Access to Dental-Care Services in Jazan, Saudi Arabia: A Scoping Review

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Abstract

Introduction: The construct of dental access adopted in this study uses the following 4 main dimensions: opportunity for access, realized access or utilization, equity, and outcome.

Aims: The principal aims of this study were to identify various indicators used in the literature to measure each dimension of access in Saudi Arabia, to summarize and map the range of existing research with policy implications, to identify gaps in research, and to consider implications for future research.

Methods: This scoping review was conducted using the PubMed, Scopus, and Google Scholar databases, as well as manually. Additional relevant publications were identified by manually searching the reference list of the included studies. Data were extracted based on the 4 dimensions of the access framework.

Results: The search strategy yielded 230 studies, of which 16 were included after full-text revision. Of the 4 domains, the most explored and included studies were realized access, but no differentiation was made by the authors between initial utilization and continued engagement.

Conclusions: An overview of different policy suggestions has been provided. In particular, we recommend making better use of teledentistry, improving referral services between dentists and physicians, and offering more education on dental prevention in schools’ health-service sites.

Introduction

Globally, dental caries occurs ten times higher than other common oral diseases [1]. The prevalence in underdeveloped or developing countries is increasing over time, which is the opposite trend to the prevalence of caries in developed countries [2]. Oral health issues exist for many reasons, such as poor diet, food insecurity, income inequality, and low levels of health literacy and education [3]. However, even though the government of the Kingdom of Saudi Arabia (KSA) pays for all basic dental care, in the last decade, the prevalence of caries has increased dramatically in the KSA, from 68 to 96% in children, adults, and older individuals [4–6]. Recent studies suggest that the lack of dental care may also correlate with...
systemic diseases such as cardiovascular disease and diabetes [7, 8]. These outcomes could be related to access to dental health services [9] and low utilization of dental services in the KSA [10, 11].

Based on a 2019 survey on patient’s satisfaction with the Saudi Ministry of Health (MOH) services, about 72.2% of the patients indicated their satisfaction. However, the Jazan region scored the lowest patient satisfaction compared to other regions [12]. Also, Jazan recorded a high prevalence of dental caries because of inadequate oral-hygiene practices, high consumption of soft drinks, and high sugar consumption, which is considered to be widespread in Saudi Arabia [13]. The high rate of dental caries could be due to not being seen by a dentist consistently [13]. A study published in 2021 found that there are many issues encountered with dental-care services in Jazan such as the location of services and the lack of dental providers which could cause low dental-care accessibility [14].

Access to health care is defined as the “timely use of personal health services to achieve the best possible health outcomes” [15]. Access, which is often used interchangeably with coverage or utilization [16], is concerned with the degree to which individuals or groups are able to receive health service when needed [15]. Understanding oral health care underscores both the availability and use of care [10]. In order to be able to evaluate the accessibility of dental health services, this study uses 3 key indicators for accessibility, including utilization, outcomes, and barriers to accessing dental care [15]. The first indicator, utilization of dental health services, is defined as the percentage of the population who access dental services over a specified period of time [17]. A conceptual definition of dental-care access is important in order to select indicators for policy purposes [18]. The accessibility influence by many factors related to both service provision and service usage [16]. According to Healthy People 2020, some barriers can limit individuals from utilizing oral preventive treatments and interventions. Such barriers may include lack of accessibility to dental services, anxiety about dental procedures, lack of awareness of oral health-care needs, and limited finances [19]. Measuring the outcome of healthcare is a complementary approach to accessibility measurement [15]. In oral health, some studies used different indicators to measure the oral health status outcome such as dental caries and periodontal issues [20].

Since the MOH in Saudi Arabia has a similar healthcare system across the country [21], the review included many studies which were conducted in other regions within the country. This scoping review was intended to identify various indicators used in the literature to measure each dimension in Saudi Arabia, to summarize and map the range of existing research with policy implications, to identify gaps in research, and to consider implications for future research.

Methods

Based on the methodological framework for conducting scoping reviews proposed by Arksey and O’Malley [22], we conducted the review process as follows: (1) identifying the research question; (2) searching for relevant studies; (3) selecting studies based on pre-defined inclusion criteria; (4) extracting data; and (5) collating, summarizing, and reporting the results. This approach brings together disparate studies with different study designs, target populations, study settings, and, more importantly, indicators for each domain of dental access, which might have been used.

