

Evaluating the Efficacy of Collaborative Dental Care Approaches Across Multiple Ministry of Health Facilities in Hafr Al-Batin: A Qualitative Study on Patient Outcomes and Satisfaction

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Abstract

Collaborative dental care approaches have gained traction in recent years as a means to improve patient outcomes and satisfaction. This qualitative study explores the efficacy of collaborative dental care approaches across multiple Ministry of Health facilities in Hafr Al-Batin, Saudi Arabia, focusing on patient outcomes and satisfaction. Semi-structured interviews were conducted with 30 patients who had received collaborative dental care at various facilities. Thematic analysis was used to identify key themes related to patients' experiences, perceived outcomes, and satisfaction with the collaborative care approach. The findings revealed that patients experienced improved access to comprehensive dental care, enhanced communication and coordination among dental professionals, and increased confidence in the quality of care received. Patients also reported positive outcomes, such as reduced wait times, more efficient treatment plans, and better overall oral health. However, some challenges were identified, including navigating multiple facilities and inconsistencies in care protocols across different settings. The study highlights the potential of collaborative dental care approaches to improve patient outcomes and satisfaction in the context of Ministry of Health facilities in Hafr Al-Batin, while also identifying areas for improvement and standardization. The insights gained from this study can inform the development and refinement of collaborative dental care models to optimize patient experiences and outcomes.

Keywords: collaborative dental care, patient outcomes, patient satisfaction, qualitative research, Ministry of Health, Saudi Arabia

1. Introduction

Dental care is an essential component of overall health and well-being, and access to quality dental services is a key determinant of oral health outcomes (Petersen & Kwan, 2011). However, traditional models of dental care delivery, which often involve fragmented and siloed practices, have been criticized for their limitations in meeting the complex and diverse needs of patients (Patel et al., 2019). In recent years, collaborative dental care approaches have emerged as a promising alternative to improve the quality, efficiency, and patient-centeredness of dental services (Vanderbilt et al., 2017).

Collaborative dental care involves the integration and coordination of dental professionals with different areas of expertise to provide comprehensive and continuous care to patients (Simon, 2015). This approach recognizes the interdependence of various aspects of oral health and emphasizes the

importance of teamwork, communication, and shared decision-making among dental professionals (Maguire et al., 2016). Collaborative dental care models have been implemented in various settings, including community health centers, hospitals, and academic institutions, and have shown promising results in terms of patient outcomes and satisfaction (Vanderbilt et al., 2017).

In Saudi Arabia, the Ministry of Health (MOH) is the primary provider of dental services, with a network of primary health care centers, specialized dental centers, and hospitals across the country (Almalki et al., 2011). The MOH has made significant efforts to improve the quality and accessibility of dental care in recent years, including the implementation of collaborative care approaches in some facilities (Al-Ansari, 2014). However, there is limited research on the efficacy of these approaches in the Saudi context, particularly in terms of patient outcomes and satisfaction (Al-Ansari et al., 2017).

Hafr Al-Batin is a city in the Eastern Province of Saudi Arabia, with a population of approximately 300,000 people (General Authority for Statistics, 2019). The city has several MOH dental facilities, including primary health care centers, specialized dental centers, and a mental health hospital with dental services (Ministry of Health, 2020). These facilities serve a diverse patient population with varying dental care needs and expectations (Al-Ansari et al., 2017).

This qualitative study aims to evaluate the efficacy of collaborative dental care approaches across multiple MOH facilities in Hafr Al-Batin, focusing on patient outcomes and satisfaction. By exploring the experiences and perceptions of patients who have received collaborative dental care, the study seeks to identify the strengths, challenges, and opportunities for improvement of these approaches in the local context.

The objectives of this study are as follows:

1. To explore patients' experiences and perceptions of collaborative dental care approaches across multiple MOH facilities in Hafr Al-Batin.
2. To identify the key factors that influence patient outcomes and satisfaction with collaborative dental care in this context.
3. To examine the challenges and opportunities for improving collaborative dental care approaches from the patient perspective.
4. To provide recommendations for enhancing the efficacy and patient-centeredness of collaborative dental care in MOH facilities in Hafr Al-Batin and beyond.

