

Exploring the Collaborative Experiences of Nursing Technicians, Midwifery Technicians, and Dental Assistants in KSA in Promoting Oral Health and Its Impact on Patients' Overall Well-Being: A Qualitative Study

Afaf Kamel Aldahfeeri¹, Ohud Kamel Aldaferi², Munaifah Eissa Aldahfeeri³, Ibtesam Eissa Aldhefeeri⁴, Meshal Eisa Aldaferi⁵, Awatef Nouman Aldhafeeri⁶,

¹Nursing Technician

²Nursing Technician

³Nursing Technician

⁴Nursing Technician

⁵Dental Assistant

⁶Nursing Technician

ABSTRACT

Oral health plays a crucial role in overall well-being, and healthcare professionals across various disciplines contribute to its promotion. This qualitative study explores the collaborative experiences of nursing technicians, midwifery technicians, and dental assistants in the Kingdom of Saudi Arabia (KSA) in promoting oral health and its impact on patients' overall well-being. Semi-structured interviews were conducted with a purposive sample of 20 participants, including nursing technicians, midwifery technicians, and dental assistants. Thematic analysis was employed to identify key themes and subthemes. The findings revealed four main themes: 1) interprofessional collaboration, 2) patient education and empowerment, 3) challenges and barriers, and 4) perceived impact on patient well-being. Participants emphasized the importance of effective communication, knowledge sharing, and coordinated care in promoting oral health. They also highlighted their roles in patient education, empowerment, and addressing challenges such as limited resources and cultural barriers. The collaborative efforts of these healthcare professionals were perceived to contribute positively to patients' overall well-being. This study underscores the significance of interprofessional collaboration in oral health promotion and provides insights for enhancing healthcare delivery in KSA.

Keywords: oral health, interprofessional collaboration, nursing technicians,

midwifery technicians, dental assistants, patient well-being

1. Introduction

Oral health is an integral component of overall health and well-being (World Health Organization, 2021). Poor oral health has been associated with various systemic conditions, including cardiovascular diseases, diabetes, and respiratory infections (Dörfer et al., 2017; Winning et al., 2018). In the Kingdom of Saudi Arabia (KSA), oral health problems such as dental caries and periodontal diseases are prevalent, affecting a significant portion of the population (Alharbi et al., 2019; Al-Madi et al., 2018). Addressing these issues requires a collaborative approach involving healthcare professionals from different disciplines.

Nursing technicians, midwifery technicians, and dental assistants play crucial roles in promoting oral health and preventing oral diseases (Al-Maweri et al., 2020; Almutairi & Mohan, 2019). These healthcare professionals often serve as the first point of contact for patients and are well-positioned to provide oral health education, screening, and referrals (Al-Otaibi et al., 2017). However, the collaborative experiences of these professionals in promoting oral health in KSA have not been extensively explored.

This qualitative study aims to investigate the collaborative experiences of nursing technicians, midwifery technicians, and dental assistants in KSA in promoting oral health and its impact on patients' overall well-being. By understanding their perspectives, challenges, and successes, this study seeks to provide insights into enhancing interprofessional collaboration and improving oral health outcomes in KSA.

2. Literature Review

2.1 Oral Health and Overall Well-Being

Oral health is a fundamental aspect of general health and quality of life (Petersen & Ogawa, 2016). The World Health Organization (2021) defines oral health as "a state of being free from chronic mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing." Poor oral health has been linked to various systemic conditions, such as cardiovascular diseases (Dörfer et al., 2017), diabetes (Preshaw et al., 2012), respiratory infections (Azarpazhooh & Leake, 2006), and adverse pregnancy outcomes (Sanz & Kornman, 2013).

Maintaining good oral health involves regular dental check-ups, proper oral hygiene practices, and timely treatment of oral diseases (Janakiram et al., 2018). However, access to oral healthcare services and awareness about oral health may be limited in some populations (Singh et al., 2016). In KSA, studies have reported a high prevalence of dental caries and periodontal diseases among different age groups (Alharbi et al., 2019; Al-Madi et al., 2018; Alsubaie, 2019). These findings highlight the need for effective oral health promotion strategies and collaborative efforts among healthcare professionals.