The search strategy focused on peer-reviewed publications in electronic databases such as Medline via PubMed, Scopus, and Google Scholar between 2000 and 2021 to ensure relevancy to the current practice, and only studies published in English were included. Additional relevant publications were identified manually searching the references of the included studies.

The theoretical framework for access to dental services is based on that proposed by 2 studies [18, 23]. Similarly, to Harris [18], the review used 4 dimensions of dental access to inform the selection of indicators as follows: opportunity for access, realized access or utilization, equity, and outcomes. The dimensions and conceptual definitions of each guided the extraction of data from the selected studies. The selection of indicators to measure and evaluate dental access is presented in Table 1 to reflect the variety of indicators used in different studies. The following data were also extracted from each study: city/region, study aims, participants, design and methods, and key policy recommendations.

Results

Descriptive Summary of Articles

A total of 230 articles were identified through database searches, with 215 remaining in the sample after deletion of duplicates. The Title and Abstract of the identified studies were independently screened by 2 reviewers using the inclusion criteria followed by full-text retrieval. One hundred and eighty-nine articles were excluded after title and abstract screening. Twenty-six articles were selected for full-text review, and 9 were excluded during this phase. Disagreements between reviewers were resolved following discussions. Sixteen articles were selected that met the inclusion criteria. The process of study selection is graphically represented in Figure 1.

Table 2 provides key characteristics of the included studies. The sample size among the studies varied from
52 to 1,397 participants. All age-groups were considered in the included studies; however, the majority of the studies focused on school-aged children, mostly males. Non-probability sampling methods such as convenience sampling and multistage random sampling techniques were frequently used, while some studies did not report the sampling methods adopted in the studies. None reported their sample size calculations, making the generalizability of studies' findings difficult. Different studies reported on the realized access indicators, using a variety of indicators that made comparison between studies complex (Table 2).

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**Table 1.** Domains of dental access and relevant indicators used in this study

| Domain and conceptual definition | Relevant indices |
|----------------------------------|-----------------|
| **Opportunity for access**       | Reported barrier to health-care access |
| Whether individuals or groups are able to obtain and make use of the needed dental care | Dentist- and facility-related insurance coverage |
|                                  | Transportation |
| **Realized access**              | Initial utilization |
| *Initial utilization:* whether the individuals or groups make contact with the dental service for any type of care (emergency, therapeutic, and/or preventive) | Proportion of the population who had visited the dentist in the last 12 months |
| *Continued engagement:* whether the individuals or groups receive nonsymptomatic care | Routine dental visits during the last 12 months |
|                                  | Reason for the last visit to the dentist expressed as a proportion visiting the dentist for checkup/routine care/emergency treatment |
| **Equitable access**             | Horizontal equity index |
| Where demographic and need variables account for most of the variance in utilization |
| **Outcome of care**              | Patient-reported outcome of treatment |
| Whether individuals and groups benefit from their encounter with the service |