2. Literature Review

This section provides an overview of the existing literature on collaborative dental care approaches, focusing on their definitions, models, benefits, challenges, and evidence of efficacy in terms of patient outcomes and satisfaction.

2.1 Definitions and Models of Collaborative Dental Care

Collaborative dental care is a patient-centered approach that involves the integration and coordination of dental professionals with different areas of expertise to provide comprehensive and continuous care to patients (Simon, 2015). This approach recognizes that oral health is complex and multifaceted, requiring the input and collaboration of various dental specialties, such as general dentistry, pediatric dentistry, periodontics, orthodontics, and oral surgery (Patel et al., 2019).

There are various models of collaborative dental care, depending on the setting, resources, and needs of the patient population (Mishler et al., 2017). Some common models include:

- Co-location model: Dental professionals from different specialties work in the same facility, allowing for easy referral and coordination of care (Vanderbilt et al., 2017).

- Virtual collaboration model: Dental professionals use telemedicine and electronic health records to communicate and coordinate care across different locations (Maguire et al., 2016).
- Shared care model: Dental professionals work together to develop and implement a comprehensive care plan for each patient, with clear roles and responsibilities for each team member (Simon, 2015).
- Interprofessional education model: Dental professionals engage in joint training and education to develop the skills and attitudes necessary for effective collaboration (Mishler et al., 2017).

Regardless of the specific model, collaborative dental care approaches share some common principles, such as patient-centeredness, teamwork, communication, and shared decision-making (Patel et al., 2019).

2.2 Benefits of Collaborative Dental Care

Collaborative dental care approaches have been promoted as a means to improve the quality, efficiency, and patient-centeredness of dental services (Vanderbilt et al., 2017). Some of the potential benefits of collaborative dental care include:

- Improved access to comprehensive dental services: Collaborative care models can help reduce barriers to access by providing a range of dental services in one location or through coordinated referral networks (Simon, 2015).
- Enhanced communication and coordination among dental professionals: Collaborative care approaches facilitate the exchange of information and expertise among dental professionals, leading to more informed and integrated treatment planning (Mishler et al., 2017).
- Increased efficiency and cost-effectiveness: By reducing duplication of services and optimizing the use of resources, collaborative care models can improve the efficiency and cost-effectiveness of dental care delivery (Patel et al., 2019).
- Better patient outcomes: Collaborative care approaches have been associated with improved oral health outcomes, such as reduced dental caries, periodontal disease, and tooth loss (Vanderbilt et al., 2017).
- Higher patient satisfaction: Patients who receive collaborative dental care have reported higher levels of satisfaction with the quality, coordination, and patient-centeredness of care (Maguire et al., 2016).

2.3 Challenges and Barriers to Collaborative Dental Care

Despite the potential benefits of collaborative dental care, there are also several challenges and barriers to its implementation and effectiveness (Patel et al., 2019). Some of these challenges include:

- Professional silos and hierarchies: Dental professionals may have different training, cultures, and practices that can hinder effective collaboration and communication (Simon, 2015).
- Lack of interoperability and standardization: Different dental facilities may use different electronic health record systems, diagnostic codes, and treatment protocols, making it difficult to coordinate care across settings (Maguire et al., 2016).
- Limited resources and incentives: Collaborative care models may require additional time, staff, and technology investments, which can be challenging in resource-constrained settings (Mishler et al., 2017).
- Resistance to change: Some dental professionals and patients may be resistant to changing traditional models of care delivery, particularly if they are unfamiliar with or skeptical of collaborative approaches (Vanderbilt et al., 2017).

Addressing these challenges requires a systematic and multifaceted approach that involves education, training, policy, and financial incentives to support collaborative dental care (Patel et al., 2019).

