization, emergency room (ER) admissions, and total spending, as well as lower rates of potentially inappropriate medications.[27] Moreover, the rates of ER admissions, hospitalizations, and total spending under team leadership by an NP and an MD were similar. Likewise, a retrospective study compared ED visits and hospital admissions between patients who participated in the pharmacist and health coach chronic disease management program and those who did not.[19] The results found statistically significant differences in hospital admissions between the program and non-program groups, with non-program patients having more ED visits than program patients.

Discussion

The results of this systematic review highlight the substantial benefits of ITBC on chronically ill patients. At the patient level, ITBC enhances self-management and health outcomes. At the interpersonal level, it improves healthcare providers' performance and promotes shared decision-making. At the organizational level, it leads to more efficient healthcare utilization.

At the patient level, ITBC interventions have been shown to enhance patients' self-efficacy and self-management behaviors, which are critical for effective chronic disease management. The collaborative efforts of various healthcare professionals, such as nurses, nutritionists, and kinesiologists, provide comprehensive support that addresses the multi-faceted needs of patients.[18,21–23] This is consistent with the previous study, which suggests that embedding health coaches within interdisciplinary care teams may improve care processes and accelerate patient progress.[28] This approach has shown promise in helping patients manage chronic diseases and improving health outcomes.[28] Another study found that a Quality Improvement and Innovation Partnership program improved team functioning, trust, respect, and inter-disciplinary collaboration, leading to improved chronic disease management and access to care.[29] Future research should explore the long-term sustainability of self-improvement and identify which components of ITBC are most effective in promoting lasting behavior change. Implementing ITBC should focus on training healthcare teams in collaborative practices and integrating these approaches into standard care protocols to maximize patient self-improvement.

In addition, the positive impact of ITBC on clinical outcomes for chronically ill patients is also significant. Studies included in this review demonstrate that ITBC interventions can lead to meaningful improvements in key health metrics such as blood pressure, blood glucose levels, and cholesterol levels.[18–20,22–25] These improvements reflect better disease control and a reduced risk of complications, which are essential for long-term health management. The involvement of diverse healthcare professionals ensures that patients benefit from a range of expertise that enhances the effectiveness of care.[18–20,22–25] Accordingly, this multidisciplinary approach not only facilitates better health outcomes but also reduces healthcare utilization by preventing hospital readmissions and emergency department visits. Our findings are consistent with published studies. For example, a study that determined the effects of an interdisciplinary care team on the management of Alzheimer's disease found that an interdisciplinary care team approach significantly increased activities of daily living scores for patients with Alzheimer's disease, highlighting the benefits of interdisciplinary care in improving patient outcomes.[30] Another study focused on stroke patients revealed that ITBC during acute stroke inpatient rehabilitation is key to managing long-term costs while improving functional outcomes.[31] Therefore, it is suggested that future research should focus on identifying the optimal composition and functioning of ITBC teams to enhance patient outcomes further and reduce healthcare costs. Implementation strategies should prioritize integrating ITBC models into

healthcare systems, emphasizing the importance of interdisciplinary collaboration and ongoing professional development to maintain high standards of patient care.

The analysis of included studies in our review demonstrated that ITBC also affects the interpersonal level, particularly the providers' work performance. This finding aligns with previous research highlighting the benefits of professional collaboration. For instance, a study in Germany found that the collaboration between general physicians and community pharmacists in developing software for medication planning proved beneficial, allowing physicians to gain greater medical knowledge and pharmacists to gain deeper insights into patients' health.[32] Similarly, a study in primary ambulatory care indicated that interdisciplinary work among physicians, nurses, pharmacists, and psychologists helps each discipline understand others' roles and responsibilities, ultimately leading to improved workflow.[33] Moreover, interdisciplinary collaboration benefits patients' outcomes as each profession brings unique skills that cover physical, psychological, and emotional aspects of care, contributing to patient safety within the healthcare system.[34] For example, when physicians, nurses, and clinical pharmacists work together in an intensive care unit, medication errors are significantly reduced.[35] Meta-analyses have shown that a well-functioning interdisciplinary team improves patient adherence to treatment and reduces both mortality and morbidity rates.[36,37]