Adapted from Harris [18].
Table 2. Characteristics of included studies

| Study | City/region | Study's aim | Participants/setting (N) | Sample/sampling methods | Design/methods |
|-------|-------------|-------------|--------------------------|-------------------------|----------------|
| Al-Ansari [30] | Dammam city/ Eastern Region | Assess the level of awareness and utilization of methods to prevent oral diseases | 17–71 years old/UDC (1) | 234/convenience sample | Quantitative, cross-sectional/ self-administered questionnaire |
| Al-Jaber and Da’a [28] | Riyadh city | Identify challenges faced by patients seeking oral care in PHC centers and assess determinants of demand for oral care services | Adult patients ≥18 years old/PHC (2) | 300/convenience sample | Quantitative, cross-sectional study/self-administered questionnaire |
| Al-Shehri [39] | Riyadh city | Assessment of difficulties in accessing dental care and to identify barriers to dental care | All ages and persons with disabilities | 119 caregivers of persons with disabilities/NA | Quantitative, cross-sectional/ self-administered questionnaire |
| Al-Sinaidi [45] | Jeddah city | Assess the periodontal health status and oral hygiene practices of visually impaired | 18–87 years/HB (1) | 52/NA | Quantitative, cross-sectional interview and clinical oral examination |
| Al-Agili and Farsi [10] | Alaquiq regions in Al-Baha province | Assessment of predicting factors that influence utilization of oral health services | 9–14 years old, male and females/SB | 1,397/NA | Quantitative, cross-sectional/ parents-administered questionnaire and clinical examination |
| Al-Dalbahi et al. [31] | Al-Khomrah district in South Jeddah | Assessment of problems that affect the general public in accessing dental care | Adults aged ≥18 years/ online | 600/convenience sampling | Quantitative, cross-sectional/ self-administered, closed-ended |
| Al-Johara [26] | Riyadh city | Determine factors affecting utilization of dental health services | 12–15 years old, females/ SB (12) | 531/NA | Quantitative, cross-sectional/ self-administered questionnaire |
| Almutlaqah et al. [29] | Abha city | Investigate factors that influence dental access | Adults aged ≥18 years/ major gathering centers | 499/convenience sampling | Quantitative, cross-sectional/ self-administered questionnaire |
| Ali Alzahrani [35] | Albaha, Alatawelah, and Alaquiq regions in Al-Baha province | Examine the oral health status and attitudes of Saudi adolescents | 12–15 years old, males/ SB (3) | 249/randomized sampling technique | Quantitative, cross-sectional/ questionnaire and clinical examination |
| Bahannan et al. [40] | Al-Khomrah district in South Jeddah | Assess the prevalence and associated factors of dental caries and periodontal diseases | 14–19 years old, males and females/SB(NA) | 734/NA | Quantitative and qualitative, cross-sectional/questionnaire and clinical examination |
| Hamasha et al. [9] | Riyadh | Evaluate barriers associated with access and utilization of dental services | 65 years and older/NH and CD | 350/systematic random sampling | Quantitative and qualitative, cross-sectional/questionnaires and interviews |
| Mahrous et al. [66] | Almadinah Almunawwarah, Asser province | Report on the caries status and dental service utilization | 6 and 12 years old/SB (4) | 330/simple random sampling | Quantitative and qualitative, cross-sectional/questionnaire and a clinical examination |
| Nazir [33] | Dhahran, Al-Khobar, and Dammam | Evaluate factors associated with routine dental attendance | 16–18 years, males/SB (NA) | 586/multistage random sampling | Quantitative, cross-sectional |
| Quadri et al. [11] | Jazan/Jazan region | Assess factors that influence dental service utilization | All age-groups, male and females/PHC (5) and UDC (1) | 395/NA | Quantitative, cross-sectional/ self-administered questionnaire |
| Tikare et al. [25] | Abha and Khamis | Assess effectiveness of school oral health screening and factors affecting dental attendance | 6–12 year, females/SB (4) | 1,035/multistage cluster random sampling | Quantitative, cross-sectional |
| Togoo et al. [24] | Rijal Alma’a, Asser province | Assessment of oral health knowledge and practices in a rural area | 9–12 years old, males/SB (10) | 917/stratified random sampling | Quantitative, cross-sectional/ self-administered questionnaire |

NA, nonavailable; PHC, primary health care center; HB, hospital based; UDC, university dental clinic; SB, school based.
**Opportunity for Access**

Only 3 studies out of 8 that considered school-aged children and adolescents reported the indicators they utilized related to the domain of opportunity for dental access. One study reported that 17.3% of the participants were not able to access care because no clinic was available near their school or home as reported by the children themselves [24]. In 2 other studies where the questionnaire was filled out by parents, the most important barrier they mentioned was a health literacy of 82.3%, while nearly 23% reported financial issues, transportation, and long waiting times [10]. For nearly 41% of parents, lack of time was the main reason for not bringing their children to the dentist when referred [25]. We recorded various barriers as reported by caregivers/parents or participants directly (Table 3).

The location of dental clinics was also one of the most discouraging factors mentioned [26]. Utilization of dental services was lower in rural areas than in urban areas [27], which was considered a risk factor affecting oral health status [26]. These studies presented some barriers that limit children from utilizing dental services, such as fear of the dentist and lack of parental encouragement [24]. The quality of dental care was found to be one of the most encouraging factors in actually utilizing dental services.

Among adults and the elderly, several studies in Saudi Arabia found that cost was a barrier for them utilizing dental services [28–30]. Being unable to afford private clinics because of the high cost is one of the most common barriers to seeking dental care, as well as shortages of providers, long waiting times, and limited treatment choices in public clinics [10, 29]. Other barriers were lack of a perceived dental need, transportation [9, 29], lack of reminder messages [31], fear of dentists, distance from their residence, and the presence of a disability [9]. Educated participants who practiced oral hygiene measures regularly were more likely to visit dental clinics for routine checkups [11, 32].

