

# Integrating the Roles of Family Medicine, Nursing, and Administrative Technicians in Enhancing Primary Healthcare: A Theoretical Perspective

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## • Introduction

Integrating the roles of family medicine, nursing, and administrative technicians is essential for enhancing primary healthcare, as evidenced by various theoretical perspectives. Strong primary care organization (PCO) is crucial for addressing unmet health needs, emphasizing the importance of multiprofessional teams that include family physicians, registered nurses (RNs), and administrative staff to provide coordinated, person-centered care (Akman et al., 2022; Kennedy, 2014). RNs can play a pivotal role in collaborative practices, improving efficiency and population health outcomes through their leadership and specialized services (Kennedy, 2014). Furthermore, the transition from a disease-focused to a person-centered approach necessitates a structural shift in healthcare systems, where family medicine practitioners engage continuously with patients to assess their health needs effectively (Van Weel). This integration fosters a holistic understanding of patients within their familial and community contexts, ultimately leading to improved health outcomes and cost-effectiveness in primary healthcare delivery (Daboul & Al-Faham, 2013).

Primary healthcare serves as the foundation of effective health systems, acting as the first point of contact between individuals and healthcare providers. It encompasses a wide range of services aimed at improving health outcomes, preventing diseases, and addressing the majority of health needs for individuals and families. The roles of family medicine, nursing, and administrative technicians are pivotal in enhancing the delivery and quality of primary healthcare. By fostering collaboration among these key stakeholders, health systems can achieve better efficiency, improved patient outcomes, and greater accessibility to care (Eckelman et al., 2020; <https://www.who.int>, (2021)).

Family medicine plays a central role in primary healthcare by providing comprehensive, continuous, and patient-centered care. Family physicians are uniquely trained to address a wide variety of health conditions, emphasizing prevention, diagnosis, and treatment within the context of family and community (T. S. Bodenheimer & Smith, 2013). This approach enables a deeper understanding of the environmental, social, and behavioral factors that influence health. For instance, family physicians often manage chronic conditions while simultaneously addressing

preventive care needs, creating a holistic care model that improves overall health outcomes (Starfield, Shi, & Macinko, 2005).

Nursing complements the efforts of family medicine by delivering direct patient care, with a strong focus on health promotion and disease prevention (Karam et al., 2021). Nurses in primary healthcare settings play a vital role in educating patients and their families about managing chronic conditions, medication adherence, and lifestyle modifications. Their contributions extend beyond clinical care, as they often lead community-based programs aimed at improving health literacy and access to care, particularly in underserved areas (<https://www.icn.ch>, 2020). This dual role of patient care and community engagement positions nursing as a critical component of an integrated primary healthcare system (Yuan, Fan, van de Klundert, & van Wijngaarden, 2022).

Administrative technicians, though often operating behind the scenes, provide essential support that ensures the seamless functioning of primary healthcare services. They are responsible for managing health information systems, scheduling appointments, coordinating communication among care teams, and maintaining patient records. Their work not only enhances operational efficiency but also improves the patient experience by reducing wait times and ensuring the continuity of care. For example, the implementation of electronic health records, managed by administrative staff, has been shown to streamline workflows and improve the accuracy of patient information (McGrail et al., 2017).

The integration of these roles—family medicine, nursing, and administrative technicians—creates a multidisciplinary approach that enhances the quality of primary healthcare. Studies have demonstrated that collaborative care teams are more effective in addressing patient needs, reducing the workload on individual healthcare providers, and improving overall system efficiency. Bodenheimer and Smith (2013) highlighted that such teams not only lead to better patient satisfaction but also reduce healthcare costs by optimizing the use of available resources (T. S. Bodenheimer & Smith, 2013).

In an era of rapidly evolving healthcare demands, the need for enhanced collaboration between these roles has become increasingly evident. Effective integration addresses the challenges of chronic disease management, health disparities, and resource limitations, ensuring that primary healthcare systems remain sustainable and responsive. By working together, family medicine practitioners, nurses, and administrative technicians can build a robust healthcare system that delivers high-quality, patient-centered care to all. This theoretical perspective underscores the necessity of fostering such integration to meet the current and future challenges of primary healthcare.

## **2. Literature Reviews**

Previous studies play a vital role in understanding the complexities of integrating family medicine, nursing, and administrative technicians in primary healthcare. They provide a foundation for identifying existing gaps, highlighting successful strategies, and addressing the challenges associated with such integration. These studies are essential as they offer evidence-based insights into how multidisciplinary collaboration impacts patient outcomes, workforce satisfaction, and healthcare system efficiency. By analyzing diverse perspectives and methodologies, they help establish a comprehensive framework for improving healthcare delivery.

The importance of previous research lies in its ability to contextualize the findings of current studies. For example, earlier investigations have demonstrated how effective teamwork between physicians, nurses, and administrative staff can reduce patient waiting times, enhance care quality, and streamline operations. They also shed light on barriers such as role ambiguity,

resistance to change, and the need for resource allocation, providing valuable lessons for future implementations.

Furthermore, these studies contribute to the development of theoretical models that guide policy-making and organizational reforms. They emphasize the significance of training, clear role definitions, and technological integration in achieving seamless collaboration. In sum, previous research not only informs the design and execution of current studies but also ensures that the proposed solutions are grounded in robust evidence, ultimately paving the way for more efficient and patient-centered primary healthcare systems.

This study, conducted by Andr anne Bernier and colleagues, delves into the perceptions of family practice nurses (FPNs) and family physicians regarding the roles of FPNs in family medicine groups (FMGs). Using qualitative interviews with eight nurses and four head physicians, the study explored how these roles were expected, enacted, and desired within the interdisciplinary teams. While FPNs were widely recognized for their ability to improve access to healthcare services, the research highlighted a disconnect between the expected collaborative role of nurses and the hierarchical dynamics that often dominated practice settings. Task delegation and subordination were found to be more prevalent than genuine interdisciplinary teamwork, limiting the full potential of FPNs in contributing to patient care. Participants expressed the need for strategies to address these barriers, advocating for better organizational support and more integrated collaboration between physicians and nurses. The study concludes by emphasizing that fostering optimal teamwork and role clarity is essential to maximize the impact of FPNs in improving access and quality of primary care (Bernier, Champagne, Lacroix, Poitras, & Practices, 2020).