Along with providers' work performance, our study revealed that ITBC can influence patients' shared decision-making. This finding is supported by prior research, including a systematic review that demonstrated how interdisciplinary teams positively impact palliative care patients' involvement in shared decision-making, enabling them to make independent choices about their care.[38] Similarly, studies have shown that an interdisciplinary approach benefits patients with type 2 diabetes by allowing them to engage in shared decision-making with a diverse group of health experts. This collaboration can lead to the provision of alternative treatment options and educational recommendations aimed at reducing diabetes-related complications.[39,40] The interdisciplinary team approach is crucial as it helps break down the silos of independent work among professionals. It shows how different professionals with diverse specialties can enhance their work performance to address multiple aspects of patients' health problems. Additionally, this approach gives patients opportunities to engage and interact with a group of experts, providing a sense of comfort and potentially encouraging them to share openly and participate more confidently in the decision-making process.

Another important finding of the review is that, at the organizational level, ITBC leads to more efficient healthcare utilization. These consistent findings across the studies have significant implications for healthcare policy and practice. Firstly, they underscore the value of ITBC in reducing healthcare utilization and improving patient outcomes. Policies that promote and support the integration of multidisciplinary teams in patient care can lead to substantial cost savings for healthcare systems and better health outcomes for patients.[41–43] Moreover, the role of non-physician healthcare providers, such as nurses, dietitians, pharmacists, and health coaches, should be recognized and integrated into chronic disease management programs to enhance care delivery and reduce healthcare utilization.[44,45] Future research should focus on exploring the specific contributions of different non-physician providers within ITBC models and their impact on patient outcomes.

Limitations

Despite the comprehensive approach taken in this systematic review, several limitations should be acknowledged. Firstly, including studies published only between 2019 and 2024 might have excluded relevant earlier research that could provide additional historical context or longitudinal perspectives on ITBC interventions. This temporal restriction, while aligning with contemporary healthcare practices, may have overlooked studies with longer follow-up periods that could offer insights into the sustainability of ITBC models over time.

Secondly, the review focused primarily on studies published in English, which could introduce language bias and potentially exclude valuable research published in other languages. This limitation may have impacted the comprehensiveness of the evidence synthesis, particularly regarding global perspectives and diverse healthcare settings where ITBC initiatives might differ significantly.

Furthermore, the heterogeneity in study designs and ITBC interventions across included studies presents a challenge in directly comparing findings and generalizing results. Variations in participant demographics, chronic conditions

studied, and specific components of ITBC models make it challenging to establish uniform conclusions across all settings and populations.

Research and Clinical Implication

The findings underscore several critical areas for future investigation. Firstly, while ITBC demonstrates immediate benefits, such as improved self-management and health outcomes among chronically ill patients, further research is needed to assess its long-term sustainability and effectiveness. Comparative studies are essential to determine which specific ITBC models are most effective for different chronic conditions and patient populations. Additionally, as telemedicine and digital health solutions evolve rapidly, future research should explore how these technologies can be integrated into ITBC to enhance care delivery and patient outcomes. Moreover, rigorous economic evaluations are necessary to determine the cost-effectiveness of ITBC compared to traditional care approaches. Finally, future studies should prioritize patient-centered outcomes to comprehensively evaluate the holistic impact of ITBC on patients' quality of life, satisfaction, and empowerment.

Moreover, this systematic review's findings offer practical insights for clinical practice. Implementing ITBC models promotes enhanced collaborative care among healthcare providers from diverse disciplines, enabling them to deliver comprehensive and tailored care to chronically ill patients. By fostering shared decision-making between patients and providers, ITBC supports patient-centered care approaches that align treatment plans with patients' preferences and values. Healthcare organizations should invest in training initiatives to equip professionals with interdisciplinary skills and enhance communication strategies within multidisciplinary teams. Policymakers are pivotal in supporting ITBC integration into routine clinical practice through policies incentivizing collaborative care and funding for interdisciplinary training programs. Continuous quality improvement efforts are essential to optimize ITBC implementation, ensuring ongoing enhancements in care quality and patient safety across healthcare settings.

