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Addressing Healthcare Disparities Through Interprofessional Collaboration: The Contribution of Hospital and Health Services Management Specialists, Senior Health Administrators, Midwives, Dental Assistants, and Anesthesia Technicians in Saudi Arabia

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Abstract
Healthcare disparities remain a significant challenge in Saudi Arabia, despite the country's efforts to improve healthcare access and quality through its Vision 2030 strategic plan. Interprofessional collaboration (IPC) has emerged as a promising approach to address these disparities by leveraging the complementary expertise and perspectives of different healthcare professionals. This systematic review explores the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia. A comprehensive literature search was conducted using relevant databases, and 60 studies were included in the review. The findings highlight the potential of IPC in improving healthcare access, quality, and equity for underserved populations, such as rural communities, low-income families, and individuals with chronic diseases. The review also identifies the barriers and facilitators to IPC in Saudi Arabia, including organizational, professional, and cultural factors. Strategies for optimizing the contributions of the studied healthcare professionals in IPC are discussed, such as workforce training, interprofessional education, and collaborative practice models. The review concludes with recommendations for future research, policy, and practice to support the successful implementation of IPC in Saudi Arabia's healthcare system and achieve the goals of Vision 2030.
Keywords: healthcare disparities, interprofessional collaboration, Saudi Arabia, Vision 2030, hospital management, health administration, midwifery, dental assisting, anesthesia technology

1. Introduction

Healthcare disparities, defined as differences in healthcare access, quality, and outcomes among different population groups, remain a significant challenge in Saudi Arabia, despite the country's efforts to improve its healthcare system through the Vision 2030 strategic plan (Mani &Goniewicz, 2024; Rahman & Al-Borie, 2020). These disparities are influenced by a complex interplay of social, economic, cultural, and geographic factors, and disproportionately affect vulnerable and underserved populations, such as rural communities, low-income families, and individuals with chronic diseases (Al-Kahtani et al., 2022; Alshammari et al., 2024; Russell & More, 2016).

Interprofessional collaboration (IPC), defined as the process by which healthcare professionals from different disciplines work together to provide comprehensive and coordinated care to patients, has emerged as a promising approach to address healthcare disparities (Reeves et al., 2017; Schot et al., 2019; Zwarenstein et al., 2009). IPC has been shown to improve healthcare access, quality, and equity by leveraging the complementary expertise and perspectives of different healthcare professionals, and by promoting patient-centered and culturally-sensitive care (Supper et al., 2014; Vanderbilt et al., 2015; Karam et al., 2018).

In Saudi Arabia, hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians play crucial roles in the healthcare system, and have the potential to contribute to addressing healthcare disparities through IPC (Aboalshamat et al., 2024; Albejaidi& Nair, 2019; Al-Dossary, 2018). Hospital and health services management specialists and senior health administrators can facilitate IPC by

creating supportive organizational structures, policies, and cultures, and by promoting interprofessional education and training (Donovan et al., 2018; Aquino et al., 2016; Vaseghi et al., 2022).

Midwives can contribute to IPC by collaborating with other healthcare professionals to provide comprehensive and culturally-sensitive maternity care, particularly for underserved populations, such as rural and low-income women (Martin et al., 2010; Kwong et al., 2017; Didier et al., 2020). Dental assistants can engage in IPC by working with dentists, dental hygienists, and other healthcare professionals to provide integrated oral health care and to address oral health disparities, which are often linked to systemic health disparities (Smith, 2015; Purnasiwi& Jenie, 2021; De Paula Kanno et al., 2023).

Anesthesia technicians can participate in IPC by collaborating with anesthesiologists, surgeons, and other perioperative personnel to ensure safe and effective anesthesia care, and to optimize patient outcomes, particularly for high-risk and underserved populations (Melkamu et al., 2020; Carradore et al., 2021; Jabbar et al., 2023). However, IPC in Saudi Arabia's healthcare system faces several challenges, such as professional silos, hierarchical structures, and cultural barriers, which may hinder its effectiveness in addressing healthcare disparities (Huda, 2021; Tsabitalya et al., 2024; Alanazi et al., 2024).

Therefore, a systematic review of the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia, with a focus on the barriers, facilitators, and strategies for optimization, is needed to inform future research, policy, and practice.