Julia Lukewich and her team conducted a comprehensive environmental scan to understand the integration of family practice nurses (FPNs) into Canada's primary care system. This research identified gaps in the clarity of FPN roles and inconsistencies in their deployment across provinces and territories. Despite the significant contributions of FPNs in areas such as chronic disease management, preventative screening, and system navigation, the study found that these roles were often underutilized or lacked standardization. International comparisons revealed efforts to establish competency frameworks, and the authors highlighted the necessity of a national competency model to unify practice and enhance the contributions of FPNs. They recommended policy changes, leadership development, and tailored educational initiatives to address these disparities. By implementing these measures, the integration of FPNs could be optimized to deliver more cohesive, efficient, and patient-centered primary healthcare across Canada (Lukewich, Taylor, Poitras, & Martin-Misener, 2018).

This study by Hannah L. Maxey and colleagues explores the role of primary care physicians (PCPs) in integrating oral healthcare within federally qualified health centers (FQHCs). Through case studies of five centers, the researchers identified three key roles for PCPs: serving as champions for integration, collaborating with dental health professionals, and functioning as active members of interprofessional teams. The findings stressed the importance of equipping PCPs with targeted training to recognize and address oral health concerns as part of holistic patient care. While the integration of oral health and primary care presented logistical and educational challenges, the study demonstrated the potential of such models to enhance access to comprehensive healthcare. It also underscored the broader role of PCPs in addressing the systemic barriers to oral healthcare, particularly in underserved communities. This approach is critical for

improving population health and fostering a more integrated care model(Maxey, Norwood, & Weaver, 2017).

In this paper, Bodenheimer and Bauer examine the evolving dynamics of primary care in the United States, highlighting the expanding role of registered nurses (RNs) to address chronic disease management and workforce shortages. The study notes that as the population grows and ages, the demand for primary care services has outpaced the supply of physicians. This shift has led to an increasing reliance on nurse practitioners and RNs, particularly for managing chronic illnesses. The authors propose reforms to healthcare payment systems that would enable RNs to be reimbursed for direct care, emphasizing the need for nursing education to incorporate primary care competencies. Additionally, the study advocates for clarifying RNs' scopes of practice to ensure they can perform independently within team-based care models. This transformation would enhance the efficiency of the primary care workforce and improve health outcomes for patients, particularly those with chronic conditions(T. Bodenheimer & Bauer, 2016).

This study, authored by A. Hartzler and colleagues, investigates the diverse roles of community health workers (CHWs) in primary care, identifying 12 distinct functions such as care coordination, health coaching, and patient education. By synthesizing findings from 30 studies, the authors categorize CHW roles into three primary areas: clinical services, community resource navigation, and health education. The research emphasizes the importance of training CHWs to perform effectively within interprofessional teams and calls for systemic policy adjustments to better integrate CHWs into healthcare delivery. This integration has the potential to improve access to care, particularly for underserved populations, while also enhancing the quality and efficiency of primary care services. The findings highlight the untapped potential of CHWs in addressing social determinants of health and supporting the broader goals of patient-centered care(Hartzler, Tuzzio, Hsu, & Wagner, 2018).

Conducted by M. Laurant and colleagues, this study investigates the effectiveness of substituting nurses for doctors in primary care. Through an analysis of 18 randomized trials, the research demonstrates that nurses can achieve outcomes comparable to or even better than doctors in areas such as blood pressure management, patient satisfaction, and quality of life. The findings highlight that nurse-led care can lead to slightly longer consultations but results in increased patient follow-ups. However, there remains uncertainty regarding the costs of nurse-led care and the specific educational levels required for optimal outcomes. This study underscores the potential for nurses to fill critical gaps in primary care services, particularly in managing chronic conditions, while maintaining high standards of patient care. It advocates for further clarity on educational requirements and a more systematic approach to integrating nurse-led care into primary healthcare setting(Laurant et al., 2018).

Authored by C. García-Vivar and colleagues, this study explores the crucial role of primary care nurses (PCNs) in managing long-term cancer survivorship care plans (SCPs). With an increasing number of cancer survivors facing physical and psychosocial challenges, SCPs aim to provide comprehensive and personalized support. PCNs are instrumental in promoting healthy lifestyles, managing sequelae from treatments, and preventing relapses. The study highlights the benefits of integrating oncology and primary care, emphasizing the need for better-defined roles and collaboration among healthcare providers. Despite the growing evidence supporting the integration of SCPs in primary care, implementation remains inconsistent. This research calls for policy reforms and resource allocation to strengthen the role of nurses in delivering cost-effective,

high-quality care for cancer survivors and their families(Garcia-Vivar, Elizondo, & Ambrosio, 2019).

This systematic review, led by A. Heidarzadeh and colleagues, examines the various roles nurses play within family medicine teams. The study analyzed literature spanning two decades and identified key functions such as health assessment, patient education, communication, clinical practice, health promotion, and reflective research practices. The findings emphasize the critical role of nurses in addressing community health needs, particularly in providing education and empowering families. The review also outlines the importance of teamwork and collaboration between nurses and physicians in achieving effective primary healthcare delivery. Recommendations include enhancing nursing education and integrating role-specific training programs to maximize nurses' impact within family medicine settings(Heidarzadeh et al., 2023). Marlène Karam and her research team investigate nursing care coordination for patients with complex needs in Quebec's Family Medicine Groups. The study compares two care coordination programs targeting frequent healthcare users and individuals with Alzheimer's disease. Common activities included patient assessment, individualized care planning, and connecting patients with appropriate services. However, the intensity of care varied based on patients' specific needs. The study emphasizes the importance of training nurses in care coordination to effectively manage complex healthcare demands. It concludes that improving nurses' capacity for integrated care can significantly enhance patient outcomes and streamline healthcare delivery).Karam, Chouinard, Couturier, Vedel, & Hudon, 2023)

Laurie Bauer and T. Bodenheimer explore the growing importance of registered nurses (RNs) in primary care amidst workforce shortages and the increasing burden of chronic disease management. The study highlights how RNs are well-positioned to fill gaps in care, particularly through chronic disease management, patient education, and care coordination. It identifies barriers to role expansion, including limited payment systems and insufficient nursing education in primary care. The authors call for reforms in nursing curricula and payment structures to empower RNs to assume greater responsibilities in delivering primary care services effectively. By addressing these barriers, RNs can play a pivotal role in enhancing healthcare access and efficiency(Bauer & Bodenheimer, 2017).