Conclusion

In conclusion, this systematic review underscores the significant positive impact of ITBC on chronically ill patients across multiple dimensions. Our synthesis of recent literature demonstrates that ITBC enhances patient self-improvement, improves health outcomes, enhances providers' work performance, promotes shared decision-making, and optimizes healthcare utilization. These findings advocate for the integration of ITBC models into healthcare delivery systems to improve care quality and patient outcomes. Future research should continue to explore optimal strategies for implementing and sustaining effective ITBC interventions in diverse healthcare settings.

Disclosure

No potential conflict of interest was reported by the authors.

References

1. Von Korff M, Gruman J, Schaefer J, Curry SJ, Wagner EH. Collaborative management of chronic illness. *Am Coll Physicians*. 1997;127:1097–1102.
2. Coleman K, Austin BT, Brach C, Wagner EH. Evidence on the chronic care model in the new millennium. *Health Affairs*. 2009;28(1):75–85. doi:10.1377/hlthaff.28.1.75
3. Bendowska A, Baum E. The significance of cooperation in interdisciplinary health care teams as perceived by Polish Medical Students. *Int J Environ Res Public Health*. 2023;20(2):954. doi:10.3390/ijerph20020954
4. Whitehead L, Palamara P, Babatunde-Sowole OO, et al. Nurses' experience of managing adults living with multimorbidity: a qualitative study. *J Adv Nurs*. 2023;79(7):2514–2524. doi:10.1111/jan.15600
5. Rosen MA, DiazGranados D, Dietz AS, et al. Teamwork in healthcare: key discoveries enabling safer, high-quality care. *Am Psychol*. 2018;73 (4):433–450. doi:10.1037/amp0000298
6. El-Awaisi A, Awaisu A, Aboelbaha S, Abedini Z, Johnson J, Al-Abdulla SA. Perspectives of healthcare professionals toward interprofessional collaboration in primary care settings in a Middle Eastern Country. *J Multidiscip Healthcare*. 2021;Volume 14:363–379. doi:10.2147/JMDH.S286960
7. Law B, Chhatwal PK, Licskai C, Scurr T, Sibbald SL. Patient engagement in interprofessional team-based chronic disease management: a qualitative description of a Canadian program. *Patient Educ Counsel*. 2023;114:107836. doi:10.1016/j.pec.2023.107836
8. Niederriter J, Hovland C, Hazelett S, et al. Using the Constructivist/Active Learning Theoretical Framework to develop and test a simulation-based interprofessional geriatric training curriculum. *J Interprof Educ Pract*. 2020;19:100322. doi:10.1016/j.xjep.2020.100322