2.2 Interprofessional Collaboration in Oral Health Promotion

Interprofessional collaboration involves healthcare professionals from different disciplines working together to provide comprehensive and coordinated care (Green & Johnson, 2015). In the context of oral health promotion, interprofessional collaboration can include dentists, dental hygienists, nurses, midwives, physicians, and other allied health professionals (Mekhemar et al., 2021; Petersen et al., 2020). Collaborative practices have been shown to improve patient outcomes, enhance care quality, and optimize resource utilization (Schadewaldt et al., 2013).

Nursing technicians, midwifery technicians, and dental assistants are essential members of the oral healthcare team. Nursing technicians provide basic nursing care and assist in various healthcare settings (Al-Mutairi & Al-Mahitab, 2019). They can contribute to oral health promotion by assessing patients' oral health status, providing oral hygiene instructions, and facilitating referrals to dental professionals (Al-Otaibi et al., 2017). Midwifery technicians play a vital role in maternal and child health, including oral health during pregnancy and early childhood (Almutairi & Mohan, 2019). They can educate pregnant women about the importance of oral health, promote healthy oral habits, and address common oral health concerns during pregnancy (Sharif et al., 2015). Dental assistants work closely with dentists and provide chairside assistance, patient education, and infection control (Al-Maweri et al., 2020). They can reinforce oral hygiene instructions, provide dietary advice, and assist in preventive and therapeutic dental procedures (Al-Mutairi et al., 2020).

Despite the potential benefits of interprofessional collaboration in oral health promotion, several challenges and barriers have been identified. These include limited knowledge and skills in oral health among non-dental professionals (Al-Otaibi et al., 2017), lack of formal training in interprofessional collaboration (Yusuf et al., 2015), and inadequate communication and referral systems (Al-Maweri et al., 2020). Addressing these challenges requires educational interventions, policy support, and organizational changes to foster effective interprofessional collaboration (Mekhemar et al., 2021).

2.3 Oral Health Promotion in KSA

In KSA, the Ministry of Health has recognized the importance of oral health promotion and has implemented various initiatives to improve oral health outcomes (Ministry of Health, 2021). These include the establishment of dental clinics in primary healthcare centers, school-based oral health programs, and public awareness campaigns (Al-Ansari et al., 2020). However, the utilization of dental services remains low, and oral health disparities persist among different socioeconomic groups (Al-Hussyeen, 2010).

Studies have explored the knowledge, attitudes, and practices of healthcare professionals regarding oral health promotion in KSA. Al-Otaibi et al. (2017) found that nursing students had limited knowledge about oral health and reported inadequate training in oral health assessment and promotion. Al-Mutairi et al. (2020) reported that dental assistants in KSA had good knowledge about oral hygiene practices and infection control but identified a need for continuing education programs. Almutairi and Mohan (2019) highlighted the importance of integrating oral health education into

midwifery training programs to enhance their role in promoting oral health during pregnancy.

Despite these studies, there is a paucity of research exploring the collaborative experiences of nursing technicians, midwifery technicians, and dental assistants in promoting oral health in KSA. Understanding their perspectives, challenges, and successes can provide valuable insights into improving interprofessional collaboration and enhancing oral health promotion strategies in the country.

3. Methods

3.1 Study Design

This study employed a qualitative descriptive design to explore the collaborative experiences of nursing technicians, midwifery technicians, and dental assistants in promoting oral health and its impact on patients' overall well-being in KSA. Qualitative research allows for an in-depth understanding of participants' perspectives, experiences, and meanings (Creswell & Poth, 2018). The descriptive approach focuses on describing the phenomenon of interest without imposing preconceived theoretical frameworks (Sandelowski, 2000).