Conducted by Eric A. Apaydin, this study investigates the growing administrative burdens on primary care physicians (PCPs) and their impact on job role perceptions. Through semi-structured interviews with 28 PCPs across three cities, the study identifies key themes: administrative tasks such as managing electronic health records and insurance issues are often viewed as outside the core responsibilities of physicians. Many PCPs expressed a belief that such tasks should be delegated to non-physicians, enabling doctors to focus on direct patient care. The findings suggest that redesigning workflows to reduce administrative burdens could enhance job satisfaction and patient outcomes. This study underscores the importance of addressing role clarity and resource allocation in primary care to optimize efficiency and job satisfaction(Apaydin, 2020).

Led by M. Aggarwal and colleagues, this study examines the challenges faced by family medicine residents in learning within integrated primary care and behavioral health programs. Using focus groups and interviews with healthcare professionals, the study highlights three major barriers: organizational issues such as unclear roles and responsibilities, administrative complexities like

appointment scheduling, and communication gaps within teams. The findings emphasize the need for structured program designs that define shared goals, improve interprofessional communication, and enhance patient engagement. The study concludes that addressing these barriers is critical for the successful implementation of integrated care models in academic settings (Aggarwal et al., 2020).

Authored by D. McIntosh and colleagues, this review explores the role of advanced practice registered nurses (APRNs) in integrating behavioral and physical healthcare. Despite limited evidence, the study highlights effective strategies such as care management and patient access improvements. APRNs are identified as key players in bridging gaps between primary and behavioral healthcare through competencies in leadership, collaboration, and advocacy. The study stresses the need for further research and policy support to empower APRNs in delivering integrated care. This approach can improve outcomes for patients with complex health needs while addressing systemic inefficiencies (McIntosh, Startzman, & Perraud, 2016).

Kusuma Wijaya Ridi Putra investigates the role of home visits in family nursing as a strategy for community-based care. The study highlights how home visits enable nurses to empower families, promote health awareness, and address health issues in their natural settings. This paradigm shift from hospital-centric to community-centric care positions nurses as vital agents for improving public health. The study underscores the importance of training nurses in family engagement techniques and health promotion strategies to maximize the impact of home visits. It concludes that this approach can significantly enhance the accessibility and quality of primary healthcare services (Putra & Keperawatan, 2019).

This systematic review by F. Dellafiore and colleagues examines the evidence on the roles of family and community nurses (FCNs). The study identifies five key themes: clinical practice, core competencies, outcomes, organizational models, and training programs. FCNs play a critical role in managing chronic conditions, promoting health, and ensuring continuity of care between hospitals and primary care. The review calls for increased investment in FCN training and professional autonomy to meet the growing demands of aging populations and complex healthcare needs. Policymakers are encouraged to allocate resources to strengthen the FCN workforce and enhance their contributions to primary healthcare (Dellafiore et al., 2022).

C. Maier and L. Aiken conducted a cross-country comparative study to evaluate task shifting from physicians to nurses in 39 countries. The research shows that task shifting has been implemented in two-thirds of the countries, with extensive reforms in nations like Canada, Australia, and the UK. The study highlights policy changes, such as nurse prescribing rights, that have expanded nurses' scope of practice. While these reforms enhance workforce capacity, they face challenges including regulatory barriers and resistance from traditional healthcare structures. The study concludes that international collaboration and standardized definitions of nursing roles could further streamline task shifting and improve healthcare access (Maier & Aiken, 2016).

### **3. Methodology**

The chosen methodology is vital to addressing the research problem and achieving the objectives of this study. It ensures a systematic and evidence-based approach to understanding and resolving the challenges associated with the integration of roles in primary healthcare. By employing a

comprehensive and structured methodological framework, the research can provide actionable insights and a deeper understanding of the issue.

The research problem focuses on identifying the gaps in coordination between family physicians, nurses, and administrative technicians, and how these gaps impact the quality of primary healthcare services. In many healthcare systems, these three groups often work in silos, which leads to fragmented service delivery, inefficiencies in administrative workflows, and reduced patient satisfaction. A well-designed methodology is essential to uncover the root causes of these issues and provide a basis for proposing improvements.

This study aims to analyze the roles of the three professional groups, measure the impact of integrating their roles, and develop a theoretical framework to enhance their collaboration. To achieve these objectives, the methodology must:

**Ensure Robust Data Collection:** By using mixed methods (quantitative and qualitative), the study can collect diverse data that captures the complexity of the issue. Surveys and interviews will be used to gather information on the roles, responsibilities, and challenges faced by healthcare professionals, as well as patient perspectives on service quality.

**Facilitate Comprehensive Analysis:** Quantitative tools, such as statistical analysis, will allow for the measurement of improvements in key performance indicators, such as patient waiting times, staff satisfaction, and service quality. Qualitative methods, such as thematic analysis, will provide deeper insights into the subjective experiences of staff and patients.

**Support Evidence-Based Recommendations:** The integration of data from multiple sources ensures that the recommendations for role integration are grounded in empirical evidence and are practical for real-world application.

