The Review Of
DIABETIC
STUDIES OPEN ACCESS

Team-Based Care Across Healthcare Disciplines And Patient Outcomes

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Abstract
The mode of care provided through the efforts of interdisciplinary teams is a cornerstone approach in the improvement of patient results in a wide range of healthcare environments. An integrative analysis of the impact of inter professional cooperation between nursing , medicine ,dentistry , health administration , social work , and pharmacy practitioners in the management of chronic diseases and the provision of patient care is discussed. The integration of multiple healthcare fields creates a synergistic effect, which improves patient results, patient satisfaction, and efficiency in the use of resources. Studies have revealed that a team-based approach in the management of patient care results in a substantial improvement in the management of disease indicators, a reduction in hospitalization rates, and increased patient participation. This paper aims to integrate existing knowledge on collaborative care approaches, challenges associated with the implementation of such approaches, and measurable outcomes in a wide range of medical disciplines.

Keywords: Team**,** nursin , medicine ,dentistry , health administration , social work , pharmacy, Healthcare.

1. Introduction

The complexities of the current health care system have resulted in the need for cooperative approaches that transcend the traditional professional boundaries of health care providers. Non-communicable diseases have been identified as the leading cause of death for people worldwide. According to the WHO (2022), they account for 74% of total deaths worldwide. The challenge of dealing with non-communicable diseases has resulted in the need for cooperative approaches by different health care providers to address the needs of the patients appropriately.

Team-based care is a new paradigm that has shifted from traditional individualistic and practitioner-centered care to a cooperative and patient-centered care. It involves multiple accountability, complementarity, and cooperation from different health care providers with different professional backgrounds (Schmutz et al., 2019). The chronic care model, as proposed by Wagner et al. (1996), is

the basis for the systematic approach to team-based care for effective intervention in disease management.

The application of inter professional cooperation in the management of patients in primary health care has shown tremendous benefits in the management of non-communicable diseases such as diabetes, hypertension, and heart diseases. The chronic care model, as proposed by Wagner et al. (1996), has been the basis on which the systematic implementation of the team-based models is carried out.

The integration of different professions in the field of primary health care has been recognized as having a positive effect on the management of chronic health conditions such as diabetes, hypertension, and cardiovascular diseases (Reynolds et al., 2018). The integration of nursing, medicine, dentistry, health administration, social work, and pharmacy has led to the development of holistic models of care that address the clinical, behavioral, social, and administrative aspects of the patient's health.

1.1 Aims of the Study

The aim of this integrative analysis is to:

• Explore the role of different disciplines of healthcare in collaboration.
• Investigate the role of inter professional collaboration in the health of the patient.
• Collect data on the efficacy of the management of chronic diseases.
• Establish the hindrances and facilitators of the effective implementation of team-based models of care.

2. Conceptual Framework of Team-Based Care

Team-based care has been described as the delivery of health services by a group of healthcare professionals who collaborate with their patients and their caregivers to attain a common goal in different health care settings (Mitchell et al., 2008)

According to Xyrichis and Ream (2008), teamwork has been described as an active process between two or more health professionals who have complementary education and professional competencies, share common health goals, and utilize coordinated efforts to deliver health care services to their patients. The success of teamwork is attributed to clear role definitions, communication channels, and supportive structures.

2.1Fundamental Elements of Successful Teams

Successful models of team-based health care have a number of fundamental elements. According to the Inter professional Education Collaborative (2016):

- Common goals and vision with a focus on the patient-centered approach.
- Well-defined roles that acknowledge the complementarity of skills.
- Communication systems that facilitate the sharing of information.
- Respect and trust for each other.
- Collaborative approaches to decision-making that involve the patient/family.
- Organizational infrastructure and leadership.

3. Contributions of Healthcare Disciplines in Team-Based Care

3.1 Nursing

Nurses are the majority of the healthcare system. Nurses make a significant contribution to team-based healthcare delivery.

The contribution of nurses to team-based healthcare delivery includes the delivery of patient care, coordination of patient care, education of the patient, and promotion of health. According to Taylor et al. (2005), the involvement of nurses and physicians has a significant contribution to the management of type 2 diabetes mellitus. The involvement of practice nurses and general practitioners has been significant in the early management of chronic obstructive pulmonary disease, which has improved the outcomes for the patients (Zwar et al., 2016).Nurses make a significant contribution to the team-based healthcare delivery team. The skills of the nurses include patient assessment, administration of medications, patient monitoring, and continuation of patient care in different healthcare institutions. The involvement of nursing assistants and health assistants has been positive in patient care and patient satisfaction in the primary healthcare system (Alghamdi et al., 2024). Nursing assistants assist

the registered nurses in the management of patient care, thus enabling the registered nurse to effectively manage the patient, as the nursing assistant helps the registered nurse with patient care.