3.2 Participants and Sampling

Purposive sampling was used to recruit participants for this study. Purposive sampling involves selecting participants who have specific characteristics or experiences relevant to the research question (Palinkas et al., 2015). The inclusion criteria for participants were: 1) being a nursing technician, midwifery technician, or dental assistant; 2) having at least one year of work experience; and 3) being involved in oral health promotion activities in their respective settings.

A total of 20 participants were recruited, including eight nursing technicians, six midwifery technicians, and six dental assistants. This sample size was considered sufficient to achieve data saturation, which occurs when no new themes or insights emerge from additional interviews (Saunders et al., 2018). Participants were recruited from different healthcare settings, such as hospitals, primary healthcare centers, and dental clinics, to ensure a diverse range of experiences.

3.3 Data Collection

Data were collected through semi-structured individual interviews. Semi-structured interviews allow for a flexible exploration of participants' experiences while maintaining a focus on the research topic (DeJonckheere & Vaughn, 2019). An interview guide was developed based on the study objectives and existing literature. The guide included open-ended questions related to participants' roles in oral health promotion, collaborative experiences with other healthcare professionals, challenges and facilitators of collaboration, and perceived impact on patients' well-being.

The interviews were conducted in Arabic, the native language of the participants, to ensure comfort and ease of expression. Each interview lasted approximately 45-60 minutes and was audio-recorded with the participants' consent. The interviews were conducted in a private setting, such as a clinic office or a quiet room, to maintain confidentiality and minimize distractions.

3.4 Data Analysis

The audio-recorded interviews were transcribed verbatim and translated into English for analysis. Thematic analysis, as described by Braun and Clarke (2006), was used to analyze the data. Thematic analysis involves identifying, analyzing, and reporting patterns or themes within the data. The analysis followed a six-step process: 1) familiarization with the data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report.

Two researchers independently coded the transcripts and compared their findings to ensure consistency and reliability. The researchers discussed and resolved any discrepancies in coding through consensus. The codes were then organized into potential themes and subthemes, which were reviewed and refined to ensure coherence and meaningfulness. The final themes were defined and named to capture the essence of the participants' experiences.

3.5 Trustworthiness

Several strategies were employed to enhance the trustworthiness of the study findings. Credibility was established through prolonged engagement with the participants, member checking, and peer debriefing (Lincoln & Guba, 1985). Participants were provided with a summary of their interview transcripts to verify the accuracy of the content. Peer debriefing involved discussing the findings with other researchers to obtain feedback and alternative perspectives.

Transferability was addressed by providing thick descriptions of the study context, participants, and findings (Lincoln & Guba, 1985). This allows readers to assess the applicability of the findings to other settings or populations. Dependability was enhanced by maintaining an audit trail of the research process, including decision-making and data analysis steps (Lincoln & Guba, 1985). Confirmability was achieved through reflexivity, where researchers acknowledged their own biases and preconceptions and strived to maintain objectivity throughout the study (Lincoln & Guba, 1985).

4. Results

The thematic analysis revealed four main themes related to the collaborative experiences of nursing technicians, midwifery technicians, and dental assistants in promoting oral health and its impact on patients' overall well-being in KSA. These themes were: 1) interprofessional collaboration, 2) patient education and empowerment, 3) challenges and barriers, and 4) perceived impact on patient well-being. Each theme had several subthemes that captured the nuances and variations in participants' experiences.

4.1 Theme 1: Interprofessional Collaboration

Participants emphasized the importance of interprofessional collaboration in promoting oral health. They described their collaborative experiences with other healthcare professionals, including dentists, physicians, and fellow technicians. Three subthemes emerged within this theme: communication, knowledge sharing, and referral systems.