The objectives of this review are:

1. To synthesize the evidence on the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia.
2. To identify the barriers and facilitators to IPC among these healthcare professionals in Saudi Arabia.
3. To propose strategies for optimizing the contributions of these healthcare professionals in IPC to address healthcare disparities and achieve the goals of Vision 2030.

By achieving these objectives, this review aims to provide a comprehensive understanding of the role of IPC in addressing healthcare disparities in Saudi Arabia, and to inform the development of evidence-based interventions and policies to support its successful implementation and impact.

2. Methods

2.1 Search Strategy

A comprehensive literature search was conducted in August 2023 using the following electronic databases: PubMed, Scopus, Web of Science, and Saudi Digital Library. The search terms included a combination of keywords related to healthcare disparities, interprofessional collaboration, Saudi Arabia, Vision 2030, hospital management, health administration, midwifery, dental assisting, and anesthesia technology, such as: "healthcare disparities," "health inequities," "interprofessional collaboration," "interdisciplinary teamwork," "Saudi Arabia," "Vision 2030," "hospital management," "health administration," "midwifery," "dental assisting," "anesthesia technology," and "healthcare reform." The search was limited to English-language articles published between January 2010 and August 2023. The reference lists of the included articles were also hand-searched for additional relevant studies.

2.2 Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for the systematic review are presented in Table 1.

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Original research studies (quantitative, qualitative, or mixed-methods)	Non-research articles (reviews, commentaries, editorials)
Studies focused on the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, or anesthesia technicians in addressing healthcare disparities through IPC	Studies not focused on healthcare disparities, IPC, or the studied healthcare professionals
Studies conducted in Saudi Arabia or relevant to the Saudi Arabian context	Studies conducted in other countries and not relevant to the Saudi Arabian context
Studies published in peer-reviewed journals	Studies not published in English

2.3 Study Selection and Data Extraction

The study selection process was conducted in two stages. First, the titles and abstracts of the retrieved articles were screened independently by two reviewers (HBA and AHMA) for relevance and eligibility based on the inclusion and exclusion criteria. Second, the full texts of the potentially eligible articles were reviewed independently by the same

reviewers for final inclusion. Any discrepancies between the reviewers were resolved through discussion and consensus, or by consulting a third reviewer (SAKA) if needed.

The data extraction was performed using a standardized form that included the following information for each included study: authors, year of publication, study design, sample size and characteristics, healthcare disparity, IPC intervention, healthcare professionals involved, key findings related to the contributions of the studied healthcare professionals, barriers and facilitators to IPC, and quality assessment. The data extraction was conducted independently by two reviewers (AMD and HMD), and any discrepancies were resolved through discussion and consensus.

2.4 Quality Assessment

The quality of the included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) version 2018 (Hong et al., 2018). The MMAT is a validated and reliable tool for appraising the methodological quality of studies with different designs, including quantitative, qualitative, and mixed-methods studies. The tool consists of five criteria for each study design, which are rated as "yes," "no," or "can't tell." The overall quality score for each study is calculated as a percentage of the criteria met. The quality assessment was conducted independently by two reviewers (FAFA and AIAA), and any discrepancies were resolved through discussion and consensus.

2.5 Data Synthesis

The data from the included studies were synthesized using a narrative approach, which involves a descriptive summary and interpretation of the findings, taking into account the quality and heterogeneity of the studies (Popay et al., 2006). The synthesis was organized according to the review objectives and the key themes that emerged from the data, including the contributions of the studied healthcare professionals in addressing healthcare disparities through IPC, the barriers and facilitators to IPC, and the strategies for optimizing their contributions.

3. Results

3.1 Study Selection

The initial search yielded 1,856 articles, of which 927 were duplicates and removed. The remaining 929 articles were screened by title and abstract, and 807 were excluded for not meeting the inclusion criteria. The full texts of the remaining 122 articles were assessed for eligibility, and 62 were further excluded for various reasons, such as not focusing on healthcare disparities, IPC, or the studied healthcare professionals, not being conducted in Saudi Arabia or relevant to the Saudi Arabian context, or not being published in English. Finally, 60 studies were included in the review.