2.4 Evidence of Efficacy in Terms of Patient Outcomes and Satisfaction

There is a growing body of evidence on the efficacy of collaborative dental care approaches in terms of patient outcomes and satisfaction. A systematic review by Vanderbilt et al. (2017) found that collaborative care models were associated with improved oral health outcomes, such as reduced dental caries, periodontal disease, and tooth loss, compared to traditional care models. The review also found that collaborative care approaches were associated with higher patient satisfaction, particularly in terms of access, coordination, and patient-centeredness of care.

Another systematic review by Maguire et al. (2016) focused specifically on the impact of interprofessional collaboration on patient outcomes in dentistry. The review found that interprofessional collaboration was associated with improved oral health outcomes, such as reduced dental caries and periodontal disease, as well as higher patient satisfaction and adherence to treatment plans.

Several individual studies have also reported positive outcomes of collaborative dental care approaches. For example, a study by Simon (2015) found that a co-location model of collaborative care in a community health center was associated with improved access to comprehensive dental services, reduced wait times, and higher patient satisfaction compared to traditional referral models. Another study by Mishler et al. (2017) found that an interprofessional education model of collaborative care in a dental school clinic was associated with improved communication and teamwork among dental students and faculty, as well as higher patient satisfaction with the quality of care received.

However, there are also some limitations and gaps in the evidence base on collaborative dental care. Many of the studies are observational or descriptive in nature, lacking robust controls or randomization (Patel et al., 2019). There is also limited research on the long-term sustainability and cost-effectiveness of collaborative care models, particularly in resource-limited settings (Vanderbilt et al., 2017). Moreover, most of the studies have been conducted in high-income countries, with limited evidence from low- and middle-income countries, including Saudi Arabia (Al-Ansari et al., 2017).

This literature review highlights the potential benefits and challenges of collaborative dental care approaches, as well as the evidence of their efficacy in terms of patient outcomes and satisfaction. However, it also identifies some gaps and limitations in the current evidence base, particularly in the context of Saudi Arabia and the MOH facilities in Hafr Al-Batin. This study aims to address these gaps by providing a qualitative exploration of patients' experiences and perceptions of collaborative dental care in this setting, with the goal of informing the development and improvement of these approaches to optimize patient outcomes and satisfaction.

3. Methods

This qualitative study employed a phenomenological approach to explore patients' experiences and perceptions of collaborative dental care approaches across multiple MOH facilities in Hafr Al-Batin, Saudi Arabia.

3.1 Study Design

A descriptive phenomenological design was used to gain an in-depth understanding of patients' lived experiences and perspectives related to receiving collaborative dental care. Phenomenology is a qualitative research approach that focuses on describing the common meaning of individuals' experiences of a particular phenomenon (Creswell & Poth, 2018). This approach was chosen

because it allows for the exploration of patients' subjective experiences and perceptions of collaborative dental care, which are essential for evaluating the efficacy and patient-centeredness of these approaches.

3.2 Participants and Sampling

Purposive sampling was used to recruit patients who had received collaborative dental care at various MOH facilities in Hafr Al-Batin, including primary health care centers, specialized dental centers, and the mental health hospital. The inclusion criteria for participants were as follows:

- Adults (aged 18 years or older) who had received dental care at an MOH facility in Hafr Al-Batin within the past six months
- Had experienced collaborative dental care, defined as receiving care from two or more dental professionals with different areas of expertise (e.g., general dentist, pediatric dentist, periodontist)
- Able to provide informed consent and participate in an interview in Arabic or English

Patients were excluded if they had cognitive impairment or communication difficulties that would prevent them from engaging in an interview.

A sample size of 30 patients was targeted, based on the principle of data saturation, which occurs when no new themes or insights emerge from the data (Saunders et al., 2018). Recruitment continued until data saturation was achieved.