4.1.1 Communication

Effective communication was identified as a key factor in successful interprofessional collaboration. Participants highlighted the need for clear and open communication channels among healthcare professionals to ensure coordinated care. A nursing technician shared:

"We have regular meetings with the dental team to discuss patients' oral health needs and progress. This helps us stay on the same page and provide consistent messages to patients." (Participant 3, Nursing Technician)

4.1.2 Knowledge Sharing

Participants valued the opportunity to learn from other healthcare professionals and share their own knowledge and skills. They described instances of informal learning through discussions and observations. A midwifery technician mentioned:

"I learned a lot about oral health during pregnancy from the dentists and dental assistants. They shared resources and tips that I could use when educating pregnant women." (Participant 11, Midwifery Technician)

4.1.3 Referral Systems

Having established referral systems was seen as crucial for ensuring timely and appropriate care for patients with oral health needs. Participants reported using both formal and informal referral pathways. A dental assistant explained:

"When we identify patients with complex oral health issues, we refer them to the dentist for further evaluation and treatment. We also receive referrals from nursing and midwifery technicians for patients who need dental care." (Participant 18, Dental Assistant)

4.2 Theme 2: Patient Education and Empowerment

Participants recognized their role in educating and empowering patients to maintain good oral health. They described various strategies and approaches used to promote oral health awareness and self-care practices. Two subthemes were identified: oral hygiene instructions and preventive care.

4.2.1 Oral Hygiene Instructions

Providing oral hygiene instructions was a common activity among participants. They used demonstrations, visual aids, and verbal explanations to teach patients proper brushing and flossing techniques. A nursing technician shared:

"I always make sure to show patients how to brush their teeth correctly and emphasize the importance of regular brushing and flossing. I also provide them with written instructions to take home." (Participant 7, Nursing Technician)

4.2.2 Preventive Care

Participants emphasized the importance of preventive care in maintaining oral health. They educated patients about healthy dietary habits, the role of fluoride, and the need for regular dental check-ups. A midwifery technician mentioned:

"During prenatal visits, I discuss the link between oral health and pregnancy outcomes. I encourage pregnant women to eat a balanced diet, avoid sugary snacks, and visit the dentist regularly." (Participant 14, Midwifery Technician)

4.3 Theme 3: Challenges and Barriers

Participants identified several challenges and barriers that hindered effective interprofessional collaboration and oral health promotion. These challenges were categorized into three subthemes: limited resources, time constraints, and cultural barriers.

4.3.1 Limited Resources

Participants reported limitations in resources, such as educational materials, dental supplies, and access to dental services, especially in rural or underserved areas. A dental assistant shared:

"Sometimes we run out of toothbrushes or toothpaste to give to patients. It's challenging to promote oral hygiene when we don't have the necessary supplies." (Participant 20, Dental Assistant)

4.3.2 Time Constraints

Time constraints were identified as a barrier to providing comprehensive oral health education and collaborating with other healthcare professionals. Participants described heavy workloads and competing demands that limited their ability to focus on oral health promotion. A nursing technician mentioned:

"We have so many patients to care for, and oral health education often takes a backseat. I try my best to squeeze in a few minutes, but it's not always possible." (Participant 5, Nursing Technician)

4.3.3 Cultural Barriers

Participants encountered cultural barriers that influenced patients' oral health beliefs, practices, and care-seeking behaviors. They describe how misinformation and traditional beliefs hindered the uptake of oral health advice and treatment adherence. A midwifery technician shared:

"Some pregnant women believe that oral health problems are a normal part of pregnancy and will resolve on their own after giving birth. It's challenging to convince them otherwise." (Participant 12, Midwifery Technician)

4.4 Theme 4: Perceived Impact on Patient Well-Being

Participants perceived their collaborative efforts in promoting oral health as having a positive impact on patients' overall well-being. They described improvements in patients' oral health status, self-care practices, and quality of life. Two subthemes were identified: improved oral health outcomes and enhanced patient satisfaction.