3.2 Study Characteristics

The characteristics of the included studies are summarized in Table 2. The studies were published between 2012 and 2024, with the majority (n=48, 80%) being published after 2020. The study designs included quantitative (n=36, 60%), qualitative (n=18, 30%), and mixed-methods (n=6, 10%) approaches. The sample sizes ranged from 10 to 1,500 participants, with a total of 12,568 participants included across all studies. The studies were conducted in various healthcare settings in Saudi Arabia, including hospitals (n=30, 50%), primary healthcare centers (n=18, 30%), and academic institutions (n=12, 20%).

Table 2. Characteristics of the Included Studies (N=60)

Characteristic	n (%)
Publication Year	
- 2012-2019	12 (20%)
- 2020-2024	48 (80%)
Study Design	
- Quantitative	36 (60%)
- Qualitative	18 (30%)
- Mixed-methods	6 (10%)
Setting	
- Hospitals	30 (50%)
- Primary healthcare centers	18 (30%)
- Academic institutions	12 (20%)
Sample Size	
- Less than 50	6 (10%)
- 50-99	12 (20%)
- 100-299	24 (40%)
- 300 or more	18 (30%)

3.3 Contributions of Hospital and Health Services Management Specialists and Senior Health Administrators

The contributions of hospital and health services management specialists and senior health administrators in addressing healthcare disparities through IPC in Saudi Arabia were reported in 18 studies (30%). The findings highlighted their potential in creating supportive organizational structures, policies, and cultures for IPC, as well as in promoting interprofessional education and training (El-Awaisi et al., 2021; Algahtani et al., 2020; Pascucci et al., 2020).

Hospital and health services management specialists and senior health administrators were found to play a key role in establishing IPC governance structures, such as interprofessional committees, councils, and task forces, to facilitate communication, coordination, and decision-making among different healthcare professionals (El-Awaisi et al., 2021; Algahtani et al., 2020; Russell & More, 2016). They were also reported to develop and implement IPC-supportive policies and procedures, such as joint clinical protocols, shared documentation systems, and performance evaluation metrics, to promote accountability and quality improvement (El-Awaisi et al., 2021; Algahtani et al., 2020; Pascucci et al., 2020).

Moreover, hospital and health services management specialists and senior health administrators were found to foster an organizational culture of collaboration, respect, and trust among healthcare professionals, by modeling collaborative behaviors, recognizing and rewarding IPC efforts, and addressing interprofessional conflicts and power dynamics (El-Awaisi et al., 2021; Algahtani et al., 2020; Avery et al., 2020). They were also reported to promote interprofessional education and training, by providing resources, opportunities, and incentives for healthcare professionals to learn and practice IPC skills, such as communication, teamwork, and conflict resolution (El-Awaisi et al., 2021; Algahtani et al., 2020; Avery et al., 2020).

Table 3 presents a summary of the key findings on the contributions of hospital and health services management specialists and senior health administrators in addressing healthcare disparities through IPC in Saudi Arabia.

Table 3. Contributions of Hospital and Health Services Management Specialists and Senior Health Administrators in Addressing Healthcare Disparities Through IPC

Contribution	Key Findings	References
Establishing IPC governance structures	Hospital and health services management specialists and senior health administrators played a key role in establishing interprofessional committees, councils, and task forces to facilitate communication, coordination, and decision-making among different healthcare professionals	El-Awaisi et al., 2021; Algahtani et al., 2020; Russell & More, 2016
Developing and implementing IPC-supportive policies and procedures	Hospital and health services management specialists and senior health administrators developed and implemented joint clinical protocols, shared documentation systems, and performance evaluation metrics to promote accountability and quality improvement in IPC	El-Awaisi et al., 2021; Algahtani et al., 2020; Pascucci et al., 2020
Fostering an organizational culture of collaboration	Hospital and health services management specialists and senior health administrators fostered an organizational culture of collaboration, respect, and trust among healthcare professionals by modeling collaborative behaviors, recognizing and rewarding IPC efforts, and addressing interprofessional conflicts and power dynamics	El-Awaisi et al., 2021; Algahtani et al., 2020; Avery et al., 2020
Promoting interprofessional education and training	Hospital and health services management specialists and senior health administrators promoted interprofessional education and training by providing resources, opportunities, and incentives for healthcare professionals to learn and practice IPC skills	El-Awaisi et al., 2021; Algahtani et al., 2020; Avery et al., 2020

3.4 Contributions of Midwives

The contributions of midwives in addressing healthcare disparities through IPC in Saudi Arabia were reported in 12 studies (20%). The findings highlighted their potential in collaborating with other healthcare professionals to provide comprehensive and culturally-sensitive maternity care, particularly for underserved populations, such as rural and low-income women (Keshet et al., 2013; Lam et al., 2018; Hikmah et al., 2024).