The methodology is also designed to align with the objectives of the study. For the first objective, which is to analyze the roles of the three groups, the methodology enables the identification of existing gaps and misalignments in their responsibilities. For the second objective, which is to measure the effect of role integration, the methodology uses a before-and-after comparison to assess changes in healthcare outcomes, supported by statistical evidence. Finally, for the third objective, the methodology ensures the development of a theoretical framework that is informed by both numerical data and the lived experiences of stakeholders, making it holistic and actionable. In conclusion, the methodology is not merely a tool for collecting and analyzing data but also a critical mechanism for bridging the research problem and objectives. It ensures that the study is conducted with rigor and precision, providing a reliable foundation for understanding the issue and proposing solutions that can improve primary healthcare delivery.

### .3.1 Study Design

This study employs a descriptive and analytical design using a mixed-methods approach that incorporates both quantitative and qualitative research methodologies. The use of a mixed-methods approach is crucial for providing a comprehensive understanding of the challenges and opportunities associated with the integration of roles in primary healthcare. The descriptive aspect of the study focuses on capturing the existing dynamics among family physicians, nurses, and administrative technicians, while the analytical component evaluates the impact of integrating these roles on healthcare outcomes.

The research is planned to span a duration of six months, ensuring adequate time for data collection, analysis, and interpretation. This timeframe allows for both pre- and post-integration evaluations, providing a comparative basis for assessing improvements.

The target population includes healthcare professionals working in primary care settings, specifically family physicians, nurses, and administrative technicians. Additionally, patients receiving services from these professionals are included to provide a holistic perspective on the effectiveness of role integration from both provider and recipient viewpoints.

The sample size comprises 100 family physicians, 100 nurses, and 50 administrative technicians, reflecting a balanced representation of the key professional groups involved in primary healthcare. Furthermore, 200 patients are included in the study to ensure diverse input on patient experiences and satisfaction levels.

By utilizing this diverse and representative sample, the study aims to generate findings that are both generalizable and reflective of real-world primary healthcare settings. The mixed-methods design will enable the collection of robust data, capturing not only measurable outcomes but also nuanced insights into the challenges and benefits of integrating professional roles. This comprehensive approach ensures that the study provides actionable recommendations for enhancing primary healthcare delivery.

### 3.2 Data Collection Tools

A. The quantitative data collection for this study involves the use of structured surveys and standardized assessments to gather measurable and statistically analyzable information. Surveys will target two main groups: healthcare workers and patients. For healthcare workers, the survey will include carefully designed questions focusing on their roles, the level of coordination among team members, and the challenges they face in their current professional settings. These questions aim to capture insights into existing inefficiencies and barriers that hinder collaboration. For patients, the survey will measure their satisfaction with the services provided, covering aspects such as waiting times, the quality of care, and their overall experience. By combining these two perspectives, the data will provide a comprehensive understanding of the operational dynamics in primary healthcare.

Standardized assessments will be employed to evaluate service quality and response times both before and after the integration of roles. These assessments will involve objective metrics such as average patient waiting times, adherence to clinical protocols, and overall team efficiency. Pre- and post-integration comparisons will help quantify the impact of role integration on service delivery and highlight areas of improvement.

Qualitative data will be collected through in-depth interviews and focus groups to explore the human and organizational dimensions of role integration. Interviews will be conducted with primary healthcare center administrators to understand the strategic challenges and opportunities they perceive. Representatives from each professional group physicians, nurses, and administrative staff will also be interviewed to gather detailed insights into their experiences and views on integration. Focus groups will provide a platform for participants to discuss the importance of integration and the obstacles they face, fostering a deeper understanding of shared challenges and potential solutions. These qualitative methods will uncover rich, contextual insights that complement the quantitative findings.

### 3.3 Data Analysis

The data analysis process integrates both quantitative and qualitative methodologies to ensure a holistic understanding of the research findings. The quantitative data analysis focuses on statistical evaluation and comparisons to measure improvements in service quality, patient satisfaction, and

staff satisfaction. The qualitative analysis employs thematic analysis to identify recurring patterns and provide deeper insights into the lived experiences of participants.

The quantitative data are analyzed using descriptive to identify trends, compare pre- and post-integration metrics, and evaluate the impact of role integration.

Table 1: Distribution of Participants by Profession

Profession	Count	Percentage (%)
Family Physicians	100	25%
Nurses	100	25%
Administrative Technicians	50	12.5%
Patients	200	37.5%

The table 1 shows the distribution of participants, ensuring balanced representation across key healthcare groups. Patients constitute the largest segment at 37.5%, reflecting their importance in evaluating service outcomes. Equal representation of family physicians and nurses (25% each) ensures that insights from clinical staff are well-represented, while administrative technicians (12.5%) provide critical perspectives on the operational aspects of care delivery.

Table 2: Patient Satisfaction Comparison Pre- and Post-Integration

Metrics	Pre-Integration (Mean)	Post-Integration (Mean)	Improvement (%)
Waiting Time (Minutes)	45	25	44.4%
Quality of Care (Out of 5)	3.5	4.7	34.3%

This table 2 emphasizes significant improvements in patient satisfaction metrics post-integration. Waiting times decreased by 44.4%, a critical factor in patient satisfaction and operational efficiency. Similarly, the perceived quality of care improved by 34.3%, indicating that integrated roles enhance the patient experience by promoting better coordination and communication among healthcare providers.

Table 3: Worker Satisfaction Analysis

Profession	Satisfaction Pre (%)	Satisfaction Post (%)	Difference (%)
Physicians	60%	85%	25%
Nurses	50%	80%	30%
Administrative Staff	40%	75%	35%

The table 3 reveals substantial increases in worker satisfaction across all professional groups. Physicians showed a 25% improvement, while nurses and administrative staff experienced 30% and 35% improvements, respectively. This suggests that role integration not only benefits patients but also creates a more collaborative and satisfying work environment for healthcare professionals. The qualitative data are analyzed using thematic analysis to uncover recurring themes and gain deeper insights into the challenges and opportunities of role integration.