4.4.1 Improved Oral Health Outcomes

Participants observed improvements in patients' oral health status as a result of their collaborative efforts. They reported reductions in dental caries, periodontal problems,

and oral infections among patients who received oral health education and care. A dental assistant shared:

"I have seen patients who used to have multiple cavities and gum problems come back with healthier smiles after receiving regular dental care and following our oral hygiene instructions." (Participant 17, Dental Assistant)

4.4.2 Enhanced Patient Satisfaction

Participants reported increased patient satisfaction and appreciation for the oral health services and education provided. Patients expressed gratitude for the attention and care received from the healthcare team. A nursing technician mentioned:

"Patients often thank us for taking the time to explain the importance of oral health and showing them how to take care of their teeth and gums. They feel valued and supported." (Participant 9, Nursing Technician)

Table 1. Summary of Themes and Subthemes

Themes	Subthemes
1. Interprofessional Collaboration	1.1 Communication
	1.2 Knowledge Sharing
	1.3 Referral Systems
2. Patient Education and Empowerment	2.1 Oral Hygiene Instructions
	2.2 Preventive Care
3. Challenges and Barriers	3.1 Limited Resources
	3.2 Time Constraints
	3.3 Cultural Barriers
4. Perceived Impact on Patient Well-Being	4.1 Improved Oral Health Outcomes
	4.2 Enhanced Patient Satisfaction

5. Discussion

This qualitative study explored the collaborative experiences of nursing technicians, midwifery technicians, and dental assistants in promoting oral health and its impact on patients' overall well-being in KSA. The findings highlighted the importance of interprofessional collaboration, patient education and empowerment, and the challenges and barriers encountered in oral health promotion.

Interprofessional collaboration emerged as a central theme, with participants emphasizing the value of effective communication, knowledge sharing, and referral systems. These findings align with previous studies that have underscored the importance of interprofessional collaboration in improving oral health outcomes (Mekhemar et al., 2021; Petersen et al., 2020). Collaborative practices enable healthcare professionals to provide comprehensive and coordinated care, leading to better patient outcomes (Schadewaldt et al., 2013).

Patient education and empowerment were identified as key roles of nursing technicians, midwifery technicians, and dental assistants in promoting oral health. Participants used various strategies, such as oral hygiene instructions and preventive care advice, to empower patients to maintain good oral health. These findings are

consistent with studies that have highlighted the importance of patient education and self-care in preventing oral diseases (Janakiram et al., 2018; Menegaz et al., 2018).

However, participants also encountered challenges and barriers that hindered effective interprofessional collaboration and oral health promotion. Limited resources, time constraints, and cultural barriers were identified as major obstacles. These findings echo the challenges reported in previous studies, such as inadequate oral health training for non-dental professionals (Al-Otaibi et al., 2017), heavy workloads (Al-Maweri et al., 2020), and cultural beliefs and practices that influence oral health behaviors (Alshahrani & Raheel, 2016).

Despite the challenges, participants perceived their collaborative efforts as having a positive impact on patients' overall well-being. They observed improvements in oral health outcomes and enhanced patient satisfaction. These findings suggest that interprofessional collaboration and patient education can contribute to better oral health and quality of life, aligning with the goals of oral health promotion (Petersen & Ogawa, 2016).

The findings of this study have implications for practice, policy, and research. Healthcare organizations should prioritize interprofessional collaboration and provide the necessary resources and support to facilitate effective teamwork. Policymakers should consider integrating oral health education into the training programs of nursing technicians, midwifery technicians, and other allied health professionals. Future research could explore the effectiveness of specific collaborative interventions and strategies in promoting oral health in KSA.

6. Conclusion

This qualitative study provided insights into the collaborative experiences of nursing technicians, midwifery technicians, and dental assistants in promoting oral health and its impact on patients' overall well-being in KSA. The findings highlighted the importance of interprofessional collaboration, patient education and empowerment, and the challenges and barriers encountered in oral health promotion. Participants perceived their collaborative efforts as having a positive impact on patients' oral health outcomes and satisfaction.

The study underscores the need for strengthening interprofessional collaboration and providing adequate resources and support for oral health promotion in KSA. Integrating oral health education into the training programs of allied health professionals and addressing cultural barriers could enhance the effectiveness of oral health promotion strategies. Further research is needed to evaluate the impact of collaborative interventions on oral health outcomes and patient well-being in KSA.