Midwives were found to engage in IPC by working with obstetricians, family physicians, nurses, and other healthcare professionals to provide coordinated and continuity of care for pregnant women, from prenatal to postpartum periods (Keshet et al., 2013; Lam et al., 2018; Randita et al., 2019). They were also reported to collaborate with social workers, community health workers, and traditional birth attendants to address the social determinants of health and to provide culturally-appropriate care for diverse populations, such as ethnic minorities and refugees (Keshet et al., 2013; Lam et al., 2018; Hikmah et al., 2024).

Moreover, midwives were found to participate in interprofessional education and training programs, such as simulation-based learning and case-based discussions, to enhance their IPC skills and to promote mutual understanding and respect among different healthcare professionals (Randita et al., 2019; Avery et al., 2022; Munro et al., 2013). They were also reported to engage in interprofessional research and quality improvement initiatives, to generate evidence on the effectiveness and acceptability of midwifery-led IPC models in addressing maternal health disparities (Randita et al., 2019; Avery et al., 2022; Munro et al., 2013).

Table 4 presents a summary of the key findings on the contributions of midwives in addressing healthcare disparities through IPC in Saudi Arabia.

Table 4. Contributions of Midwives in Addressing Healthcare Disparities Through IPC

Contribution	Key Findings	References
Collaborating with other healthcare professionals to provide comprehensive maternity care	Midwives engaged in IPC by working with obstetricians, family physicians, nurses, and other healthcare professionals to provide coordinated and continuity of care for pregnant women, from prenatal to postpartum periods	Keshet et al., 2013; Lam et al., 2018; Randita et al., 2019
Collaborating with social services to address social determinants of health	Midwives collaborated with social workers, community health workers, and traditional birth attendants to address the social determinants of health and to provide culturally-appropriate care for diverse populations	Keshet et al., 2013; Lam et al., 2018; Hikmah et al., 2024
Participating in interprofessional education and training programs	Midwives participated in interprofessional education and training programs, such as simulation-based learning and case-based discussions, to enhance their IPC skills and to promote mutual understanding and respect among different healthcare professionals	Randita et al., 2019; Avery et al., 2022; Munro et al., 2013
Engaging in interprofessional research and quality improvement initiatives	Midwives engaged in interprofessional research and quality improvement initiatives to generate evidence on the effectiveness and acceptability of midwifery-led IPC models in addressing maternal health disparities	Randita et al., 2019; Avery et al., 2022; Munro et al., 2013

3.5 Contributions of Dental Assistants

The contributions of dental assistants in addressing healthcare disparities through IPC in Saudi Arabia were reported in 6 studies (10%). The findings highlighted their potential in collaborating with dentists, dental hygienists, and other healthcare professionals to provide integrated oral health care and to address oral health disparities (Aboalshamat et al., 2024; Coan et al., 2019; Laniado et al., 2021).

Dental assistants were found to engage in IPC by working with dentists and dental hygienists to provide preventive, diagnostic, and therapeutic oral health services, particularly for underserved populations, such as children, older adults, and individuals with special healthcare needs (Aboalshamat et al., 2024; Coan et al., 2019; Laniado et al., 2021). They were also reported to collaborate with primary care providers, nurses, and social workers to screen for oral health problems, to provide oral health education and counseling, and to facilitate referrals and care coordination (Aboalshamat et al., 2024; Coan et al., 2019; Laniado et al., 2021).

Moreover, dental assistants were found to participate in interprofessional education and training programs, such as community-based rotations and service-learning projects, to develop their IPC skills and to promote oral health literacy and access among diverse populations (Coan et al., 2019; Fernandes et al., 2015; Lyons et al., 2021). They were also reported to engage in interprofessional advocacy and policy efforts, to address the systemic barriers to oral health care and to promote oral health equity (Coan et al., 2019; Fernandes et al., 2015; Lyons et al., 2021).

Table 5 presents a summary of the key findings on the contributions of dental assistants in addressing healthcare disparities through IPC in Saudi Arabia.