**Realized Access**

Dental pain requires patients to seek immediate access to dental care and better quality of services, which increases their likelihood of seeking dental treatment in a private practice, where they can be seen immediately [33]; Nazir [33] found that most patients (68.0%) visited private dental clinics and that 70.4% visited a dental office because of tooth pain. Unfortunately, many Saudis of all ages only seek access to a dentist because of dental pain (Table 3).

According to some studies, approximately a quarter of all children have never visited a dentist in their life. However, about a third of children need dental care and have been unable to get it [10]. Almutlaqah et al. [29] found that more than half of the participants used dental services and that their main reason for dental visits was emergencies; they had visited the dentist in the past year. AAl Johra found that three-quarters of the participants had visited the dentist more than once during the last 2 years [26]. However, El Bcheraoui et al. [32] with >10,735 students found that almost 87% had not visited a dentist in the last year. Also, the percentage of children with no previous visits to a dentist was high (38.3%) [34]. Another study found that most of the children participating went to the dentist for illness-related issues rather than preventative care [10, 35, 36]. One-third of the children visit a dentist only when they have pain [36]. Among schoolchildren, factors that led to not using dental services included parental attitudes and anxiety, including “lack of time” and “logistic problems” [25, 35].

Among the elderly, only 37.4% have proper access to dental services [9]. A study by Al-Jaber and Da’ar [28] that included adults found that almost three-fifths of patients visited dentists once a year, 22% had visited a dentist in the previous 2 years, and 14% had gone >2 years without visiting a dentist, and most of them had visited a dentist once. Among these study participants, the most common reason to visit the dentist was for tooth or gum problems [28].

Based on the literature review, patients with special needs are more likely to have poor oral hygiene and oral diseases for numerous reasons, including limited dental care access [37]. Aljabri et al. [38] reported that 15.5% of individuals with special needs have an issue with accessibility to dental services [39].

**Equitable Access**

Four of the 16 studies assessed equity in dental access (Table 3). Three studies reported the existence of education and income-related inequality among adults and the elderly [10, 11, 29]. Only one study used regression models to account for need and socioeconomic background in service utilization [10]. Individuals or families without adequate financial resources to access appropriate dental care often experience poor oral health. For example, there are more cases of tooth decay in children from deprived backgrounds than in children from affluent backgrounds [40]. Poor and disadvantaged population groups consistently have a higher burden of oral disease and lower ac-
### Table 3. Overview of key findings of included studies in line with the domains of dental access

| Study ID | Opportunity for access | Realized access (%) | Equitable access | Outcome of care | Policy recommendations |
|----------|------------------------|---------------------|------------------|----------------|------------------------|
| Al Agili and Farsi [10] | Barriers to obtain needed dental care; financial (no money, and no dental insurance) (22.8%); appointment times (8.1%); long wait times (7.6%); transportation (no one would take my child to the dentist, and no transportation) (9.8%) | Proportion of the population who had visited a dentist in the last 12 months (46.45%); Reasons for the dental visit; caries (43.80%) and checkup (24.78%) | Equitable access detected based on a logistic regression model | Private hospital or private dental clinic (69.8%); parent’s perception of child’s oral health; average (67.2); Unmet need; needed a visit in the previous year and could not go (31%) | Oral health literacy campaign to address inequalities and integration of oral health into primary health care and public health intervention and introduction of SB health centersa b |
| Al Johara [26] | – | Proportion of participants that visited dentist once in the last 2 years (27.3); Reason for the last visit; routine care (63.5) | – | Percentage of participants that visited a government dental clinic (24.5); Self-rated excellent or good oral health (94.1) | No policy suggestion |
| Ali Alzahrani [35] | – | Percentage never visited a dentist (43%) | – | – | Develop oral disease prevention and health-promoting strategiesa |
| Bahannan et al. [40] | – | Visited a dentist every 6–12 months (6.8%) | – | – | Incorporation of oral health education in school curricula to help in improving the oral health status of schoolchildren with limited access to oral health-care servicesa |
| Mahrous et al. [66] | – | Regular visits to the dentist (20%); Reasons for the last visit; emergency treatment (50%) | – | – | No policy suggestion |
| Nazir [33] | – | Routine dental visits during the last 12 months (18.9%) | – | Dental pain (42.2); Dental cavities (50.5); Bleeding gum (30.7) | Oral health campaigns should raise awareness about the significance of routine dental checkupb |
| Tikare et al. [25] | Dental attendance rate after oral health referrals (23.8%); principal barrier for nonattendance; lack of time (41.2%) | – | – | – | Policy makers should consider possible barriers during planning school screening programs |
| Togoo et al. [24] | No facility (dental clinic) available near home/school (17.23%) | Percentage that regularly/once in 6 months (25.40%); Reason for the least visit; pain (toothache) 54.6% | – | – | Inclusion of parent’s education programs that promote preventive oral care in schools as well as in other oral health educational programs aimed at general publica |
**Table 3 (continued)**

