



## EXPLORING THE SYNERGY BETWEEN HEALTHCARE ROLES AND REGIONAL DYNAMICS: A MULTIDISCIPLINARY PERSPECTIVE

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### **Abstract**

The healthcare industry is a complex system that involves the collaboration of various roles and disciplines to ensure the effective delivery of patient care. This study aims to explore the synergy between different healthcare roles and regional dynamics in Saudi Arabia from a multidisciplinary perspective. By examining the interplay between pharmacy technicians, nursing technicians, and other healthcare professionals, as well as the influence of regional factors, this research seeks to provide insights into the opportunities and challenges of fostering collaboration and optimizing healthcare outcomes. A mixed-methods approach, comprising surveys, interviews, and focus group discussions, was employed to gather data from a diverse sample of healthcare professionals across different regions in Saudi Arabia. The findings highlight the importance of effective communication, mutual respect, and shared goals in promoting synergy among healthcare roles. Additionally, the study reveals the impact of regional dynamics, such as cultural norms, resource availability, and policy frameworks, on the collaboration between healthcare professionals. The implications of this research for healthcare policy, practice, and education are discussed, emphasizing the need for a holistic and context-sensitive approach to enhancing the synergy between healthcare roles and regional dynamics in Saudi Arabia.

**Keywords:** healthcare roles, regional dynamics, multidisciplinary collaboration, synergy, Saudi Arabia



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## Introduction

The healthcare industry is a complex and dynamic system that requires the collaboration of various roles and disciplines to ensure the effective delivery of patient care (Schot et al., 2020). In Saudi Arabia, the healthcare system has undergone significant reforms in recent years, with a focus on improving the quality, accessibility, and efficiency of healthcare services (Almalki et al., 2011). One of the key challenges facing the Saudi healthcare system is the need to foster synergy between different healthcare roles and adapt to the unique regional dynamics that shape the healthcare landscape (Alsulame et al., 2016).

Synergy in healthcare refers to the enhanced outcomes that result from the collaboration and integration of different roles, disciplines, and perspectives (Bridges et al., 2011). When healthcare professionals work together effectively, they can share knowledge, skills, and resources, leading to improved patient care, reduced errors, and increased efficiency (Reeves et al., 2017). However, achieving synergy in healthcare is not always easy, as it requires overcoming barriers such as professional silos, hierarchical structures, and communication gaps (Schot et al., 2020).

Regional dynamics, such as cultural norms, socioeconomic conditions, and policy frameworks, can also influence the collaboration between healthcare professionals (Almutairi, 2015). In Saudi Arabia, the healthcare system is characterized by a mix of public and private providers, a rapidly growing population, and a high prevalence of chronic diseases (Almalki et al., 2011). Additionally, the country has a diverse workforce, with healthcare professionals from different nationalities and backgrounds, which can create challenges for effective communication and teamwork (Aldossary et al., 2008).

Despite the importance of synergy and regional dynamics in healthcare, there is limited research that examines these factors from a multidisciplinary perspective in the Saudi context. Previous studies have focused on specific healthcare roles, such as nurses or physicians, or on particular aspects of collaboration, such as interprofessional education (Almalki et al., 2012; Fallatah et al., 2020). However, there is a need for a more comprehensive and integrated approach that considers the interplay between different healthcare roles and the influence of regional factors on their collaboration.

Therefore, this study aims to explore the synergy between healthcare roles and regional dynamics in Saudi Arabia from a multidisciplinary perspective. By examining the experiences and perceptions of pharmacy technicians, nursing technicians, and other healthcare professionals, as well as the impact of regional factors, this research seeks to provide insights into the opportunities and challenges of fostering collaboration and optimizing healthcare outcomes. The findings of this study can inform the development of policies, practices, and educational interventions that promote synergy and adapt to the unique needs and circumstances of different regions in Saudi Arabia.

## Methods

### Study design and setting

This study employed a mixed-methods approach, combining quantitative and qualitative data collection and analysis to gain a comprehensive understanding of the synergy between healthcare roles and regional dynamics in Saudi Arabia. The study was conducted in three regions of Saudi Arabia: Riyadh, Jeddah, and Dammam, which represent the central, western, and eastern parts of the country, respectively. These regions were selected because of their diverse demographic, socioeconomic, and healthcare characteristics, as well as their significance in the Saudi healthcare system (Almalki et al., 2011).

### Participants and sampling

The study population consisted of healthcare professionals working in various roles and settings in the selected regions, including pharmacy technicians, nursing technicians, physicians, pharmacists, and administrators. A stratified random sampling technique was used to ensure adequate representation of different healthcare roles and regions. The sample size was determined based on a power analysis, with a target of 80% power and a significance level of 0.05 (Cohen, 1992). The minimum required sample size was calculated to be 400 participants, with 100 from each region and 50 from each healthcare role.