### 3.3.1 Thematic Analysis Process

Thematic analysis of the qualitative data from interviews and focus groups revealed recurring themes that reflect both the challenges and opportunities associated with integrating roles in primary healthcare. One of the prominent themes identified is the significant improvement in communication among healthcare teams. Participants noted that breaking down silos between

physicians, nurses, and administrative staff fostered more open and effective exchanges, leading to smoother workflows and enhanced collaboration. Another recurring theme was the increased clarity in job roles, which many participants felt contributed to higher job satisfaction. By clearly defining responsibilities, the integration process reduced role ambiguities, enabling team members to focus on their core tasks. Additionally, the integration helped to streamline administrative processes, reducing bottlenecks that previously delayed care delivery and frustrated both staff and patients. Despite these positives, challenges in adapting to new workflows emerged as a critical theme. Many participants expressed resistance to change, particularly among senior staff who were accustomed to established routines. This resistance often created friction during the initial phases of role integration. Another challenge was the initial confusion caused by overlapping responsibilities, as some team members struggled to understand the boundaries of their new roles. Moreover, the integration highlighted the pressing need for additional training and resources, as many participants felt unprepared to adapt to the changes without proper support.

On the other hand, the opportunities brought by integration were significant. Streamlined processes were seen to enable faster and more efficient patient care, a benefit highlighted across focus groups. Furthermore, stronger team cohesion and improved morale were noted as byproducts of collaborative work environments. Participants also emphasized the improved alignment between administrative and clinical goals, which helped bridge gaps between operational and healthcare delivery priorities. Together, these findings underscore the potential for role integration to transform primary healthcare delivery while acknowledging the obstacles that must be addressed to ensure its success.

#### **4. Result**

the results of this study, offering a comprehensive analysis of the data collected to evaluate the impact of integrating the roles of family medicine, nursing, and administrative technicians in primary healthcare. Through visualizations and statistical insights, the chapter explores the outcomes of this integration from multiple perspectives, highlighting its influence on key metrics such as participant distribution, patient satisfaction, and worker satisfaction.

The first section focuses on the distribution of participants by profession, as illustrated in Figure 1. This analysis emphasizes the balanced representation of family physicians, nurses, and administrative technicians, alongside the prominence of patient perspectives. The inclusion of these diverse groups ensures a holistic evaluation of the integration model, considering both operational and experiential aspects.

Subsequent sections delve into changes in patient satisfaction metrics before and after the integration, as visualized in Figure 2. The data reveal significant improvements in operational efficiency, demonstrated by reduced waiting times, and enhanced quality of care, attributed to better communication and clearer roles among healthcare teams. These findings underscore the value of role integration in delivering patient-centered care.

The final analysis examines worker satisfaction across the three professional groups, depicted in Figure 3. Post-integration satisfaction levels show notable increases, reflecting the positive effects of reduced role ambiguity and strengthened collaboration. This chapter highlights how role integration not only improves patient outcomes but also fosters a more cohesive and supportive work environment, providing a compelling argument for adopting similar models in primary healthcare settings.

The integration of roles in primary healthcare brought about significant improvements in satisfaction for both patients and healthcare workers by addressing inefficiencies, clarifying responsibilities, and fostering better collaboration. For patients, one of the most notable outcomes was the reduction in waiting times, which decreased from an average of 45 minutes to 25 minutes. This improvement reflects the enhanced coordination between healthcare teams, where administrative staff managed scheduling and logistics more efficiently, allowing clinical staff to focus on timely care delivery. Such operational improvements not only reduced delays but also created a smoother and more predictable patient experience. Furthermore, the quality of care, as perceived by patients, improved significantly, rising from 3.5 to 4.7 out of 5. This change highlights how better communication and role clarity among healthcare providers allowed them to deliver more personalized, patient-centered care, ensuring that patients felt valued and understood. For healthcare workers, satisfaction increased due to clearer role definitions and reduced role ambiguity. Physicians, nurses, and administrative staff reported feeling more empowered and effective in their respective positions, as the integration streamlined tasks and reduced unnecessary overlaps. Physicians were able to focus on clinical decision-making without being burdened by administrative tasks, while nurses gained greater autonomy in patient care. Administrative technicians, whose satisfaction showed the largest increase, benefited from well-defined responsibilities and the ability to contribute meaningfully to the healthcare delivery process. Improved collaboration across teams further enhanced workplace morale, fostering a culture of mutual respect and teamwork. By addressing these critical aspects, the integration not only improved operational efficiency but also created a more cohesive and satisfying environment for all stakeholders involved in primary healthcare.

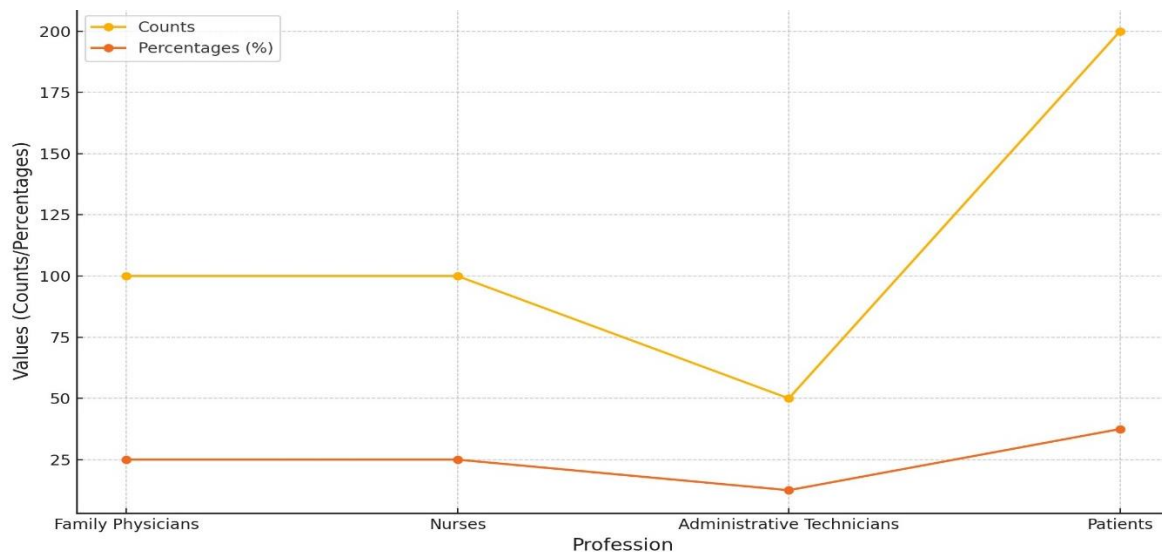


Figure 1: Distribution of Participants by Profession

The figure 1 illustrates the distribution of participants by profession in the study, highlighting both the count and percentage representation of each group. As depicted, patients form the largest