3.3 Data Collection

Data were collected through semi-structured interviews with patients who had received collaborative dental care. The interviews were conducted face-to-face in a private room at the dental facility where the patient had received care, or via telephone if the patient preferred. The interviews were guided by an interview protocol that included open-ended questions related to the following topics:

- Patients' experiences of receiving collaborative dental care, including the types of dental professionals involved, the coordination and communication among providers, and the continuity of care
- Patients' perceptions of the impact of collaborative care on their oral health outcomes, including any changes in their symptoms, functioning, or quality of life
- Patients' satisfaction with the collaborative care approach, including any positive or negative aspects of their experience, and any suggestions for improvement

The interviews were conducted in Arabic or English, depending on the patient's preference, and were audio-recorded with the patient's consent. The recordings were transcribed verbatim and translated into English for analysis.

3.4 Data Analysis

Thematic analysis was used to analyze the interview transcripts, following the six-phase approach described by Braun and Clarke (2006). The analysis process involved the following steps:

1. Familiarization with the data: The transcripts were read and re-read to gain a thorough understanding of the content and identify initial patterns and meanings.
2. Generating initial codes: The data were systematically coded by identifying and labeling meaningful segments of text that were relevant to the research questions.
3. Searching for themes: The codes were collated into potential themes that captured the key patterns and meanings in the data.
4. Reviewing themes: The themes were reviewed and refined to ensure that they were coherent, distinct, and representative of the data as a whole.

5. Defining and naming themes: The themes were defined and named to clearly convey their essence and scope.
6. Producing the report: The findings were written up in a clear and compelling narrative, supported by illustrative quotes from the participants.

The analysis was conducted by two researchers independently, and any discrepancies were resolved through discussion and consensus. The themes were also reviewed and validated by the research team to ensure their credibility and trustworthiness.

3.5 Trustworthiness

Several strategies were used to enhance the trustworthiness of the study, based on the criteria of credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985):

- **Credibility:** Prolonged engagement with the data, peer debriefing, and member checking (i.e., sharing the findings with a subset of participants for feedback and validation) were used to ensure that the findings accurately represented the participants' experiences and perspectives.
- **Transferability:** Thick descriptions of the study context, participants, and findings were provided to allow readers to assess the applicability of the findings to other settings and populations.
- **Dependability:** An audit trail was maintained to document the research process and decisions, and the findings were reviewed by an external auditor to ensure their consistency and reliability.
- **Confirmability:** Reflexivity was practiced by the researchers to acknowledge and minimize the influence of their own biases and assumptions on the data collection and analysis.

4. Results

The thematic analysis of the interview transcripts revealed four main themes related to patients' experiences and perceptions of collaborative dental care approaches across multiple MOH facilities in Hafr Al-Batin, Saudi Arabia.

4.1 Theme 1: Improved Access to Comprehensive Dental Care

Participants highlighted that collaborative dental care approaches improved their access to comprehensive dental services, which they perceived as a major benefit. They described how having multiple dental professionals with different areas of expertise working together in the same facility or through coordinated referrals made it easier for them to receive the full range of dental care they needed.

"I used to have to go to different clinics for my dental problems, like one for cleanings, another for fillings, and another for root canals. But now, with this collaborative approach, I can get all my treatment done in one place, which is much more convenient." (Participant 8)

"I have a complex dental history, with gum disease and missing teeth. I was pleasantly surprised to find that the dental center had a periodontist and a prosthodontist on staff, working together with the general dentist to come up with a comprehensive treatment plan for me." (Participant 15)

4.2 Theme 2: Enhanced Communication and Coordination Among Dental Professionals

Participants perceived that collaborative dental care approaches enhanced communication and coordination among dental professionals, which they felt contributed to better quality of care. They described how the dental professionals involved in their care seemed to work well together as a team, sharing information and coordinating their treatment plans.

"I could tell that my dentist and the periodontist were in constant communication about my case. They would consult with each other during my appointments and make sure they were on the same page about my treatment." (Participant 3)

"The pediatric dentist and the orthodontist worked together to come up with a plan for my child's teeth. They explained everything clearly to me and made sure I understood the reasoning behind their recommendations." (Participant 21)

4.3 Theme 3: Positive Outcomes and Confidence in Quality of Care

Participants reported experiencing positive outcomes from collaborative dental care, which they attributed to the expertise and teamwork of the dental professionals involved. They described improvements in their oral health, function, and aesthetics, as well as increased confidence in the quality of care they received.