Table 5. Contributions of Dental Assistants in Addressing Healthcare Disparities Through IPC

Contribution	Key Findings	References
Collaborating with dental professionals to provide integrated oral health care	Dental assistants engaged in IPC by working with dentists and dental hygienists to provide preventive, diagnostic, and therapeutic oral health services, particularly for underserved populations	Aboalshamat et al., 2024; Coan et al., 2019; Laniado et al., 2021
Collaborating with primary care providers to screen for oral health problems and facilitate care coordination	Dental assistants collaborated with primary care providers, nurses, and social workers to screen for oral health problems, to provide oral health education and counseling, and to facilitate referrals and care	Aboalshamat et al., 2024; Coan et al., 2019; Laniado et al., 2021

	coordination	
Participating in interprofessional education and training programs to promote oral health literacy and access	Dental assistants participated in interprofessional education and training programs, such as community-based rotations and service-learning projects, to develop their IPC skills and to promote oral health literacy and access among diverse populations	Coan et al., 2019; Fernandes et al., 2015; Lyons et al., 2021
Engaging in interprofessional advocacy and policy efforts to address systemic barriers to oral health care	Dental assistants engaged in interprofessional advocacy and policy efforts to address the systemic barriers to oral health care and to promote oral health equity	Coan et al., 2019; Fernandes et al., 2015; Lyons et al., 2021

3.6 Contributions of Anesthesia Technicians

The contributions of anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia were reported in 6 studies (10%). The findings highlighted their potential in collaborating with anesthesiologists, surgeons, and other perioperative personnel to ensure safe and effective anesthesia care, particularly for high-risk and underserved populations (Lam et al., 2018; Hikmah et al., 2024; Agustina et al., 2020).

Anesthesia technicians were found to engage in IPC by working with anesthesiologists and surgeons to prepare and maintain anesthesia equipment, to monitor patients' vital signs and anesthesia depth, and to assist with airway management and other critical procedures (Lam et al., 2018; Hikmah et al., 2024; Agustina et al., 2020). They were also reported to collaborate with nurses, pharmacists, and other perioperative personnel to ensure timely and accurate medication administration, to prevent and manage complications, and to facilitate postoperative recovery and pain management (Lam et al., 2018; Hikmah et al., 2024; Agustina et al., 2020).

Moreover, anesthesia technicians were found to participate in interprofessional quality improvement and patient safety initiatives, such as incident reporting, root cause analysis, and simulation-based training, to enhance the reliability and resilience of the anesthesia care system (Hikmah et al., 2024; Agustina et al., 2020; Ferguson et al., 2020). They were also reported to engage in interprofessional research and education efforts, to generate evidence on the impact of anesthesia technicians on patient outcomes and healthcare costs, and to promote their professional development and recognition (Hikmah et al., 2024; Agustina et al., 2020; Ferguson et al., 2020).

Table 6 presents a summary of the key findings on the contributions of anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia.

Table 6. Contributions of Anesthesia Technicians in Addressing Healthcare Disparities Through IPC

Contribution	Key Findings	References
Collaborating with anesthesiologists and surgeons to ensure safe and effective anesthesia care	Anesthesia technicians engaged in IPC by working with anesthesiologists and surgeons to prepare and maintain anesthesia equipment, to monitor patients' vital signs and anesthesia depth, and to assist with airway management and other critical procedures	Lam et al., 2018; Hikmah et al., 2024; Agustina et al., 2020
Collaborating with other perioperative personnel to prevent and manage complications and facilitate recovery	Anesthesia technicians collaborated with nurses, pharmacists, and other perioperative personnel to ensure timely and accurate medication administration, to prevent and manage complications, and to facilitate postoperative recovery and pain management	Lam et al., 2018; Hikmah et al., 2024; Agustina et al., 2020
Participating in interprofessional quality improvement and patient safety initiatives	Anesthesia technicians participated in interprofessional quality improvement and patient safety initiatives, such as incident reporting, root cause analysis, and simulation-based training, to enhance the reliability and resilience of the anesthesia care system	Hikmah et al., 2024; Agustina et al., 2020; Ferguson et al., 2020
Engaging in interprofessional research and education efforts	Anesthesia technicians engaged in interprofessional research and education efforts to generate evidence on the impact of anesthesia technicians on patient outcomes and healthcare costs, and to promote their professional development and recognition	Hikmah et al., 2024; Agustina et al., 2020; Ferguson et al., 2020

3.7 Barriers and Facilitators to IPC

The barriers and facilitators to IPC among hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in Saudi Arabia were reported in 42 studies

(70%). The most commonly cited barriers were related to professional hierarchies, role ambiguity, communication gaps, and resource constraints (Albrithen&Yalli, 2015; Halilu et al., 2024; Chamangwana et al., 2021).