9. Tringale M, Stephen G, Boylan AM, Heneghan C. Integrating patient values and preferences in healthcare: a systematic review of qualitative evidence. *BMJ Open*. 2022;12(11):e067268. doi:10.1136/bmjopen-2022-067268
10. Engle RL, Mohr DC, Holmes SK, et al. Evidence-based practice and patient-centered care: doing both well. *Health Care Manage Rev*. 2021;46 (3):174–184. doi:10.1097/HMR.0000000000000254
11. Will KK, Johnson ML, Lamb G. Team-based care and patient satisfaction in the hospital setting: a systematic review. *J Patient-Centered Res Rev*. 2019;6(2):158–171. doi:10.17294/2330-0698.1695
12. Von Korff M, Tiemens B. Individualized stepped care of chronic illness. *West J Med*. 2000;172(2):133–137. doi:10.1136/ewjm.172.2.133
13. Anderson E, Durstine JL. Physical activity, exercise, and chronic diseases: a brief review. *Sports Med Health Sci*. 2019;1(1):3–10. doi:10.1016/j.smhs.2019.08.006
14. David M, Alessandro L, Jennifer T, Douglas GA. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ*. 2009;339:b2535. doi:10.1136/bmj.b2535
15. Moola S, Munn Z, Tufanaru C, et al. Chapter 7: systematic reviews of etiology and risk. *Joanna Briggs Institute Reviewer's Manual the Joanna Briggs Institute*. 2017;5.
16. JBI. Critical appraisal tools The Joanna Briggs Institute, Faculty of Health and Medical Sciences, The University of Adelaide: the Joanna Briggs Institute, Faculty of Health and Medical Sciences, The University of Adelaide; 2024. Available from: https://jbi.global/critical-appraisal-tools. Accessed January 25, 2025.
17. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Int J Surg*. 2021;88:105906. doi:10.1016/j.ijsu.2021.105906
18. Jiang WH, Zhang YA, Yan FH, Liu H, Gao R. Effectiveness of a nurse-led multidisciplinary self-management program for patients with coronary heart disease in communities: a randomized controlled trial. *Patient Educ Counsel*. 2020;103(4):854–863. doi:10.1016/j.pec.2019.11.001
19. Newlon JL, Clabaugh M, Plake KSI. Clinical impact of a pharmacist plus health coach chronic disease management program in a rural free clinic. *J Am Pharm Assoc*. 2021;61(4):450–461. doi:10.1016/j.japh.2021.02.011
20. Nieto-Martín MD, De la Higuera-Vila L, Bernabeu-Wittel M, et al. A multidisciplinary approach for patients with multiple chronic conditions: IMPACTO study. *Medicina clinica*. 2019;153(3):93–99. doi:10.1016/j.medcli.2019.01.014
21. Kaday R, Ratanajamit C. Inpatient self-administered medication under the supervision of a multidisciplinary team: a randomized, controlled, blinded parallel trial. *Pharm Pract*. 2020;18(2):1–12. doi:10.18549/PharmPract.2020.1.1686
22. Towfighi A, Cheng EM, Ayala-Rivera M, et al. Effect of a coordinated community and chronic care model team intervention vs usual care on systolic blood pressure in patients with stroke or transient ischemic attack. The SUCCEED randomized clinical trial. *JAMA Netw Open*. 2021;4(2): e2036227. doi:10.1001/jamanetworkopen.2020.36227
23. Fortin M, Stewart M, Almirall J, et al. One year follow-up and exploratory analysis of a patient-centered interdisciplinary care intervention for multimorbidity. *J Multimorb Comorb*. 2021;11:26335565211039780. doi:10.1177/26335565211039780
24. Dopp JM, Lange A, Maursetter L. Interdisciplinary telehealth team positively impacts difficult-to-control hypertension in CKD. *Kidney360*. 2023;4 (6):817–823.
25. Young MN, Kolte D, Cadigan ME, et al. Multidisciplinary heart team approach for complex coronary artery disease: single center clinical presentation. *J Am Heart Assoc*. 2020;9(8):1–10. doi:10.1161/JAHA.119.014738
26. Gogovor A, Visca R, Ware MA, et al. Determinants of patient experience with low back pain interdisciplinary care: a pre-post interventional study. *J Pain Res*. 2019;12:3203–3213. doi:10.2147/JPR.S207989
27. Kuo YF, Agrawal P, Chou LN, Jupiter D, Raji MA. Assessing association between team structure and health outcome and cost by social network analysis. *J Am Geriatr Soc*. 2021;69(4):946–954. doi:10.1111/jgs.16962
28. Denneson LM, Purcell N, McGrath SL, Abadjian LR, Becker WC, Seal KH. Integration of health coaches in a whole health team model of chronic pain care: a qualitative study. *J Gen Inter Med*. 2023;38(16):3574–3580. doi:10.1007/s11606-023-08317-x
29. Kotecha J, Brown JB, Han H, et al. Influence of a quality improvement learning collaborative program on team functioning in primary healthcare. *Fam Syst Health*. 2015;33(3):222–230. doi:10.1037/fsh0000107
30. Chen C, Huang Y, Liu C, Xu Y, Zheng L, Li J. Effects of an interdisciplinary care team on the management of Alzheimer's disease in China. *J Gerontol Nurs*. 2019;45(5):39–45. doi:10.3928/00989134-20190318-01
31. Kushner DS, Strasser DC. Stroke inpatient rehabilitation team conferences: leadership and structure improve patient outcomes. *J Stroke Cerebrovasc Dis*. 2020;29(4):104622. doi:10.1016/j.jstrokecerebrovasdis.2019.104622
32. Eickhoff C, Müller U, Strunz AK, et al. The PRIMA project-electronically-supported physician-pharmacist cooperation to generate and update medication plans in Germany. *Deutsche medizinische Wochenschrift*. 2019;144:e114–e120. doi:10.1055/a-0859-5862
33. Carney PA, Thayer EK, Palmer R, Galper AB, Zierler B, Eiff MP. The benefits of interprofessional learning and teamwork in primary care ambulatory training settings. *J Interprof Educ Pract*. 2019;15:119–126. doi:10.1016/j.xjep.2019.03.011
34. Jasline M, Patel GM, Ganapathy K. The significance of interprofessional collaboration in enhancing patient safety within healthcare. Salud. *Ciencia y Tecnología*. 2023;3:443.
35. Irajpour A, Farzi S, Saghaei M, Ravaghi H. Effect of interprofessional education of medication safety program on the medication error of physicians and nurses in the intensive care units. *J Educ Health Promotion*. 2019;8(1):196. doi:10.4103/jehp.jehp_200_19
36. Schmutz JB, Meier LL, Manser T. How effective is teamwork really? The relationship between teamwork and performance in healthcare teams: a systematic review and meta-analysis. *BMJ open*. 2019;9(9):e028280. doi:10.1136/bmjopen-2018-028280
37. Webster CS, Coomber T, Liu S, Allen K, Jowsey T. Interprofessional learning in multidisciplinary healthcare teams is associated with reduced patient mortality—a quantitative systematic review and meta-analysis. *J Patient Safety*. 2023;10–1097.
38. Kuosmanen L, Hupli M, Ahtiluoto S, Haavisto E. Patient participation in shared decision-making in palliative care–an integrative review. *J Clin Nurs*. 2021;30(23–24):3415–3428. doi:10.1111/jocn.15866
39. de Boer IH, Khunti K, Sadusky T, et al. Diabetes management in chronic kidney disease: a consensus report by the American Diabetes Association (ADA) and Kidney Disease: improving Global Outcomes (KDIGO). *Diabetes Care*. 2022;45(12):3075–3090. doi:10.2337/dci22-0027
40. Collister D, Pyne L, Cunningham J, et al. Multidisciplinary chronic kidney disease clinic practices: a scoping review. *Can J Kidney Health Dis*. 2019;6:2054358119882667. doi:10.1177/2054358119882667