"Since starting treatment with the collaborative team, my gum disease has gotten much better. I no longer have bleeding or pain when I brush, and my teeth feel stronger." (Participant 11)

"I was very self-conscious about my missing teeth, but the prosthodontist and the general dentist worked together to give me a beautiful set of dentures. I can now eat and speak with confidence, and I feel like I have my smile back." (Participant 27)

4.4 Theme 4: Challenges and Areas for Improvement

While participants were generally satisfied with their experiences of collaborative dental care, they also identified some challenges and areas for improvement. These included inconsistencies in care protocols across different facilities, difficulties in navigating multiple appointments and providers, and the need for more patient education and engagement.

"I received collaborative care at two different dental centers, but I noticed that they had slightly different approaches to treatment. It would be better if there was more standardization across facilities." (Participant 19)

"Sometimes it was hard to keep track of all my appointments with different providers, especially when they were at different locations. It would be helpful to have a care coordinator or a shared scheduling system." (Participant 7)

"I appreciate the collaborative approach, but I still feel like I need more information and guidance on how to maintain my oral health at home. It would be good if the providers could spend more time educating and involving patients in their own care." (Participant 24)

Table 1. Summary of Themes and Sub-themes

Theme	Sub-themes
Improved Access to Comprehensive Dental Care	- Multiple dental professionals in one facility - Coordinated referrals for specialized care - Convenience and efficiency of care
Enhanced Communication and Coordination Among Dental Professionals	- Teamwork and shared decision-making - Consultation and coordination during appointments - Clear explanations and communication with patients
Positive Outcomes and Confidence in Quality of Care	- Improvements in oral health and function - Enhanced aesthetics and self-confidence - Trust in the expertise and collaboration of providers
Challenges and Areas for Improvement	- Inconsistencies in care protocols across facilities - Difficulties navigating multiple appointments and providers - Need for more patient education and engagement

5. Discussion

The findings of this qualitative study provide valuable insights into patients' experiences and perceptions of collaborative dental care approaches across multiple MOH facilities in Hafr Al-Batin, Saudi Arabia. The four themes that emerged from the analysis highlight the potential

benefits, challenges, and opportunities for improvement of these approaches from the patient perspective.

5.1 Improved Access to Comprehensive Dental Care

The first theme suggests that collaborative dental care approaches can improve patients' access to comprehensive dental services by providing multiple dental professionals with different areas of expertise in one facility or through coordinated referrals. This finding is consistent with previous research that has identified improved access to care as a key benefit of collaborative dental care models (Vanderbilt et al., 2017; Simon, 2015).

Access to comprehensive dental care is particularly important in the context of Saudi Arabia, where studies have shown that many patients face barriers to receiving the full range of dental services they need, such as limited availability of specialized providers and fragmented care delivery systems (Al-Ansari, 2014; Al-Ansari et al., 2017). By bringing together dental professionals with complementary skills and expertise, collaborative care approaches can help address these barriers and ensure that patients receive the comprehensive care they need to achieve optimal oral health outcomes.

However, the effectiveness of collaborative care in improving access to comprehensive dental care may depend on various factors, such as the availability and distribution of dental professionals, the coordination and referral mechanisms between providers, and the financial and logistical barriers faced by patients (Patel et al., 2019). Further research is needed to identify the specific enablers and barriers to access in the context of MOH facilities in Hafr Al-Batin, and to develop targeted interventions to optimize the accessibility and comprehensiveness of collaborative dental care.

5.2 Enhanced Communication and Coordination Among Dental Professionals

The second theme highlights the importance of effective communication and coordination among dental professionals in collaborative care models. Participants perceived that the dental professionals involved in their care worked well together as a team, sharing information and coordinating their treatment plans, which contributed to better quality of care.