3.2Medicine

Physicians offer medical diagnosis, treatment planning, and clinical care in a team-based care model. The expertise that physicians offer in pathophysiology, pharmacotherapy, and medical judgment forms the basis of care coordination. For physicians to effectively work in teams, there is a need to share power in decision-making and accept the supplementary expertise offered by the rest of the team.

Physician-pharmacist co-management has demonstrated significant improvement in the regulation of patients' blood pressure and 24-hour ambulatory blood pressure monitoring among hypertensive patients (Chen et al., 2013). Co-management of patients by physicians and pharmacists combines the expertise offered by both in the diagnosis and management of patients.

General practitioners working in multidisciplinary teams have demonstrated enhanced capabilities in managing complex chronic conditions through workload distribution and solution-finding (Freund et al., 2015). Joint care planning helps the physicians benefit from the different professional perspectives in developing comprehensive care plans.

3.3 Pharmacy

The expert knowledge and skills of clinical pharmacists in the management of medicines, drug therapy optimization, and counseling have a positive effect on the management of chronic health conditions, particularly those that require complex medication regimens, such as diabetes, .hypertension, and chronic kidney disease

Anderegg et al. (2018) proved that the involvement of pharmacists in the management of blood pressure for patients with diabetes and chronic kidney disease led to a significant reduction in systolic and diastolic blood pressure.

The effectiveness of team-based care for the management of chronic health conditions through the involvement of clinical pharmacists has been established for safety-net medical homes (Price-Haywood et al., 2017). The sustainability of the effects of the involvement of pharmacists is beyond the immediate effects. Wentzlaff et al. (2011) showed that the control of blood pressure can be sustained even after the end of the involvement of pharmacists.

3.4Dentistry

There is an increasing trend of oral health practitioners working as integrative care providers, acknowledging the interconnectedness of oral health with systemic health. Dental practitioners are involved in the management of chronic diseases in an integrative manner, for example, by identifying systemic diseases in the oral cavity, treating side effects of medications that impact oral health, and promoting general wellness by providing preventative dental care.

The integration of dental care services with primary care services helps in early detection of diseases, for example, diabetes, by oral health screening. The integrative approach to periodontal disease in diabetic patients is an example of an inter professional approach, where oral health interventions are known to impact blood sugar levels.

The integrative approach in dentistry focuses on patient education regarding oral health and systemic health, as well as medication management, especially side effects of medications, which require good communication skills between practitioners.

3.5 Social Work

Social workers play an important role in dealing with the many aspects that influence the health of a patient. This includes the psychosocial aspects, economic aspects, and environmental aspects. Social workers identify the challenges that a patient is facing and help them to overcome these challenges to make the healthcare system more accessible. This is important in a healthcare system that is based on teamwork. They help the patient to overcome the challenges that they are facing to access healthcare services. This is especially important for patients with chronic illnesses. The behavior of the patient and their family is a big influence on the recovery of the patient. The addition of social workers to the team improves the quality of healthcare.

3.6Health Administration

Health administrators and practice managers are the foundation upon which effective team-based care can be realized. Their role involves providing organizational support, which allows team-based care to flourish.

The role of administrative leadership in effective team-based care can be realized through a number of mechanisms. One such mechanism involves developing organizational policies that promote team-based care, implementing information systems that facilitate team communication, developing a team calendar to allow for team meetings, and developing organizational measures of success based on team-based care.

The role of administrators in overcoming team-based care challenges, organizational changes, and sustaining team-based care involves a number of mechanisms. One such mechanism involves workforce development, training, and quality improvement, which ensures team structures are effective.

4. Evidence of Effectiveness

4.1 Diabetes Management

The team-based approach to diabetes management is supported by a considerable volume of research evidence. A study by De La Rosa et al. in 2020, for example, emphasized the importance of inter professional collaborative practice programs in diabetes care, noting the significance of planning and joint treatment decisions in this model of care. In 2018, Nagelkerk et al. implemented the inter professional collaborative practice model in the management of diabetes in adults.

The study revealed that this model effectively improves HbA1c, self-management, and patient satisfaction with the multidisciplinary team, including nurse practitioners, pharmacists, dietitians, and social workers. In Zhang et al. 2022,examined the combined effect of clinical decision support and the team-based approach to diabetes management for Medicaid patients with type 2 diabetes. This study, therefore, demonstrates the role of technology in the team-based approach to diabetes management.