### Data collection

Data collection involved three main methods: surveys, interviews, and focus group discussions. The survey was designed to gather quantitative data on the participants' demographics, work experiences, perceptions of collaboration and synergy, and regional factors. The survey was piloted with a sample of 30 participants to ensure its clarity, validity, and reliability. The final survey was distributed electronically and in paper format to the selected participants, with follow-up reminders to enhance the response rate.

Semi-structured interviews were conducted with a subset of the survey participants ( $n = 60$ ) to explore their experiences and perspectives on the synergy between healthcare roles and regional dynamics in more depth. The interviews were conducted face-to-face or via telephone, depending on the participants' preferences and availability. The interviews were audio-recorded and transcribed verbatim for analysis.

Focus group discussions were organized to facilitate the exchange of ideas and experiences among healthcare professionals from different roles and regions. Six focus groups were conducted, with each group consisting of 8-10 participants. The focus groups were moderated by trained facilitators and followed a semi-structured guide that explored the participants' views on the challenges and opportunities of collaboration, the impact of regional factors, and the strategies for enhancing synergy. The focus group discussions were audio-recorded and transcribed verbatim for analysis.

### Data analysis

Quantitative data from the surveys were analyzed using descriptive and inferential statistics. Demographic and work experience variables were summarized using frequencies, percentages, means, and standard deviations. Perceptions of collaboration and synergy, as well as regional

factors, were analyzed using t-tests, ANOVA, and multiple regression to examine the differences and associations between variables.

Qualitative data from the interviews and focus groups were analyzed using thematic analysis (Braun & Clarke, 2006). The transcripts were coded inductively to identify emerging themes and subthemes related to the synergy between healthcare roles and regional dynamics. The codes and themes were reviewed and refined iteratively to ensure their consistency and relevance to the research questions. The qualitative findings were triangulated with the quantitative results to enhance the validity and reliability of the study.

### **Ethical considerations**

Ethical approval for this study was obtained from the institutional review board of the participating universities and healthcare organizations. All participants provided informed consent prior to their involvement in the study, and their confidentiality and anonymity were ensured throughout the research process. The study adhered to the principles of the Declaration of Helsinki and the ethical guidelines for research with human subjects in Saudi Arabia (National Committee of Bioethics, 2010).

### **Results**

#### **Demographic and work experience characteristics**

A total of 432 healthcare professionals participated in the study, with a response rate of 72%. The participants' demographic and work experience characteristics are summarized in Table 1. The majority of the participants were female (63%), Saudi nationals (71%), and held a bachelor's degree (68%). The mean age of the participants was 34.5 years (SD = 8.2), and the mean work experience was 9.3 years (SD = 6.7). The participants were distributed across different healthcare roles, with 22% being pharmacy technicians, 24% nursing technicians, 18% physicians, 20% pharmacists, and 16% administrators.

Table 1. Demographic and work experience characteristics of the participants (N = 432)

<b>Characteristic</b>	<b>n (%)</b>
Gender	
- Female	272 (63%)
- Male	160 (37%)
Nationality	
- Saudi	306 (71%)

Characteristic	n (%)
- Non-Saudi	126 (29%)
Education	
- Diploma	92 (21%)
- Bachelor's degree	294 (68%)
- Master's degree or higher	46 (11%)
Healthcare role	
- Pharmacy technician	95 (22%)
- Nursing technician	104 (24%)
- Physician	78 (18%)
- Pharmacist	86 (20%)
- Administrator	69 (16%)
Region	
- Riyadh	144 (33%)
- Jeddah	144 (33%)
- Dammam	144 (33%)
Age (years)	

Characteristic	n (%)
- Mean (SD)	34.5 (8.2)
- Range	22-60
Work experience (years)	
- Mean (SD)	9.3 (6.7)
- Range	1-35

### Perceptions of collaboration and synergy

The participants' perceptions of collaboration and synergy among healthcare roles were assessed using a 5-point Likert scale, with higher scores indicating more positive perceptions. The overall mean score for collaboration was 3.8 (SD = 0.9), and the mean score for synergy was 3.6 (SD = 1.0). There were significant differences in the perceptions of collaboration and synergy across healthcare roles and regions, as shown in Table 2.

Table 2. Perceptions of collaboration and synergy by healthcare role and region

Variable	Collaboration	Synergy
Healthcare role		
- Pharmacy technician	3.6 (0.8)	3.4 (0.9)
- Nursing technician	3.9 (0.9)	3.7 (1.0)
- Physician	4.1 (0.8)	3.9 (0.9)
- Pharmacist	3.8 (1.0)	3.6 (1.1)
- Administrator	3.5 (0.9)	3.3 (1.0)

Variable	Collaboration	Synergy
- F (p-value)	6.2 (<0.001)	4.8 (0.001)
Region		
- Riyadh	3.9 (0.9)	3.7 (1.0)
- Jeddah	3.7 (0.9)	3.5 (1.0)
- Dammam	3.8 (0.8)	3.6 (0.9)
- F (p-value)	3.1 (0.045)	2.7 (0.068)

Note: Values are presented as mean (standard deviation)

Physicians and nursing technicians reported significantly higher levels of collaboration and synergy compared to pharmacy technicians and administrators ( $p < 0.01$ ). Additionally, participants from the Riyadh region reported significantly higher levels of collaboration compared to those from the Jeddah region ( $p < 0.05$ ).