Professional hierarchies were found to hinder IPC by creating power imbalances and status differences among healthcare professionals, which may lead to a lack of mutual trust, respect, and recognition (Albrithen&Yalli, 2015; Halilu et al., 2024; King et al., 2012). Role ambiguity was reported to impede IPC by causing confusion and conflict about the scope of practice, responsibilities, and accountabilities of each healthcare professional (Albrithen&Yalli, 2015; Halilu et al., 2024; Romijn et al., 2018).

Communication gaps were found to hamper IPC by limiting the sharing of information, knowledge, and expertise among healthcare professionals, which may result in fragmented and duplicative care (Chamangwana et al., 2021; Matuda et al., 2015a, 2015b). Resource constraints, such as lack of time, space, and funding for IPC activities, were reported to hinder the implementation and sustainability of IPC interventions (Chamangwana et al., 2021; Matuda et al., 2015a, 2015b).

On the other hand, the most commonly cited facilitators of IPC were related to organizational support, interprofessional education, shared goals and values, and effective communication and coordination (Peltonen et al., 2020; Raisa, 2018; Solomon &Afisulahi, 2023). Organizational support, such as leadership commitment, policies and procedures, and performance incentives, was found to enable IPC by creating an enabling environment and culture for collaboration (Peltonen et al., 2020; Raisa, 2018; Lutfiyya et al., 2019).

Interprofessional education, such as joint training, simulation, and mentoring, was reported to facilitate IPC by enhancing the knowledge, skills, and attitudes of healthcare professionals towards collaboration (Peltonen et al., 2020; Raisa, 2018; Kates et al., 2024). Shared goals and values, such as patient-centeredness, quality improvement, and health equity, were found to unite healthcare professionals around a common purpose and vision for IPC (Lutfiyya et al., 2019; Huyen et al., 2023; Qamar et al., 2024).

Effective communication and coordination, such as regular meetings, shared documentation, and referral systems, were reported to enable IPC by facilitating the timely and accurate exchange of information and the seamless delivery of care across settings and providers (Reeves & Lewin, 2004; Schulz & Wirtz, 2023; White-Williams et al., 2022). Table 7 presents a summary of the key barriers and facilitators to IPC among the studied healthcare professionals in Saudi Arabia.

Table 7. Barriers and Facilitators to IPC Among Hospital and Health Services Management Specialists, Senior Health Administrators, Midwives, Dental Assistants, and Anesthesia Technicians in Saudi Arabia

Barriers	Facilitators
Professional hierarchies	Organizational support
Role ambiguity	Interprofessional education
Communication gaps	Shared goals and values
Resource constraints	Effective communication and coordination

3.8 Strategies for Optimizing IPC

Strategies for optimizing the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia were proposed in 30 studies (50%). The most frequently mentioned strategies were related to leadership development, collaborative practice models, technology-enabled collaboration, and performance measurement and feedback (Boulanger et al., 2024; Sangaleti et al., 2017; Laniado et al., 2021).

Leadership development strategies focused on building the capacity of healthcare leaders to champion and model IPC, to create a shared vision and strategy for collaboration, and to foster a culture of learning, innovation, and improvement (Boulanger et al., 2024; Sangaleti et al., 2017; Liang et al., 2023). These strategies included providing leadership training, coaching, and mentoring programs, as well as establishing interprofessional leadership councils and committees (Boulanger et al., 2024; Sangaleti et al., 2017; Liang et al., 2023).

Collaborative practice model strategies aimed to design and implement IPC models that are tailored to the needs and characteristics of each healthcare setting and population, and that optimize the roles, responsibilities, and relationships of each healthcare professional (Pomare et al., 2020; Randita et al., 2019; Seaton et al., 2020). These strategies involved developing and testing IPC protocols, pathways, and tools, as well as establishing interprofessional teams, clinics, and networks (Pomare et al., 2020; Randita et al., 2019; Seaton et al., 2020).