4.2Hypertension Management

A pragmatic randomized trial conducted by Santschi and colleagues in 2021 found that a structured team-based approach was effective in improving blood pressure control and reducing cardiovascular risk when compared to the usual approach. Bryant and colleagues in 2023 found that there were considerable improvements in blood pressure control, along with good cost-effectiveness, when the management of hypertension was carried out in a team-based manner. The management of hypertension in Africa, Hinneh and colleagues in 2024, found that the results of team-based care were significantly better in controlling blood pressure when compared to the usual approach in various healthcare settings. A study conducted earlier by Chen and colleagues in 2013 found that co-management of hypertension between physicians and pharmacists was effective in improving 24-hour BP control.

4.3 Preventing Cardiovascular Disease

Team-based care has been seen to make significant strides in addressing cardiovascular risk factors simultaneously. The study done by Frei et al. in 2014 on the chronic care model for small practices observed significant progress in the reduction of cardiovascular risk.

A collaborative group of health professionals works together to address the risk factors of hypertension, high cholesterol, diabetes, obesity, and lifestyle in a comprehensive and all-encompassing manner.

4.4Chronic Obstructive Pulmonary Disease

Team-based care for COPD patients has been successful, especially in the early intervention and management of the disease.

Kruis et al. conducted a cluster randomized trial on the effectiveness of integrated disease management for COPD patients in the primary care domain. The study observed positive health-related quality of life and clinical outcomes for the patients.

5. Results: Summary of Key Findings

Table 1: Impact of Team-Based Care on Diabetes Outcomes

Study	Intervention	Team Composition	Key Outcomes
Nagelkerk et al., 2018	Interprofessional collaborative practice program	Nurse practitioners, pharmacists, dietitians, social workers	Significant HbA1c reduction, improved self-management
Parker et al., 2016	Nurse practitioner-led collaborative teams	Nurse practitioners, physicians, support staff	Enhanced glycemic control, greater HbA1c reductions
Whitley et al., 2020	Interdisciplinary diabetes education	Interdisciplinary team with diabetes educators	Improved health outcomes, enhanced patient engagement
Zhang et al., 2022	Clinical decision support with team-based care	Multidisciplinary team with technology integration	Type 2 diabetes improvement in Medicaid patients

Table 2: Team-Based Care Effects on Hypertension Management

Study	Intervention Type	Professional Roles	Measured Outcomes
Chen et al., 2013	Physician-pharmacist co-management	Physicians, clinical pharmacists	Improved 24-hour BP control, reduced BP variability
Bryant et al., 2023	Meta-analysis of team-based care	Multiple professional combinations	Significant BP improvements, cost-effective interventions
Hinneh et al., 2024	Team-based interventions in Africa	Community health workers, nurses, physicians	Greater BP reductions vs. usual care
Santschi et al., 2021	Pragmatic RCT of team-based care	Nurses, pharmacists, physicians	Superior BP control, reduced CV risk
Anderegg et al., 2018	Pharmacist intervention for BP control	Pharmacists, primary care teams	Significant systolic and diastolic BP reductions

Table 3: Healthcare Utilization and Cost Outcomes

Study	Team Model	Utilization and Cost Outcomes
Meyers et al., 2019	Team-based primary care for chronically ill patients	Reduced healthcare utilization and costs among chronically ill patients
Kiran et al., 2022	Impact of team-based care on emergency department use	Decreased emergency department visits, improved care coordination
Pany et al., 2021	Provider teams vs. solo providers in chronic disease management	Teams outperformed solo providers, improved value of care

6. Implementation Considerations

6.1What Helps Team-Based Care Take Root

It's not just the good idea of team-based care that needs to be implemented—it's the way the organization works and the culture it has. The research by Coates et al. (2022) identifies some of the foundational elements of successful integrated care as good leadership support, access to resources, communication guidelines, and cultural support.

Fletcher et al. (2021) proposed the Team-based care Evaluation and Adoption Model (TEAM Framework) to facilitate an in-depth exploration of the process of change in primary care transformation. The framework emphasizes the importance of continuous evaluation, engagement of stakeholders, and the pursuit of continuous quality improvement as the foundation of a sustainable team-based care system.