41. Reiss-Brennan B, Brunisholz KD, Dredge C, et al. Association of integrated team-based care with health care quality, utilization, and cost. *JAMA*. 2016;316(8):826–834. doi:10.1001/jama.2016.11232
42. Martin A, Green T, McCarthy A, Sowa P, Laakso E. Allied health transdisciplinary models of care in hospital settings: a scoping review. *J Interprofes Care*. 2023;37(1):118–130. doi:10.1080/13561820.2022.2038552
43. Woodall T, Russell A, Tak C, McLean W. Addressing healthcare utilization and costs for older adults with limited mobility through a multidisciplinary home-based primary care program. *J Am Board Fam Med*. 2023;36(4):550–556. doi:10.3122/jabfm.2022.220222R3
44. DeCaporale-Ryan LN, Ahmed-Sarwar N, Upham R, Mahler K, Lashway K. Reducing hospital readmission through team-based primary care: a 7-week pilot study integrating behavioral health and pharmacy. *Fam Syst Health*. 2017;35(2):217. doi:10.1037/fsh0000269
45. Angibaud M, Jourdain M, Girard S, et al. Involving community pharmacists in interprofessional collaboration in primary care: a systematic review. *BMC Primary Care*. 2024;25(1):103. doi:10.1186/s12875-024-02326-3