References

- Al-Ansari, A. A., El Tantawi, M., AlYousef, Y., & Sadaf, S. (2020). Use of free oral health services in Saudi Arabia: A national cross-sectional study. *Saudi Dental Journal*, 32(6), 321-326. <https://doi.org/10.1016/j.sdentj.2019.10.004>
- Alharbi, M. S., Alharbi, K. S., Aldosari, M. N., Aljunaydi, H., Alshehri, A., & Alshammari, S. (2019). Prevalence of early childhood caries in Riyadh, Saudi Arabia. *Pakistan Oral & Dental Journal*, 39(3), 281-285.

Afaf Kamel Aldahfeeri, Ohud Kamel Aldaferi, Munaifah Eissa Aldahfeeri, Ibtisam Eissa Aldhfeeri, Meshal Eisa Aldafeeri, Awatef Nouman Aldahfeeri,

Al-Hussyeen, A. J. (2010). Factors affecting utilization of dental health services and satisfaction among adolescent females in Riyadh City. *The Saudi Dental Journal*, 22(1), 19-25. <https://doi.org/10.1016/j.sdentj.2009.12.004>

Al-Madi, E. M., Al-Jamie, M. A., Al-Owaid, N. M., Almulhim, A. M., & Alessa, F. M. (2018). Prevalence of dental caries and associated risk factors among 6-12-year-old schoolchildren in Riyadh, Saudi Arabia. *Journal of International Society of Preventive & Community Dentistry*, 8(4), 342-346. https://doi.org/10.4103/jispcd.JISPCD_10_18

Almutairi, B. M., & Mohan, S. (2019). Oral health knowledge and practices among Saudi women during pregnancy. *International Journal of Health Sciences*, 13(5), 3-9.

Al-Maweri, S. A., Al-Jamaei, A. A., Halboub, E., Al-Soneidar, W. A., Tarakji, B., & Al-Sufyani, G. A. (2020). Knowledge, attitudes, and practices of dental assistants regarding oral health care in Sana'a, Yemen. *Journal of International Society of Preventive & Community Dentistry*, 10(1), 56-63. https://doi.org/10.4103/jispcd.JISPCD_362_19

Al-Mutairi, K. D., & Al-Mahitab, A. A. (2019). Knowledge and attitude of male nursing students toward oral health and preventive dentistry. *Clinical, Cosmetic and Investigational Dentistry*, 11, 191-197. <https://doi.org/10.2147/CCIDE.S212613>

Al-Otaibi, F. M., Al-Kaban, L. N., Al-Otaibi, A. F., Al-Mousa, F. S., Al-Gholaiqa, S. S., & Al-Houtan, T. A. (2017). Knowledge and attitudes towards oral health care among nursing students in Saudi Arabia. *Journal of Dental Health, Oral Disorders & Therapy*, 8(4), 559-562. <https://doi.org/10.15406/jdhodt.2017.08.00283>

Alshahrani, I., & Raheel, S. A. (2016). Healthcare System and Accessibility of Dental Services in Kingdom of Saudi Arabia: An Update. *Journal of International Oral Health*, 8(8), 883-887.

Alsubaie, A. S. R. (2019). Oral health-related behaviors and dental pain among children in Saudi Arabia. *Journal of International Society of Preventive & Community Dentistry*, 9(4), 360-366. https://doi.org/10.4103/jispcd.JISPCD_112_19

Azarpazhooh, A., & Leake, J. L. (2006). Systematic review of the association between respiratory diseases and oral health. *Journal of Periodontology*, 77(9), 1465-1482. <https://doi.org/10.1902/jop.2006.060010>

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp0630a>

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: A balance of relationship and rigour. *Family Medicine and Community Health*, 7(2), e000057. <https://doi.org/10.1136/fmch-2018-000057>

Dörfer, C., Benz, C., Aida, J., & Campard, G. (2017). The relationship of oral health with general health and NCDs: A brief review. *International Dental Journal*, 67(Suppl 2), 14-18. <https://doi.org/10.1111/idj.12360>