Some of the enablers of team-based care are:

-Robust administrative leadership and organizational commitment

-Time and resources available for meetings and coordination

-Clear role definition with respect for professional boundaries
-Robust communication systems and information technology
-Training on inter professional collaboration and teamwork
-In centivization that aligns with and supports collaborative practice
- Patient engagement as active partners in the healthcare process

6.2 Barriers to Implementation

While it is clear that team-based care works, the actual implementation of team-based care faces many challenges. Tandan et al. (2022) conducted a study to examine the level of preparedness of Irish general practice to deliver national chronic disease management programs and the barriers to implementation. The research indicated that the implementation of team-based care is affected by issues such as limited resources, training needs, and workflow barriers.
Some of the barriers include:

- Lack of time to coordinate and communicate effectively.
- Professional boundaries and a stiff hierarchy
- Lack of clear roles and responsibilities.
- Inadequate information technology support to facilitate coordination of care.
- Resistance to change and the status quo. - Inadequate payment incentives.

6.3 Strategies for Overcoming Barriers

Kyle and associates, in their 2021 mixed-methods study, focused on the change process as a means of ensuring a seamless transition into team-based care. They emphasized the importance of phasing the implementation, keeping all stakeholders “in the loop,” and the value of adaptive leadership as key strategies in overcoming barriers to implementation.
Hastings and associates, in their 2016 study, tracked the implementation of team-based care in a general medical unit. They emphasized the value of pilot programs, ongoing assessments, and “tweaking” the implementation as essential strategies in overcoming barriers. Their key point: gradual implementation and ongoing feedback are the key to long-term, sustainable implementation.
In their paper published in 2021, Mitzel and team provide a guide to creating a virtual integrated primary care team. In it, they emphasize the potential benefits technology can offer in terms of increasing collaboration within the team. The guide is also an attempt to translate team-based care, which is typically done in person, into a virtual format

7. The Role of Technology in Team-Based Care

Technology is becoming more central in the team-based care process. The main technologies used include electronic health records, decision support systems, telehealth, and patient portals.
A 2022 study by Zhang, et al., investigated the clinical decision support tools used in team-based care in managing type 2 diabetes patients under Medicaid.
The researchers observed that technology integration in team-based care increases its effectiveness in managing type 2 diabetes. In another study published in 2021, Smuck and team set out to understand the role of wearable devices in team-based care. The researchers also wanted to understand some of the factors affecting its implementation. Patient-generated health data can be an important factor in team-based care in managing chronic diseases.

8. Patient and Family Engagement

In a collaborative team, patients and families are not on the outside looking in; they are active participants in the care process. It involves goal setting, decision making, learning about health care, and providing feedback about the care process.
Evidence exists to prove the importance of patient and family engagement. Will et al. (2019) investigated the way teams function in hospitals, the way care is provided, and the level of satisfaction patients receive. The study established that when care is provided through a collaborative team, the patient is more satisfied. The most important factors are the smooth flow of care coordination, communication, and what the patient prefers.
In a study by Gao et al. (2021), they focused on the importance of virtual team planning for the elderly in formal care settings. The study established the need for the involvement of patients and

families in the planning process. The study established that collaborative planning is more likely to achieve continuity of care.

9. Team-Based Care for Special Populations

9.1 Cancer Survivors with Comorbid Conditions

In a systematic review by Doose et al., published in 2022, it was demonstrated that working in partnership with primary care teams greatly enhances the care of cancer patients who have co-occurring health conditions.

Overall, the satisfaction of patients increases with the implementation of the team care model compared to the traditional care model. The scope of the team care model is wider, and the availability of more health professionals is a contributing factor.

9.2 Patients with Advanced Chronic Disease

A study by Arney et al. in 2022 investigated the perspectives of professionals on integrated care for individuals with end-stage chronic diseases.

9.3 Mental Health Integration

The natural role of mental health integration in the care of patients with chronic illness, addressing the mental health aspects of coping with illness. Friedman et al., (2022) on the integration of cognitive-behavioral preventive strategies with team-based care for adults with cystic fibrosis,

10. Quality Improvement in Team-Based Care

Valentine and team (2015) conducted a survey on the available tools used in measuring teamwork in healthcare. They provide a guide on the systematic assessment of teamwork in healthcare using the available tools. The use of the tools helps in identifying the areas that require improvement in teamwork. Brenner and team (2022) illustrate the importance of addressing team dynamics, communication, and professionalism as part of a comprehensive quality improvement plan.

In a systematic review of the literature, Miller et al. (2018) specifically targeted team building in non-acute care settings. The researchers found strategies that enhance team cohesion, communication, and teamwork. The importance of team building was emphasized as a quality improvement component.

11. Economic Considerations and Value

Team-based care creates value that extends beyond the actual outcome of care provided. It affects the frequency with which care is required, helps reduce costs, and maximizes resources. It does require an investment up front to get the right infrastructure and training in place; however, the benefits include fewer hospitalizations, fewer emergency room visits, and fewer complications.