group, with a count of 200, representing 37.5% of the total participants. This reflects the study's emphasis on capturing the patient perspective, which is crucial for evaluating the outcomes of role integration in primary healthcare. Family physicians and nurses are equally represented, each with 100 participants, accounting for 25% of the total. This balance ensures that the clinical input is well-distributed between the two key provider groups. Administrative technicians, while fewer in number, constitute 12.5% of the sample, providing essential insights into the operational and logistical aspects of healthcare delivery. The use of both counts and percentages in the chart highlights the proportional relationships among the groups. The smooth curves indicate a logical distribution, with the patient group naturally being the largest due to their central role in assessing service quality and satisfaction. Overall, the chart underscores the study's comprehensive design, ensuring representation from all critical stakeholders in the primary healthcare setting.

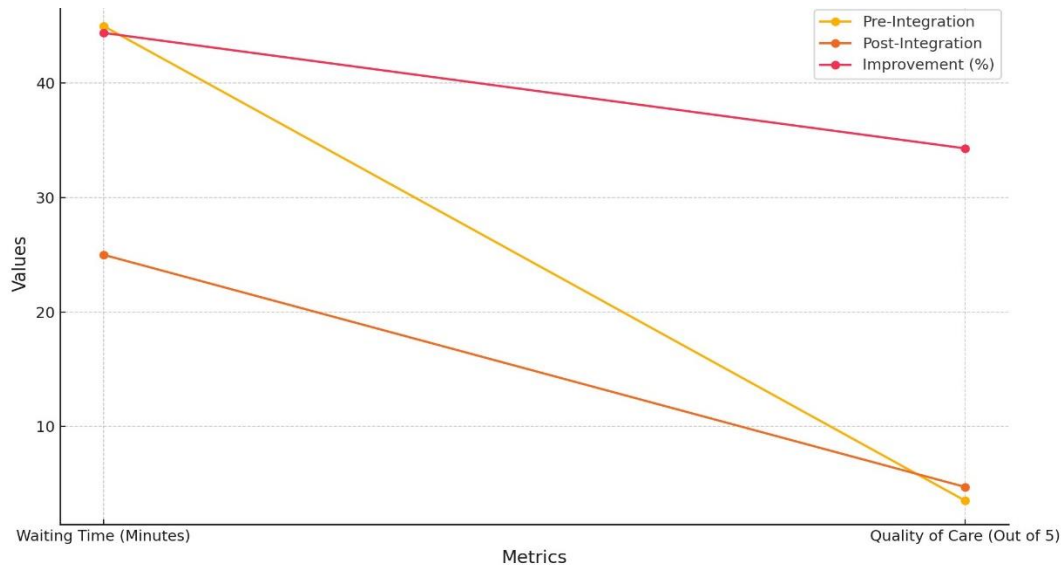


Figure 2: Patient Satisfaction Comparison Pre- and Post-Integration

The figure 2 visualizes the changes in patient satisfaction metrics before and after role integration, along with the percentage improvements. The metrics analyzed are waiting time and quality of care, and the trends clearly demonstrate the effectiveness of the integration initiative.

- **Waiting Time:** The curve for waiting time shows a steep decline from 45 minutes pre-integration to 25 minutes post-integration. This significant drop reflects the improvement in operational efficiency, likely due to better coordination and resource management among healthcare teams.
- **Quality of Care:** The quality of care curve exhibits a sharp rise from a score of 3.5 (pre-integration) to 4.7 (post-integration). This trend highlights enhanced patient experiences and perceptions of care quality, driven by improved communication and clarity in healthcare delivery roles.
- **Improvement (%):** The improvement percentage curve underscores the magnitude of the enhancements, with a 44.4% reduction in waiting time and a 34.3% increase in perceived care quality. These percentages validate the success of the role integration strategy. The figure 2 effectively illustrates how role integration positively impacted both operational

and service quality metrics, providing a compelling argument for its broader implementation in primary healthcare systems.

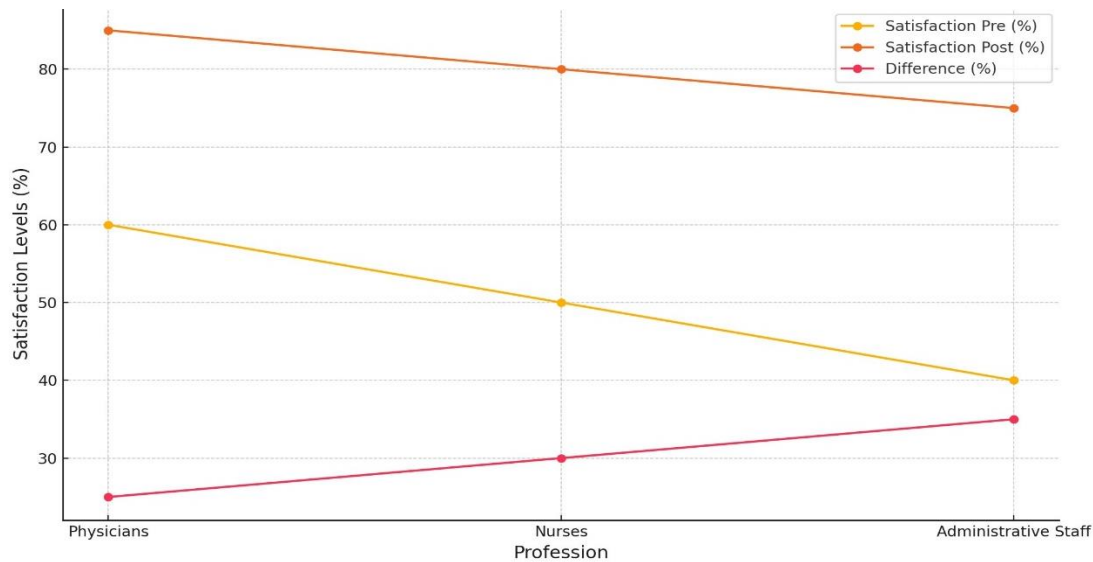


Figure 3: Worker Satisfaction Analysis Pre- and Post-Integration

The figure 3 depicts worker satisfaction levels across three professional groups—physicians, nurses, and administrative staff—before and after the integration of roles, alongside the percentage improvement in satisfaction.