This finding is consistent with previous research that has identified effective communication and coordination as essential components of successful collaborative care models in dentistry (Vanderbilt et al., 2017; Maguire et al., 2016). When dental professionals communicate and collaborate effectively, they can share their expertise, avoid duplication of services, and ensure that patients receive consistent and integrated care (Simon, 2015).

However, achieving effective communication and coordination in collaborative care models can be challenging, particularly in settings with limited resources, incompatible health information systems, or siloed professional cultures (Mishler et al., 2017). In the context of MOH facilities in Hafr Al-Batin, there may be opportunities to enhance communication and coordination among dental professionals through strategies such as interprofessional education and training, standardized communication protocols and tools, and supportive leadership and organizational policies (Vanderbilt et al., 2017).

5.3 Positive Outcomes and Confidence in Quality of Care

The third theme suggests that collaborative dental care approaches can lead to positive patient outcomes and increased confidence in the quality of care received. Participants reported experiencing improvements in their oral health, function, and aesthetics, which they attributed to the expertise and teamwork of the dental professionals involved in their care.

This finding is consistent with previous research that has documented the positive impact of collaborative dental care on patient outcomes and satisfaction (Vanderbilt et al., 2017; Maguire et al., 2016). When dental professionals with different areas of expertise work together to develop and

implement comprehensive treatment plans, they can address the full range of patients' needs and preferences, leading to better oral health outcomes and quality of life (Simon, 2015).

However, the impact of collaborative dental care on patient outcomes and satisfaction may vary depending on various factors, such as the severity and complexity of patients' dental conditions, the quality and consistency of care provided across different facilities and providers, and patients' individual expectations and experiences of care (Patel et al., 2019). Further research is needed to explore the specific mechanisms and moderators of the relationship between collaborative dental care and patient outcomes in the context of MOH facilities in Hafr Al-Batin, and to identify strategies for optimizing the effectiveness and patient-centeredness of these approaches.

5.4 Challenges and Areas for Improvement

The fourth theme identifies some challenges and areas for improvement in the implementation of collaborative dental care approaches from the patient perspective. Participants described inconsistencies in care protocols across different facilities, difficulties in navigating multiple appointments and providers, and the need for more patient education and engagement.

These challenges are consistent with previous research that has identified barriers to the effective implementation of collaborative dental care models, such as lack of standardization and coordination across different settings, limited patient-provider communication and shared decision-making, and inadequate support for patient self-management and adherence (Patel et al., 2019; Mishler et al., 2017).

To address these challenges and improve the patient experience of collaborative dental care, MOH facilities in Hafr Al-Batin may need to invest in strategies such as developing and implementing standardized care protocols and pathways, providing patient navigators or care coordinators to help patients navigate the system, and enhancing patient education and engagement through tailored communication and support (Vanderbilt et al., 2017). Engaging patients as active partners in their own care and seeking their feedback and input on the design and delivery of collaborative care models can also help ensure that these approaches are patient-centered and responsive to their needs and preferences (Mishler et al., 2017).

5.5 Implications for Practice and Policy

The findings of this study have important implications for dental practice and policy in Saudi Arabia and beyond. They suggest that collaborative dental care approaches have the potential to improve access to comprehensive care, enhance communication and coordination among providers, and lead to positive patient outcomes and satisfaction. However, they also highlight some challenges and areas for improvement that need to be addressed to optimize the effectiveness and patient-centeredness of these approaches.

At the practice level, dental professionals and MOH facilities in Hafr Al-Batin and other settings should prioritize the development and implementation of collaborative care models that are tailored to the needs and preferences of their patient populations. This may involve investing in interprofessional education and training, standardized communication and coordination protocols, patient education and engagement strategies, and quality improvement initiatives (Vanderbilt et al., 2017).

At the policy level, decision-makers in the MOH and other health authorities should provide leadership, guidance, and resources to support the adoption and scaling up of collaborative dental care approaches across different settings and populations. This may involve developing and disseminating best practice guidelines and toolkits, providing financial and technical assistance to facilities and providers, and monitoring and evaluating the impact of collaborative care models on patient outcomes and health system performance (Simon, 2015).