| Study ID          | Opportunity for access                                                                 | Realized access (%)                                           | Equitable access | Outcome of care                                                                 | Policy recommendations                                                                 |
|-------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| **Adults and elderly** |                                                                                        |                                                                |                  |                                                                                |                                                                                        |
| Al-Ansari [30]    | Unavailability and non-coverage by insurance among the barriers most frequently cited reason | Proportion that visited the dentist in the last month (40.1%) | –                | –                                                                              | Provide preventive services through the public health-care system and/or reimburse services offered by dentists in private practice through insurance. |
|                   |                                                                                        | Proportion of the population who had visited the dentist once in the last 12 months (53%) | –                | Receive care in private dental clinic (77%) | No policy suggestion                                                                  |
|                   |                                                                                        | Reasons for the last visit: regular checkup/cleaning 15%      |                  | Participant perception of oral health: good and very good (56%)            |                                                                                        |
|                   |                                                                                        | Symptomatic 50.7%                                             |                  |                                                                                |                                                                                        |
| Al-Jaber and Da’ar [28] | Unavailability of a dentist in PHC centers (28%)                                      | Proportion of the population who had visited the dentist in the last 12 months (53%) | –                | –                                                                              | No policy suggestion                                                                  |
|                   |                                                                                        | Reasons for the last visit: regular checkup/cleaning 15%      |                  |                                                                                |                                                                                        |
|                   |                                                                                        | Symptomatic 50.7%                                             |                  |                                                                                |                                                                                        |
| Al-Sinaidi [45]   | –                                                                                      | Proportion of the population who had visited the dentist in the last 12 months (53%) | –                | –                                                                              | No policy suggestion                                                                  |
|                   |                                                                                        | Reasons for the last visit: regular checkup/cleaning 15%      |                  |                                                                                |                                                                                        |
|                   |                                                                                        | Symptomatic 50.7%                                             |                  |                                                                                |                                                                                        |
| Al-Dalbahi et al. [31] | High cost (25%)                      | Proportion of the population who had visited the dentist in the last 12 months (53%) | –                | –                                                                              | No policy suggestion                                                                  |
|                   |                                                                                        | Reasons for the last visit: regular checkup/cleaning 15%      |                  |                                                                                |                                                                                        |
|                   |                                                                                        | Symptomatic 50.7%                                             |                  |                                                                                |                                                                                        |
| Almutlaqah et al. [29] | Transportation problem, health problems, and difficulty in movement | Proportion of the population who had visited the dentist in the last 12 months (53%) | –                | –                                                                              | No policy suggestion                                                                  |
|                   |                                                                                        | Reasons for the last visit: regular checkup/cleaning 15%      |                  |                                                                                |                                                                                        |
|                   |                                                                                        | Symptomatic 50.7%                                             |                  |                                                                                |                                                                                        |
| Quadri et al. [11] | Barrier to health-care access; delay in appointment (53.2%)                           | 49.5%                                                         | –                | Education-related inequality in the use of dental services                 | Design-targeted oral health prevention program based on socioeconomic status (to the less educated) |
|                   |                                                                                        | 54.2%                                                        |                  |                                                                                |                                                                                        |
|                   |                                                                                        | Reason for the current visit: pain (38.8%)                    |                  |                                                                                |                                                                                        |
|                   |                                                                                        | Education-related inequality in the use of dental services    |                  |                                                                                |                                                                                        |
| **People with special needs** |                                                                                        |                                                                |                  |                                                                                |                                                                                        |
| Al-Shehri [39]    | –                                                                                      | Proportion of those visiting the dentist in the last 6 months (36.1%); reasons for the visit, emergency treatment (84.7%) | –                | Financial barrier in accessing dental care 52.1%                            | Address financial and non-financial barriers to dental-care access.                       |
| **Elderly**       |                                                                                        |                                                                |                  |                                                                                |                                                                                        |
| Hamasha et al. [9] | Lack of perceived need, no dental insurance, unaffordable price, transportation, and fear from dental treatment were the most common significant barriers to dental services | Proper access and utilization of dental services during the last year (37.4) | –                | –                                                                              | No policy suggestion                                                                  |