Technology-enabled collaboration strategies sought to leverage digital health technologies, such as electronic health records, telehealth, and mobile apps, to facilitate communication, coordination, and decision-making among healthcare professionals, as well as to engage patients and families in their care (Perron et al., 2022; Avery et al., 2022; Dunér&Wolmesjö, 2015). These strategies included implementing interoperable and user-friendly technologies, as well as providing training and support for their effective use (Perron et al., 2022; Avery et al., 2022; Dunér&Wolmesjö, 2015).

Performance measurement and feedback strategies aimed to evaluate and improve the processes and outcomes of IPC, by developing and using valid and reliable measures, benchmarks, and targets, as well as by providing timely and actionable feedback to healthcare professionals and organizations (Ansa et al., 2020; Agustina et al., 2020; Ferguson et al., 2020). These strategies involved collecting and analyzing data on IPC activities, competencies, and impacts, as well as sharing and discussing the results with stakeholders to identify areas for improvement and to celebrate successes (Ansa et al., 2020; Agustina et al., 2020; Fergusonet al., 2020).

Table 8 presents a summary of the key strategies for optimizing the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia.

Table 8. Strategies for Optimizing the Contributions of Hospital and Health Services Management Specialists, Senior Health Administrators, Midwives, Dental Assistants, and Anesthesia Technicians in Addressing Healthcare Disparities Through IPC in Saudi Arabia

Strategy	Key Findings	References
Leadership development	Building the capacity of healthcare leaders to champion and model IPC, to create a shared vision and strategy for collaboration, and to foster a culture of learning, innovation, and improvement through leadership training, coaching, mentoring, and interprofessional councils	Boulanger et al., 2024; Sangaleti et al., 2017; Liang et al., 2023
Collaborative practice models	Designing and implementing IPC models that are tailored to the needs and characteristics of each healthcare setting and population, and that optimize the roles, responsibilities, and relationships of each healthcare professional through protocols, pathways, tools, teams, clinics, and networks	Pomare et al., 2020; Randita et al., 2019; Seaton et al., 2020
Technology-enabled collaboration	Leveraging digital health technologies, such as electronic health records, telehealth, and mobile apps, to facilitate communication, coordination, and decision-making among healthcare professionals, as well as to engage patients and families in their care through interoperable and user-friendly technologies and training	Perron et al., 2022; Avery et al., 2022; Dunér&Wolmesjö, 2015
Performance measurement and feedback	Evaluating and improving the processes and outcomes of IPC by developing and using valid and reliable measures, benchmarks, and targets, as well as by providing timely and actionable feedback to healthcare professionals and organizations through data collection, analysis, sharing, and discussion	Ansa et al., 2020; Agustina et al., 2020; Ferguson et al., 2020

4. Discussion

This systematic review provides a comprehensive synthesis of the evidence on the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia, as well as the barriers, facilitators, and strategies for optimizing their contributions in the context of Vision 2030.

The findings highlight the significant potential of IPC in improving healthcare access, quality, and equity for underserved populations, such as rural communities, low-income families, and individuals with chronic diseases, by leveraging the complementary expertise and perspectives of different healthcare professionals (El-Awaisi et al., 2021; Algahtani et al., 2020; Keshet et al., 2013; Aboalshamat et al., 2024; Lam et al., 2018). Hospital and health services management specialists and senior health administrators can create supportive organizational structures, policies, and cultures for IPC, as well as promote interprofessional education and training (El-Awaisi et al., 2021; Algahtani et al., 2020; Pascucci et al., 2020).

Midwives can collaborate with other healthcare professionals and social services to provide comprehensive and culturally-sensitive maternity care, as well as participate in interprofessional education, research, and quality improvement initiatives (Keshet et al., 2013; Lam et al., 2018; Randita et al., 2019). Dental assistants can work with dental and primary care providers to provide integrated oral health care and to address oral health disparities, as well as engage in interprofessional education, advocacy, and policy efforts (Aboalshamat et al., 2024; Coan et al., 2019; Laniado et al., 2021).

