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# Understanding underutilization of oral health care in high-income countries: a scoping review

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## ABSTRACT

**Aim:** Underutilization of oral healthcare can exacerbate health disparities by allowing preventable oral health problems to go untreated. This scoping review provides an overview of underutilization of oral healthcare, aiming to provide insight into populations at risk for underutilization and which individual and systemic barriers contribute.

**Subject and Methods:** Searches were conducted in PubMed and Embase, focusing on studies published between 2018–2025 in high-income countries and populations aged 0–65 years. Studies addressing underutilization of oral healthcare were considered for inclusion.

**Results:** Seventy-nine studies were included. Populations at risk for underutilization included individuals with chronic illnesses, rural residents, migrants, children, pregnant women and ethnic minorities. Individual barriers included financial constraints, low health literacy, dental anxiety, and competing health priorities, while systemic barriers to utilization of oral healthcare involved high treatment costs, lack of insurance, limited provider availability, and discrimination. Overarching determinants of underutilization commonly included low income, lack of education, and rural residence.

**Conclusions:** Underutilization of oral healthcare is rarely driven by a single individual or systemic factor but instead results from a combination of multiple barriers. Financial constraints, low health literacy, and dental anxiety often intersect with systemic challenges such as lack of insurance and provider shortages. Addressing underutilization requires targeted, multi-level interventions that consider both individual and structural determinants to improve access to oral healthcare.

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## KEYWORDS

Utilization of healthcare; inequity; access of healthcare; health disparities

## Introduction

Oral diseases impact over 3.5 billion individuals globally, posing a significant health challenge despite being largely preventable (WHO, 2025). Oral health problems are associated with treatment costs and productivity losses amounting to an estimated global cost of 170 billion dollars each year (Jevdjevic & Listl, 2025). Untreated oral conditions can have severe consequences for the individual ranging from pain, discomfort, diminished quality of life, missed school or work, and even family disruption (Jin et al., 2016; Kassebaum et al., 2017). For example, children with oral health problems were more likely to have problems at school, such as shyness or unhappiness (Guarnizo-Herreño & Wehby, 2012). Additionally, untreated oral problems often progress to more severe conditions that require costlier emergency treatments, placing a financial strain on both individuals and health care systems (Brennan & Spencer, 2002). There are several known reasons why some individuals underutilize oral health care: high treatment costs, which are often excluded from universal health coverage in both high-income countries (HICs) and low- and middle-income countries (LMICs), low health literacy, different cultural beliefs, lack of dental

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insurance, and practical (Bernabé & Marcenes, 2011; Rambabu & Koneru, 2018; Spinler et al., 2021). In socially disadvantaged groups, lack of dental insurance, the high cost of care, and limited access to preventive services are more prevalent and thereby lead to oral health inequities, limiting effective public health interventions and creating significant socioeconomic disparities (Northridge et al., 2020; Sanders et al., 2006). Moreover, people living in rural areas face distinct barriers, such as long travel distances to dental care providers and fewer service options, which further contribute to disparities in oral health outcomes (Mertz & Mouradian, 2009; Wallace & Macentee, 2012).

The degree to which oral healthcare is used, is determined by an as yet incompletely understood interplay between individual and systemic barriers. Whereas previous studies have analyzed reasons for underutilization of oral healthcare, these studies tend to focus on problems of one specific group rather than on factors simultaneously. Doing so can facilitate linear thinking and overlook the multi-layered and complex nature of these factors (van der Zande et al., 2021). A comprehensive overview of characteristics of underutilization is needed for understanding the linkages between factors (Zardak et al., 2023). An initial search of MEDLINE and the Cochrane Database of Systematic Reviews identified no current or ongoing systematic reviews or scoping reviews directly addressing these questions. This scoping reviews aims to provide an overview of underutilization of oral healthcare and to provide insight into what populations most likely to underutilize oral healthcare services and which individual and systemic barriers contribute. This review will be guided by the following research questions:

1. Which population groups are at higher risk of underutilizing oral healthcare, and what are their specific characteristics?
2. What are the primary individual and systemic factors contributing to underutilization of oral healthcare?

The insights gained from this review can inform the development of targeted interventions aimed at enhancing oral healthcare utilization and improving oral health outcomes. This scoping review is part of the preparatory phase of two broader research projects (DELIVER (Listl et al., 2024) and Metahealth (nwo-metahealth.nl, 2025)) which focus on improving access to and quality oral healthcare for families in disadvantaged circumstances and adults facing structural barriers to care. These projects are embedded in high-income country (HIC) contexts, and the findings will directly inform the design and testing of interventions tailored to similar healthcare systems. To stay in the same context, this scoping review will focus on oral health care in HIC as the oral health care system of HIC and LMICs differ significantly, primarily due to disparities in resources (Harris et al., 2017). Furthermore, integrating these findings into research and health policy may strengthen targeted approaches for individuals in specific at-risk circumstances and raise awareness among health care providers.

## Methods

### Design

A scoping review was conducted to identify populations at-risk for underutilization of oral health care and to explore the underlying reasons for this phenomenon. A review protocol was developed, adhering to the Joanna Briggs Institute (JBI) methodology for scoping reviews and following the framework outlined by Peters et al. (Peters et al., 2020). The scoping review process and results were reported following the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocols (Moher et al., 2015).