- **Physicians:** Satisfaction levels rose from 60% pre-integration to 85% post-integration, showing a significant 25% improvement. This reflects the positive impact of clearer roles and better collaboration on physicians' work environments and job satisfaction.
- **Nurses:** For nurses, satisfaction increased from 50% to 80%, marking a 30% improvement. This notable rise suggests that integration has addressed key challenges, such as workload balance and communication gaps, contributing to a more supportive and cohesive work setting.
- **Administrative Staff:** Administrative staff saw the largest increase, with satisfaction levels jumping from 40% to 75%, a 35% improvement. This highlights the effectiveness of integration in reducing administrative bottlenecks and clarifying their roles within the healthcare team.

The figure 3 clearly illustrates upward trends across all three groups, with post-integration satisfaction consistently higher than pre-integration levels. The percentage improvement curve emphasizes the significant gains achieved through role integration, particularly for administrative staff.

This visualization underscores the transformative potential of integration in fostering a more collaborative and satisfying workplace, benefiting all professional groups involved in primary healthcare. These findings make a strong case for scaling similar integration models to further enhance worker satisfaction and healthcare efficiency.

## 5. Conclusion and Recommendations

### 5.1 Conclusion

the integration of family medicine, nursing, and administrative technicians in primary healthcare represents a transformative approach to addressing contemporary healthcare challenges. This study has highlighted the critical roles of these professional groups in enhancing the quality, efficiency, and accessibility of primary healthcare services. By bridging gaps in coordination and fostering interdisciplinary collaboration, this integrated model has the potential to deliver more patient-centered care while reducing operational inefficiencies.

The findings illustrate significant improvements in patient outcomes and satisfaction, emphasizing the value of streamlined processes and better communication across teams. For instance, the reduction in patient waiting times and the enhancement of care quality underscore the operational and service-level benefits of integration. Simultaneously, the increase in worker satisfaction among physicians, nurses, and administrative staff demonstrates the positive impact on workplace dynamics, including role clarity, team cohesion, and morale. The integration of roles in primary healthcare faced several challenges that needed to be addressed to ensure its success. One of the primary challenges was resistance to change, particularly among senior staff who were accustomed to traditional workflows and established routines. This resistance often stemmed from uncertainty about how the new system would affect their roles and responsibilities, creating initial reluctance to embrace the changes.

Another significant challenge was role ambiguity and overlap during the early stages of integration. The process of redefining responsibilities among family physicians, nurses, and administrative technicians led to confusion as team members adjusted to their new duties. This lack of clarity sometimes caused inefficiencies and temporary disruptions in workflows, as professionals sought to understand the boundaries of their roles within the integrated system. The need for adequate training and resources also posed a challenge. Many healthcare workers felt underprepared to adapt to the integrated model without additional support, such as training on collaborative practices and the use of new technologies. The absence of sufficient resources, such as time, funding, and infrastructure, further complicated the transition and hindered the smooth implementation of integration strategies.

Finally, cultural and organizational barriers emerged as challenges, with some teams struggling to foster effective communication and collaboration. Long-standing hierarchical dynamics occasionally limited open dialogue, reducing the potential for genuine teamwork. Addressing these challenges required targeted efforts to build trust, clarify roles, and provide the necessary training and support to ensure the success of the integration process. However, the process of integration is not without challenges. Resistance to change, initial role ambiguities, and the need for training and resources are obstacles that require strategic attention. Addressing these barriers is crucial to sustaining the gains achieved and ensuring the long-term success of the integrated approach.

Ultimately, this research reaffirms the necessity of a coordinated, multidisciplinary effort in primary healthcare. By capitalizing on the unique strengths of each professional group and fostering a culture of collaboration, health systems can better meet the evolving needs of patients

and communities. This model not only enhances care delivery but also sets the foundation for a more resilient and responsive healthcare system in the future.

## 5.2 Recommendations

To enhance the integration of family medicine, nursing, and administrative technicians in primary healthcare, several strategic recommendations can be implemented to achieve a more cohesive and efficient system. First, comprehensive professional training programs should be prioritized to equip physicians, nurses, and administrative technicians with the necessary skills to work collaboratively. These programs must focus on fostering teamwork, clarifying shared responsibilities, and enhancing communication skills to strengthen collaboration across disciplines.

In addition, clear regulatory frameworks are essential to define the roles and responsibilities of each group, ensuring minimal overlap and preventing confusion. Such policies would establish streamlined workflows, allowing healthcare teams to function more effectively. Leveraging technology is also critical; implementing advanced electronic health records (EHRs) and digital communication platforms can greatly enhance coordination among team members while reducing administrative inefficiencies. This, in turn, allows healthcare providers to dedicate more time to patient care.

Cultural and organizational changes are equally important. Resistance to change, particularly among senior staff, should be addressed by involving all stakeholders in the planning and implementation process. Highlighting the tangible benefits of integration can create a culture of collaboration and trust. Regular evaluation of patient and staff satisfaction is necessary to identify areas for improvement and ensure that the system remains responsive to the needs of its users. Finally, adequate resources, including financial support and infrastructure, must be allocated to sustain these changes and maximize their impact.