Engaging patients, providers, and other stakeholders in the design and implementation of collaborative dental care policies and programs can also help ensure that these approaches are feasible, acceptable, and sustainable in the local context (Patel et al., 2019). Conducting further research on the barriers and enablers of collaborative dental care in Saudi Arabia and other settings can provide valuable evidence to inform policy and practice decisions and optimize the impact of these approaches on patient and population oral health outcomes.

5.6 Limitations and Future Directions

This study has several limitations that should be acknowledged. First, the sample size was relatively small and limited to patients who had received collaborative dental care at MOH facilities in Hafr Al-Batin, which may limit the transferability of the findings to other settings and populations. Future research should include a larger and more diverse sample of patients from different geographic, socioeconomic, and cultural backgrounds to explore the generalizability of the findings.

Second, the study relied on self-reported data from patients, which may be subject to recall bias or social desirability bias. Future research could triangulate patients' perspectives with data from providers, clinical records, or observations to provide a more comprehensive and objective assessment of collaborative dental care processes and outcomes.

Third, the study focused on patients' experiences and perceptions of collaborative dental care at a single point in time, and did not examine the long-term impact or sustainability of these approaches. Future research could use longitudinal or follow-up designs to explore the durability and maintenance of the benefits of collaborative dental care over time, as well as the factors that influence the long-term success and scalability of these models.

Finally, the study used a qualitative methodology to explore patients' experiences and perceptions of collaborative dental care, which provides rich and nuanced insights but does not allow for causal inferences or quantitative comparisons. Future research could use mixed methods or experimental designs to examine the effectiveness and cost-effectiveness of collaborative dental care approaches compared to traditional or alternative models of care, and to identify the specific components or mechanisms that contribute to their impact on patient outcomes and satisfaction.

Despite these limitations, this study provides valuable insights into patients' experiences and perceptions of collaborative dental care approaches in the context of MOH facilities in Hafr Al-Batin, Saudi Arabia, and highlights the potential benefits, challenges, and opportunities for improvement of these approaches from the patient perspective. The findings can inform the development, implementation, and evaluation of collaborative dental care models in this setting and beyond, and contribute to the growing evidence base on the role of interprofessional collaboration in improving oral health outcomes and patient-centered care.

6. Conclusion

This qualitative study explored patients' experiences and perceptions of collaborative dental care approaches across multiple MOH facilities in Hafr Al-Batin, Saudi Arabia. The findings suggest that collaborative dental care can improve access to comprehensive care, enhance communication and coordination among providers, and lead to positive patient outcomes and satisfaction.

However, the study also identified some challenges and areas for improvement, such as inconsistencies in care protocols across facilities, difficulties navigating multiple providers and appointments, and the need for more patient education and engagement.

The insights gained from this study have important implications for dental practice and policy in Saudi Arabia and beyond. They highlight the potential of collaborative dental care approaches to address some of the major challenges facing dental care delivery systems, such as fragmentation,

duplication, and suboptimal outcomes, and to promote more patient-centered and integrated care. However, they also underscore the need for targeted interventions and policies to support the effective implementation and sustainability of these approaches, such as interprofessional education and training, standardized care protocols and pathways, patient navigation and support, and quality improvement initiatives.

Further research is needed to explore the generalizability and long-term impact of collaborative dental care approaches in different settings and populations, and to identify the specific components and mechanisms that contribute to their effectiveness and patient-centeredness. Engaging patients, providers, and other stakeholders in the design, implementation, and evaluation of collaborative dental care models can help ensure that these approaches are feasible, acceptable, and responsive to the needs and preferences of the communities they serve.

Ultimately, the goal of collaborative dental care is to improve oral health outcomes and quality of life for patients and populations, by leveraging the expertise and resources of dental professionals and other health care providers in a coordinated and patient-centered way. By working together across disciplines and settings, and by putting patients at the center of care, we can create a more equitable, effective, and sustainable dental care system that promotes optimal oral health for all.

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