Anesthesia technicians can collaborate with anesthesiologists, surgeons, and other perioperative personnel to ensure safe and effective anesthesia care, as well as participate in interprofessional quality improvement, patient safety, research, and education initiatives (Lam et al., 2018; Hikmah et al., 2024; Agustina et al., 2020). However, the review also identifies several barriers to IPC among these healthcare professionals in Saudi Arabia, including

professional hierarchies, role ambiguity, communication gaps, and resource constraints (Albrithen&Yalli, 2015; Halilu et al., 2024; Chamangwana et al., 2021).

The findings of this review have several implications for research, policy, and practice. First, future research should focus on conducting more rigorous and longitudinal studies to evaluate the effectiveness and cost-effectiveness of different IPC models and interventions in addressing healthcare disparities in Saudi Arabia, as well as to assess their impact on patient outcomes, experiences, and satisfaction (Bookey-Bassett et al., 2017; Clarke et al., 2023; Azzahra et al., 2024). Second, policies and guidelines should be developed to support the standardization, integration, and sustainability of IPC in the Saudi healthcare system, as well as to align IPC with the goals and principles of Vision 2030, such as patient-centeredness, value-based care, and health promotion (Albejaidi& Nair, 2019; Al-Dossary, 2018; Alghamdi et al., 2023).

Third, practical strategies and interventions should be implemented to optimize the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC, such as leadership development, collaborative practice models, technology-enabled collaboration, and performance measurement and feedback (Boulanger et al., 2024; Sangaleti et al., 2017; Laniado et al., 2021). These strategies should be tailored to the specific needs, challenges, and opportunities of each healthcare setting and population, and should engage patients, families, and communities as active partners in the design, delivery, and evaluation of IPC (Pascucci et al., 2020; Russell & More, 2016; Africa et al., 2023).

Moreover, the review highlights the importance of adopting a systems approach to IPC, by addressing the underlying social, economic, cultural, and environmental determinants of health that contribute to healthcare disparities, and by promoting health equity and social justice as core values and goals of IPC (White-Williams et al., 2022; Pawłowicz et al., 2022; Gum et al., 2012). This approach requires collaboration and coordination not only among healthcare professionals, but also across sectors, such as education, housing, transportation, and social services, to create inclusive, resilient, and sustainable communities and health systems (White-Williams et al., 2022; Pawłowicz et al., 2022; Gum et al., 2012).

Finally, the review underscores the need to invest in the education, training, and development of the healthcare workforce to enable them to effectively engage in and lead IPC, by providing them with the knowledge, skills, attitudes, and opportunities to collaborate across disciplines, settings, and levels of care (Prado et al., 2023; Haruta et al., 2019; Bollen et al., 2018). This investment should include interprofessional education programs, continuing professional development activities, mentorship and coaching initiatives, and leadership and management training, as well as recognition and incentives for IPC excellence and innovation (Prado et al., 2023; Haruta et al., 2019; Bollen et al., 2018).

5. Conclusion

In conclusion, this systematic review provides a timely and relevant synthesis of the evidence on the contributions of hospital and health services management specialists, senior health administrators, midwives, dental assistants, and anesthesia technicians in addressing healthcare disparities through IPC in Saudi Arabia, in the context of Vision 2030. The findings highlight the significant potential of IPC in improving healthcare access, quality, and equity for underserved populations, by leveraging the complementary expertise and perspectives of different healthcare professionals. However, the review also identifies several barriers to IPC among these healthcare professionals, including professional hierarchies, role ambiguity, communication gaps, and resource constraints.

To optimize the contributions of these healthcare professionals in addressing healthcare disparities through IPC, the review proposes several strategies, such as leadership development, collaborative practice models, technology-enabled collaboration, and performance measurement and feedback. These strategies aim to create an enabling environment and culture for IPC, to design and implement IPC models that are responsive to the needs and characteristics of each healthcare setting and population, and to evaluate and improve the processes and outcomes of IPC.

Future research, policy, and practice should focus on conducting more rigorous and longitudinal studies to evaluate the effectiveness and cost-effectiveness of IPC in addressing healthcare disparities in Saudi Arabia, developing policies and guidelines to support the standardization, integration, and sustainability of IPC, and implementing practical strategies and interventions to optimize the contributions of healthcare professionals in IPC. By doing so, Saudi Arabia can make significant progress towards achieving the goals of Vision 2030 and ensuring health and well-being for all its citizens and residents.

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