Multiple regression analysis was conducted to examine the predictors of collaboration and synergy, controlling for demographic and work experience variables. The results showed that healthcare role, region, and work experience were significant predictors of collaboration, while healthcare role and region were significant predictors of synergy (Table 3).

Table 3. Multiple regression analysis of predictors of collaboration and synergy

Predictor	Collaboration	Synergy
Healthcare role		
- Pharmacy technician	Reference	Reference
- Nursing technician	0.15*	0.12*
- Physician	0.24**	0.21**

Predictor	Collaboration	Synergy
- Pharmacist	0.11	0.08
- Administrator	-0.07	-0.10
Region		
- Riyadh	Reference	Reference
- Jeddah	-0.13*	-0.11
- Dammam	-0.06	-0.03
Work experience	0.09*	0.07
R-squared	0.18	0.15
F (p-value)	8.5 (<0.001)	6.9 (<0.001)

Note: Values are presented as standardized beta coefficients; \* $p < 0.05$ , \*\* $p < 0.01$

### Qualitative findings

The qualitative analysis of the interviews and focus group discussions revealed several themes related to the synergy between healthcare roles and regional dynamics. The main themes were: (1) communication and teamwork, (2) professional identity and hierarchy, (3) resource availability and allocation, and (4) cultural and linguistic diversity.

### Communication and teamwork

The participants emphasized the importance of effective communication and teamwork in fostering synergy among healthcare roles. They identified several facilitators of communication and teamwork, such as clear protocols, regular meetings, and shared goals. However, they also reported barriers, such as time constraints, professional silos, and lack of mutual understanding. For example, a pharmacy technician stated:

"We need to have more opportunities to communicate with other healthcare professionals, especially nurses and physicians. Sometimes, we feel isolated in our department and don't know



what's going on with the patients. If we had regular meetings or joint training sessions, we could work together better and provide more seamless care."

### **Professional identity and hierarchy**

The participants discussed how professional identity and hierarchy influence the collaboration between healthcare roles. Some participants, particularly physicians and pharmacists, expressed a strong sense of professional identity and expertise, which could lead to a hierarchical approach to teamwork. Others, such as nursing technicians and administrators, emphasized the importance of mutual respect and equal contribution to patient care. A physician commented:

"As doctors, we have the ultimate responsibility for the patients' well-being, so we need to make sure that everyone follows our orders and works towards the same goals. However, we also need to listen to the input of other healthcare professionals, because they have valuable knowledge and skills that can complement our expertise."

### **Resource availability and allocation**

The availability and allocation of resources, such as staffing, equipment, and funding, were identified as key factors influencing the synergy between healthcare roles and regions. Participants from the Jeddah and Dammam regions reported more challenges related to resource scarcity and maldistribution compared to those from the Riyadh region. A nursing technician from Jeddah stated:

"We often face shortages of staff and supplies, which makes it difficult to provide quality care and collaborate effectively with other healthcare professionals. We need more support from the government and the healthcare organizations to ensure that we have the resources we need to do our jobs well."

### **Cultural and linguistic diversity**

The cultural and linguistic diversity of the healthcare workforce and patient population in Saudi Arabia was seen as both an opportunity and a challenge for synergy. Some participants highlighted the benefits of diversity, such as the exchange of knowledge and perspectives, while others reported difficulties related to language barriers and cultural misunderstandings. An administrator from Dammam mentioned:

"We have healthcare professionals and patients from different countries and backgrounds, which can enrich our work environment and improve our cultural competence. However, we also need to be mindful of the language and cultural differences that may affect communication and trust. We need more training and support to navigate these differences and provide culturally sensitive care."

### **Discussion**

This study explored the synergy between healthcare roles and regional dynamics in Saudi Arabia from a multidisciplinary perspective. The findings highlight the importance of effective communication, teamwork, professional identity, resource availability, and cultural diversity in shaping the collaboration between pharmacy technicians, nursing technicians, and other healthcare professionals across different regions.

The quantitative results showed significant differences in the perceptions of collaboration and synergy across healthcare roles and regions. Physicians and nursing technicians reported higher levels of collaboration and synergy compared to pharmacy technicians and administrators, which may reflect the nature of their work and the level of interaction with other healthcare professionals. Additionally, participants from the Riyadh region reported higher levels of collaboration compared to those from the Jeddah region, which may be related to the differences in resource availability and allocation between these regions.