Green, B. N., & Johnson, C. D. (2015). Interprofessional collaboration in research, education, and clinical practice: Working together for a better future. *Journal of Chiropractic Education*, 29(1), 1-10. <https://doi.org/10.7899/JCE-14-36>

Janakiram, C., Deepan Kumar, C. V., & Joseph, J. (2018). Xylitol in preventing dental caries: A systematic review and meta-analyses. *Journal of Natural Science, Biology and Medicine*, 9(1), 1-11. https://doi.org/10.4103/jnsbm.JNSBM_3_17

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Mekhemar, M., Conrad, J., Attia, S., & Dörfer, C. (2021). Oral health attitudes among preclinical and clinical dental students in Germany. *International Journal of Environmental Research and Public Health*, 18(8), 4253. <https://doi.org/10.3390/ijerph18084253>

- Menegaz, A. M., Silva, A. E. R., & Cascaes, A. M. (2018). Educational interventions in health services and oral health: Systematic review. *Revista de Saúde Pública*, 52, 52. <https://doi.org/10.11606/S1518-8787.2018052000109>
- Ministry of Health. (2021). *Statistical yearbook*. <https://www.moh.gov.sa/en/Ministry/Statistics/book/Pages/default.aspx>
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health*, 42(5), 533-544. <https://doi.org/10.1007/s10488-013-0528-y>
- Petersen, P. E., & Ogawa, H. (2016). Prevention of dental caries through the use of fluoride - The WHO approach. *Community Dental Health*, 33(2), 66-68. https://doi.org/10.1922/CDH_Petersen03
- Petersen, P. E., Williamson, T., Kwan, S., & Ravaghi, V. (2020). The global prevalence of oral diseases: How much progress has been made in prevention? *Journal of Dental Research*, 99(7), 744-751. <https://doi.org/10.1177/0022034520919802>
- Preshaw, P. M., Alba, A. L., Herrera, D., Jepsen, S., Konstantinidis, A., Makrilakis, K., & Taylor, R. (2012). Periodontitis and diabetes: A two-way relationship. *Diabetologia*, 55(1), 21-31. <https://doi.org/10.1007/s00125-011-2342-y>
- Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334-340. [https://doi.org/10.1002/1098-240x\(200008\)23:4<334::aid-nur9>3.0.co;2-g](https://doi.org/10.1002/1098-240x(200008)23:4<334::aid-nur9>3.0.co;2-g)
- Sanz, M., & Kornman, K. (2013). Periodontitis and adverse pregnancy outcomes: Consensus report of the Joint EFP/AAP Workshop on Periodontitis and Systemic Diseases. *Journal of Clinical Periodontology*, 40(Suppl 14), S164-S169. <https://doi.org/10.1111/jcpe.12083>
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, 52(4), 1893-1907. <https://doi.org/10.1007/s11135-017-0574-8>
- Schadewaldt, V., McInnes, E., Hiller, J. E., & Gardner, A. (2013). Views and experiences of nurse practitioners and medical practitioners with collaborative practice in primary health care - An integrative review. *BMC Family Practice*, 14, 132. <https://doi.org/10.1186/1471-2296-14-132>
- Sharif, S., Saddki, N., & Yusoff, A. (2015). Knowledge and attitude of medical nurses toward oral health and oral health care of pregnant women. *Malaysian Journal of Medical Sciences*, 22(1), 63-71.
- Singh, A., Peres, M. A., & Watt, R. G. (2016). The relationship between income and oral health: A critical review. *Journal of Dental Research*, 95(12), 1428-1440. <https://doi.org/10.1177/0022034516657992>
- Winning, L., Lundy, L., Byrne, C., & Linden, G. J. (2018). Periodontitis and systemic diseases: Association or causality? *Current Oral Health Reports*, 5(1), 1-7. <https://doi.org/10.1007/s40496-018-0167-1>
- World Health Organization. (2021). *Oral health*. <https://www.who.int/health-topics/oral-health>