PHC, primary health care center; UDC, university dental clinic; SB, school based. a Health promotion and primary prevention, promoting literacy. b Extend provision of services by the public sector or its inclusion within public insurance. c Addressing inequality.
cess to oral health care compared to people with more financial resources [10, 31].

Factors such as a low level of education and low income are perceived as barriers to accessing dental care. Parents’ education was a major factor limiting utilization of dental care, especially for very young children [10]. Parents with higher levels of education were more likely to have regular oral health-care visits [11]. Mothers’ level of education was more important than fathers’ level of education in terms of children’s visits to the dentist because mothers typically influence oral care and general health more than fathers [41].

Parents and guardians also had access to education and intervention programs through the children’s school and teachers [42]. Schools can also support a healthy environment for children by providing guidelines on recommended hygiene practices and limit the sugary food and drink available in schools [43].

**Outcomes of Care**

Measuring the outcomes of healthcare is a complementary approach to measurements to increase accessibility (Table 3) [15]. Oral health studies use different indicators to measure oral health status outcomes such as dental caries and periodontal issues [20]. High dental caries, bad oral hygiene, and gingivitis are major oral health issues among individuals with special needs in Jazan, Saudi Arabia [44] due to unmet treatment needs and limited access to dental care, as well as lower oral health promotion among individuals with special needs [44–46]. Other barriers include dental anxiety and financial barriers [38, 39, 47]. In addition, people with disabilities with impaired mobility had difficulty accessing preventive information on oral health, which impacted their oral health status [48].

More than 60% of the population in Saudi Arabia is composed of adults and the elderly. However, few studies have been conducted among these groups regarding oral health [49]. However, approximately 92% of the population between ages 20 and 64 have dental caries, and 26% have untreated caries [50]. Caries are found to be the most common cause of tooth extraction in the country [49].

**Dental Access in the Jazan Region**

In 1985, the DMFT in Jazan was 1.2 [51]. After decades, the rate of dental caries experience of 70% permanent dentition is as high as 3.5 [4, 11, 52]. This can be attributed to various factors such as poor oral hygiene practices, excessive consumption of sweets, or low utilization rates of dental services [49]. Dental disease in Jazan is a great challenge that needs to be addressed not only by the affected population but also by the government.

Only one study focused on utilization of dental services in the Jazan region [11]. In that study, 54.2% reported that their last visit to a dentist was within the previous year [11], while 45.8% reported that their last visit to a dentist was within a span of 1 year, and 33% of respondents thought that a dentist should only be visited if they experience pain [11]. This study found that factors like a lack of education on available dental services and bad experiences with dental services are leading causes of dental problems in Jazan [11].

In the Jazan region, school-aged children (60–90%) are among the most affected population as a result of not receiving frequent dental checkups [6, 14, 49]. Health promotion programs in the region are currently poor [53, 54], which might be attributed to a shortage in staff, particularly pediatric dentists. There are approximately 444 pedodontists in Saudi Arabia, and none in the Jazan region [55]. However, collaboration with dental schools in the region should help to mitigate this shortage by providing referrals to services for children in particular.

Since it is not economically feasible to establish and maintain dental clinics in the rural areas where 17.9% of the Saudi population lives [51], mobile clinics may be a good option to improve dental health in Jazan. Mobile clinics can provide better awareness and target patients in isolated communities [54]. Innovative modalities such as advanced technology and mobile units can help to overcome dental health-care issues in the region [55].