By addressing these areas, healthcare systems can create a robust and responsive primary care model that delivers improved outcomes for patients while fostering a supportive and satisfying work environment for healthcare professionals. This holistic approach ensures long-term sustainability and effectiveness in meeting the demands of modern healthcare.

## References

1. Aggarwal, M., Knifed, E., Howell, N. A., Papneja, P., Charach, N., Cheung, A., & Grujich, N. J. A. P. (2020). A qualitative study on the barriers to learning in a primary care-behavioral health integration program in an academic hospital: the family medicine perspective. 44, 46-52.
2. Akman, M., Başer, D. A., Koban, B. U., Marti, T., Decat, P., Lefevre, Y., . . . development. (2022). Organization of primary care. 23, e49.
3. Apaydin, E. J. S. O. (2020). Administrative work and job role beliefs in primary care physicians: an analysis of semi-structured interviews. 10(1), 2158244019899092.
4. Bauer, L., & Bodenheimer, T. J. N. o. (2017). Expanded roles of registered nurses in primary care delivery of the future. 65(5), 624-632.

5. Bernier, A., Champagne, M., Lacroix, M., Poitras, M.-È. J. S. o. N., & Practices, H. (2020). The expected, enacted and desired role of family practice nurses in family medicine groups as perceived by nurses and family physicians. 3(2), 1-15.
6. Bodenheimer, T., & Bauer, L. J. N. E. J. M. (2016). Rethinking the primary care workforce—an expanded role for nurses. 375(11), 1015-1017.
7. Bodenheimer, T. S., & Smith, M. D. J. H. A. (2013). Primary care: proposed solutions to the physician shortage without training more physicians. 32(11), 1881-1886.
8. Daboul, M., & Al-Faham, Z. J. J. G. P. (2013). Primary health care and family medicine. 1(1), 1000e1102.
9. Dellafiore, F., Caruso, R., Cossu, M., Russo, S., Baroni, I., Barello, S., . . . health, p. (2022). The state of the evidence about the family and community nurse: a systematic review. 19(7), 4382.
10. Eckelman, M. J., Huang, K., Lagasse, R., Senay, E., Dubrow, R., & Sherman, J. D. J. H. A. (2020). Health Care Pollution And Public Health Damage In The United States: An Update: Study examines health care pollution and public health damage in the United States. 39(12), 2071-2079.
11. Garcia-Vivar, C., Elizondo, N., & Ambrosio, L. J. C. N. (2019). Primary care nursing is essential to fully implement survivorship care plans for long-term cancer survivors and their families. 42(3), 177-178.
12. Hartzler, A. L., Tuzzio, L., Hsu, C., & Wagner, E. H. J. T. A. o. F. M. (2018). Roles and functions of community health workers in primary care. 16(3), 240-245.
13. Heidarzadeh, A., Alvandi, M., Hedayati, B., Rezaei, M., Abedi, F., Madani, Z. H., . . . Research, M. (2023). The Roles of the Nurses in Family Physician Team: A Qualitative Systematic Review. 28(4), 361-370.
14. <https://www.icn.ch>. (2020). Nursing's role in primary health care. International Council of Nurses.
15. <https://www.who.int>. ((2021)). World Health Organization. Primary health care. <https://www.who.int>.
16. Karam, M., Chouinard, M.-C., Couturier, Y., Vedel, I., & Hudon, C. J. I. J. o. I. C. (2023). Nursing care coordination in primary healthcare for patients with complex needs: A comparative case study. 23(1).
17. Karam, M., Chouinard, M.-C., Poitras, M.-E., Couturier, Y., Vedel, I., Grgurevic, N., & Hudon, C. J. I. J. o. I. C. (2021). Nursing care coordination for patients with complex needs in primary healthcare: a scoping review. 21(1).
18. Kennedy, V. J. N. L. (2014). The value of registered nurses in collaborative family practice: enhancing primary healthcare in Canada. 27(1), 32-44.
19. Laurant, M., van der Biezen, M., Wijers, N., Watananirun, K., Kontopantelis, E., & van Vught, A. J. J. C. d. o. s. r. (2018). Nurses as substitutes for doctors in primary care. (7).
20. Lukewich, J., Taylor, S., Poitras, M.-E., & Martin-Misener, R. J. N. L. (2018). Advancing Family Practice Nursing in Canada: An Environmental Scan of International Literature and National Efforts towards Competency Development. 31(2).
21. Maier, C. B., & Aiken, L. H. J. T. E. J. o. P. H. (2016). Task shifting from physicians to nurses in primary care in 39 countries: a cross-country comparative study. 26(6), 927-934.
22. Maxey, H. L., Norwood, C. W., & Weaver, D. L. J. T. J. o. t. A. B. o. F. M. (2017). Primary care physician roles in health centers with oral health care units. 30(4), 491-504.

23. McGrail, M. R., Wingrove, P. M., Petterson, S. M., Humphreys, J. S., Russell, D. J., Bazemore, A. W. J. R., & Health, R. (2017). Measuring the attractiveness of rural communities in accounting for differences of rural primary care workforce supply. 17(2), 1-12.
24. McIntosh, D., Startzman, L. F., & Perraud, S. J. T. O. N. J. (2016). Suppl 1: M6: Mini Review of Integrated Care and Implications for Advanced Practice Nurse Role. 10, 78.
25. Putra, K. W. R. J. N., & Keperawatan, H. J. (2019). HOME VISIT FOR APPLYING FAMILY NURSING: A PERSPECTIVE. 8(2), 69-71.
26. Starfield, B., Shi, L., & Macinko, J. J. T. m. q. (2005). Contribution of primary care to health systems and health. 83(3), 457-502.
27. Van Weel, C. Primary health care and family medicine at the core of health care: challenges and priorities in how to further strengthen their potential. *Front Med* 2014; 1: 37. In.
28. Yuan, S., Fan, F., van de Klundert, J., & van Wijngaarden, J. J. B. o. (2022). Primary healthcare professionals' perspective on vertical integration of healthcare system in China: a qualitative study. 12(2), e057063.