In 2023, Bryant and colleagues used a cost-effectiveness approach with their meta-analysis on team-based care for hypertension. They found positive cost-effectiveness ratios that justify the expansion of collaborative care models. The reduction in cardiovascular events and the reduction in acute care utilization.

Financial incentives are aligned, it becomes easier to sustain team-based care models. Changing the payment system to eliminate barriers to collaborative practice helps more organizations adopt effective care models.Salzberg and colleagues (2017) examined alternative payment models for care delivered to chronically ill and elderly patients within patient-centered medical homes.

Value is also seen with team-based care because it increases quality metrics, patient satisfaction, population health outcomes, and total cost of care savings. This helps build the business case for investing in collaborative care infrastructure and workforce development.

Future Directions

The development of team-based care is continuing to advance, and there are many new avenues to watch. The inclusion of artificial intelligence and machine learning to support clinical decision support tools has the potential to improve the function of teams through predictive information, improved risk assessment, and more personalized intervention ideas. The expansion of virtual and hybrid team models, accelerated by the pandemic, is creating the need to continually improve the function of virtual collaboration, communication, and care coordination. Martin et al. (2023)

conducted a study on transdisciplinary care in hospitals and noted that even more integrated and collaborative models are on the horizon.

Continuing to develop the workforce to improve the function of inter professional education, competency development, and professional growth that enhances collaborative practice is essential. Changing the education system to improve the preparation of the next generation of health professionals to function within team-based care is critical to continuing to advance this model.

13. Discussion

The integrative analysis synthesized a substantial body of evidence that demonstrates the efficacy of team-based care as a powerful approach to the management of chronic diseases and quality improvement initiatives in various healthcare settings. When the professions of nursing, medicine, dentistry, health administration, social work, and pharmacy work collaboratively, the combined synergy is greater than the sum of its parts, or what each profession could accomplish individually. The empirical findings all support the notion that team-based care is associated with improved health outcomes, particularly the management of diabetes and hypertension.

The combined expertise of the team ensures better control of blood sugars, blood pressures, and heart health management. With these benefits, there are fewer hospitalizations, fewer emergency room visits, and fewer problems.

Patients also benefit from increased satisfaction with team-based care. The patients benefit from easier access to the combined expertise of the team. The patients receive better attention to their needs, and they, as well as their families, become involved in collaborative care.

However, the implementation of team-based care is not without notable challenges. Resource, organizational, professional, and payment system barriers to care are among the notable challenges to the implementation of team-based care. The effective implementation of team-based care requires the consideration and resolution of the barriers to care, leadership, resources, communication, and organizational culture. The early adopter experience is important to those organizations that are initiating their team-based care transformation journey.

Technology integration improves the way teams work by facilitating the smooth sharing of information, clinical decision-making, and the integration of patient engagement tools. However, for technology integration to be of help rather than a hindrance to human collaboration and relationship-based care, it is important that technology integration be implemented properly. Virtual care increases access but also necessitates a change in the way teams work and communicate.

Economic studies have also supported the case for team-based care, indicating positive cost-effectiveness results, which could lead to reduced costs through the prevention of acute events and complications. This further enhances the business case for investing in team-based care within organizations.

14. Conclusion

Team-based care represents a paradigm shift in the way care is delivered, from a provider-centric model to a patient-centric model that utilizes all the skills of the health care professions. The evidence base for team-based care for the management of chronic disease is robust, demonstrating improved clinical outcomes, patient satisfaction, and overall value. A collaborative care team is formed when nursing, medicine, dentistry, health administration, social work, and pharmacy work together to address the complex needs of people who live with chronic illnesses. Each profession has its own set of tools, and when these tools complement each other, the combined strength is greater than the sum of the individual tools.

To achieve a collaborative team, a conducive culture must be created, and support must be obtained from the leadership. In addition, the role of each team member must be understood. This is, however, dependent on the right infrastructure being put in place.

The future directions include more virtual teamwork, better tech integration, workforce development with an emphasis on inter professional skills, and policy changes that will make it feasible to do teamwork well. As team-based care continues to evolve, it has the potential to improve the quality of care, population health, and resource use.

With an aging population and an increasing prevalence of chronic diseases, healthcare systems worldwide need a sustainable solution, and team-based care is an option with an increasing evidence

base to provide guidance on how to do it well. For high-value healthcare, healthcare organizations and policymakers need to prioritize investing in inter professional collaboration as a strategic imperative.

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