**Discussion**

Research indicates that conventional methods are not adequate to address the increasing population demands for dental healthcare [56]. Children (or their parents) report that they have visited a dentist only when they are in pain. However, this is not ideal dental practice, as regular dental checkups have numerous advantages, such as increasing preventive practices, maintaining good oral health status, and increasing awareness of the benefit of dental services; these checkups are also useful for arranging a follow-up appointment for individuals with good oral conditions [34]. In addition, it allows individuals to avoid potential diseases and maintain good oral and general health.

Dental access is influenced by many factors related to both service provision and service usage [16]. According to Healthy People 2020, barriers such as lack of accessibil-
ity to dental services, anxiety about dental procedures, lack of awareness of oral health-care needs, and limited finances can limit access to dental care [19]. In Saudi Arabia, dental services provided by the MOH are free of charge, so financial issues are not a barrier to receive treatment from public facilities; however, there is no system for regular dental visits, and dentists are not required to track patients for monitoring [34, 57]. In addition, issues such as long waiting times and the location of facilities affect access. Government facilities also offer dental care only at a basic level, which leaves complicated procedures such as cosmetic dentistry and dentures and implants, among others, only offered by private facilities [58]. For this reason, many people preferred private clinics [29].

Oral health providers need to improve their knowledge, skills, and confidence in treating vulnerable populations, as well as learn strategies to overcome different barriers so that they can have access to dental care. This assertion is supported by a study conducted in Saudi Arabia [39], who highlighted the need for more training. In addition, there is a need to establish education programs that address oral health promotion and disease prevention among the whole population [44, 46].

A shift in dental policy can ease modern health-care systems and replace traditional setups that have been proven to be ineffective [59]. Improvements to these services could be done through consultations that provide direct contact between dentists and patient at specific times [60], as well as improvements in storing and sharing patient data [60]. Improved data collection and storage are important particularly for people located in underserved or remote areas.

There has been an enormous development in the world with regard to the use of the internet and its applications for health purposes. One example of these improvements is teledentistry, which provides dental services (preventive or diagnostic) by using videoconferences [61]. Teledentistry enables dental providers located many miles away to make a diagnosis and recommend treatment options or referrals [60]. It has proven to be a promising model for oral health care because it overcomes social and geographic boundaries. In Saudi Arabia, one study showed the readiness of dental professionals to be engaged in the teledentistry approaches [62] in order to improve access to dental services in remote areas. Teledentistry is an example of a major change driving the country’s initiatives [63]. There is a need for policymakers and stakeholders to consider the use these services in dental clinics. In addition, more education and greater efforts are needed among dental workers to use technology properly [56].

School programs and outreach activities need to be implemented by dental schools and dentists from the MOH; these programs must be measurable, sustainable, and effective. The Ministry of Education has banned food items in school canteens such as candy, chocolate, chips, soda, sports drinks, sweetened beverages, all meat products, and fried foods [64]. However, one study showed that most of the foods offered in the selected boys’ public high schools were still energy-dense foods that were high in fat and sugars [64]. Thus, it is important that schools regulate the food offered to students and that they make healthier food choices available in the canteens.

Increasing the number of referrals from physicians to dental professionals can also help in improving the present scenario. Informative sessions for medical personnel on basic oral health problems can help physicians to make appropriate referrals [61], which should be a feature of oral health care in Saudi Arabia. A study found that the health system in Jazan has an inadequate referral system for delivering high-quality health services [12]. However, adopting a referral system in Jazan can make dental care less costly and help the public to access effective oral care solutions. In addition, the establishment of health-care clusters can be considered in order bring together different levels of dental services and offer them to the local population at a regional level. Dental clusters provide several advantages such as supporting the multidisciplinary approach to patient care and a closer collaboration between primary care dental services and other health-care colleagues [65]. These advantages may help overcome the current difficulties patients face in accessing dental care. An online referral management system can facilitate referral pathways within the clusters [65].

Conclusions

Providing access to dental service is essential, and it is considered to be one of the main strategic goals of Vision 2030 in Saudi Arabia [63]. It is imperative to improve the community’s dental health by setting up different initiatives such as teledentistry, dental education in schools, and referral programs from physicians in order to increase marginalized communities’ access to afford better dental health care services.
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Statement of Ethics

Only openly accessible, nonidentifiable data and information were used for this research, and therefore, ethics approval was not necessary.

Conflict of Interest Statement

The author declare that there is no conflict of interest.

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Author Contributions

All the authors designed and implemented the study. M.S. completed the data collection and data entry. All the authors contributed equally in writing and proofreading the manuscript.

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