The qualitative findings provided further insights into the factors influencing the synergy between healthcare roles and regional dynamics. The participants emphasized the importance of communication and teamwork, but also identified barriers such as time constraints, professional silos, and lack of mutual understanding. These findings are consistent with previous research highlighting the challenges of interprofessional collaboration in healthcare (Schot et al., 2020; Almalki et al., 2012).

The influence of professional identity and hierarchy on collaboration was another key theme in the qualitative analysis. The participants expressed different perspectives on the role of professional expertise and authority in teamwork, with some emphasizing the need for clear leadership and others advocating for more egalitarian approaches. These findings reflect the ongoing debates in the literature on the power dynamics and ethical considerations in interprofessional collaboration (Reeves et al., 2017; Fallatah et al., 2020).

The availability and allocation of resources emerged as a significant factor influencing the synergy between healthcare roles and regions. The participants from the Jeddah and Dammam regions reported more challenges related to resource scarcity and maldistribution compared to those from the Riyadh region, which may reflect the regional disparities in healthcare funding and infrastructure in Saudi Arabia (Almalki et al., 2011). These findings highlight the need for more equitable and efficient resource allocation strategies to support collaboration and quality care across different regions.

The cultural and linguistic diversity of the healthcare workforce and patient population in Saudi Arabia was identified as both an opportunity and a challenge for synergy. The participants acknowledged the benefits of diversity, such as the exchange of knowledge and perspectives, but also reported difficulties related to language barriers and cultural misunderstandings. These findings are consistent with previous research on the impact of cultural diversity on healthcare communication and outcomes (Almutairi, 2015; Aldossary et al., 2008). They underscore the importance of cultural competence training and support for healthcare professionals to effectively navigate and leverage diversity in their collaborative practice.

Overall, this study contributes to the growing body of research on interprofessional collaboration and regional dynamics in healthcare. The findings provide valuable insights into the perspectives and experiences of pharmacy technicians, nursing technicians, and other healthcare professionals in Saudi Arabia, which can inform the development of policies, practices, and educational interventions to enhance synergy and quality care.

### **Implications**

The findings of this study have several implications for healthcare policy, practice, and education in Saudi Arabia. At the policy level, the results highlight the need for more supportive and inclusive frameworks that foster collaboration and synergy among healthcare roles and regions. This may involve the development of national guidelines and standards for interprofessional practice, as well as the allocation of resources and incentives to support collaborative initiatives (Almalki et al., 2011).

At the practice level, the findings suggest the need for more opportunities and platforms for communication, teamwork, and mutual learning among healthcare professionals. This may include the establishment of multidisciplinary teams, joint training sessions, and shared decision-making processes that enable the exchange of knowledge and skills across different roles and settings (Reeves et al., 2017). Additionally, the results underscore the importance of cultural competence and diversity management strategies to facilitate effective collaboration and patient-centered care (Almutairi, 2015).

At the educational level, the findings emphasize the need for more interprofessional education and training programs that prepare healthcare professionals for collaborative practice. This may involve the integration of interprofessional competencies and experiences into the curricula of healthcare programs, as well as the provision of continuing education and professional development opportunities that foster collaboration and synergy (Fallatah et al., 2020). Moreover, the results highlight the importance of cultural competence education and training to enable healthcare professionals to effectively work with diverse colleagues and patients (Aldossary et al., 2008).

### **Limitations**

This study has several limitations that should be considered when interpreting the findings. First, the study was conducted in three regions of Saudi Arabia, and the results may not be generalizable to other regions or countries with different healthcare systems and cultural contexts. Second, the study relied on self-reported data from the participants, which may be subject to social desirability and recall bias. Third, the study used a cross-sectional design, which does not allow for the examination of causal relationships between the variables. Fourth, the sample size and composition may not be representative of all healthcare roles and settings in Saudi Arabia, and further research is needed to validate and expand the findings.

### **Conclusion**

This study explored the synergy between healthcare roles and regional dynamics in Saudi Arabia from a multidisciplinary perspective. The findings highlight the importance of effective communication, teamwork, professional identity, resource availability, and cultural diversity in

shaping the collaboration between pharmacy technicians, nursing technicians, and other healthcare professionals across different regions. The study provides valuable insights into the opportunities and challenges of fostering synergy and quality care in the Saudi healthcare system, and offers implications for policy, practice, and education. Further research is needed to examine the effectiveness of interventions and strategies to enhance interprofessional collaboration and cultural competence in healthcare, and to explore the perspectives and experiences of patients and families in collaborative care. By understanding and addressing the complex interplay between healthcare roles and regional dynamics, we can create more supportive and inclusive environments that promote synergy, quality, and equity in healthcare.

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