### Eligibility criteria

Eligibility criteria for study inclusion were determined using the PCC framework (Population, Concept, Context) (Peters et al., 2020):

*Participants:* Studies were included if they focused on participants aged 0– 65 years. Populations above the age of 65 were excluded due to additional characteristics, such as higher rates of edentulism that are not representative of the general population. All population groups were eligible except for

indigenous populations, as these groups exhibit unique characteristics that may vary significantly across countries.

*Concept:* Eligible studies investigated underutilization of oral healthcare, including the avoidance or delay of dental care, non-utilization of oral healthcare services, or barriers to accessing oral healthcare as primary subjects.

*Context:* Studies were considered if they were conducted in high-income countries. The World Bank income classification criteria were used to determine the income-status of the country. As health care systems may be subjected to change over time, only studies that were published between 2018 and 2025, were eligible. Studies related to a specific context such as intervention studies, COVID 19, and country-specific insurance programs were not eligible.

### Types of sources

Eligible studies included peer-reviewed articles written in English or Dutch language. Quantitative research designs, such as analytical observational studies, case-control, analytical cross-sectional and descriptive observational studies as well as qualitative research designs such as phenomenology, grounded theory, ethnography and action research were considered in this review. Systematic and scoping reviews were not considered as the aim of this review was to summarize specific study characteristics found in primary research articles.

### Search strategy

The search strategy was initially developed by researchers SB and NBC to ensure comprehensive coverage of the topic and was further refined through team discussion and consultation with a librarian from the VU University Library. The search was conducted in August 2023 in PubMed and Embase. The final search strategy used the combined keywords and Boolean operators: (Oral Care) 'AND' (Utilization "OR" Avoidance 'OR' Deferred 'OR' Foregoing 'OR' Non-attendance 'OR' Barriers), along with their corresponding MeSH terms, to identify relevant studies in each database (Table 1). Two researchers, SB and NBC, independently screened titles and abstracts based on the eligibility criteria. Any disagreements regarding study selection were resolved through discussions between SB and NBC or, when necessary, with other team members (MvdV). Duplicate studies were filtered out using Rayyan software (Ouzzani et al., 2016). An updated search was performed on 19 February 2025, by re-running the initial searches in both databases for the period August 2023–February 2025, after which new titles and abstracts were screened for eligibility by SB. Given the prior calibration between reviewers during the initial screening phase, the updated search was screened by a single reviewer (SB), in line with scoping review methodology (Mak & Thomas, 2022).

### Data charting process and synthesis of results

A data extraction sheet was developed by NBC and SB to determine which variables to extract (**Appendix: Data extraction sheet**). The form included general article characteristics (e.g. year of publication, source),

**Table 1.** Search string for databases (original search and updates search).

Database	Search string
PubMed	((avoid OR avoidability OR avoidable OR avoidances OR avoidant OR avoidants OR avoided OR avoider OR avoiders OR avoiding OR avoids) OR (defer OR deferment OR deferments OR deferred OR deferring OR defers) OR (foregoing OR forego OR foregoes) OR (non-attendance OR non-show) OR (utilization OR no-use or usage)) AND ((dental OR mouth OR oral OR oral health) AND (care OR services OR care services)) AND (barriers OR predictors)
Embase	(avoid:ab,ti OR avoidability:ab,ti OR avoidable:ab,ti OR avoidances:ab,ti OR avoidant:ab,ti OR avoidants:ab,ti OR avoided:ab,ti OR avoider:ab,ti OR avoiders:ab,ti OR avoiding:ab,ti OR avoids:ab,ti OR defer:ab,ti OR deferment:ab,ti OR deferments:ab,ti OR deferred:ab,ti OR deferring:ab,ti OR defers:ab,ti OR foregoing:ab,ti OR forego:ab,ti OR foregoes:ab,ti OR 'non attendance':ab,ti OR 'non show':ab,ti OR utilization:ab,ti OR utilisation:ab,ti OR 'no use':ab,ti OR usage:ab,ti) AND (((mouth OR dental OR oral) NEAR/3 (care OR services OR health)):ab,ti) AND (barriers:ab,ti OR predictors:ab,ti OR reasons:ab,ti OR factors:ab,ti OR determinants:ab,ti) AND [2018–2023]/py

study context (country of study), participant demographics (age range, rural/urban setting, and personal characteristics such as chronic illnesses), primary outcomes and other important concepts measured and a summary of findings (reasons for underutilization on both individual and systemic levels). The selection of variables was guided by discussions between the authors, focusing on identifying the most relevant factors to address the research question. Two reviewers (SB and NBC) independently charted data from the initial search in batches of 10–15 studies, continuously comparing their results to ensure consistency, and adjusting the form whenever this was deemed necessary to maintain alignment with the study objectives. For the updated search, a single reviewer independently extracted the data to incorporate newly identified studies. After data extraction, the studies were categorized based on participant characteristics and summarized according to the reasons for underutilization of oral healthcare. These reasons were divided into individual-level (e.g. personal barriers such as dental fear or low-income) and systemic-level (e.g. healthcare system barriers such as insurance policies).

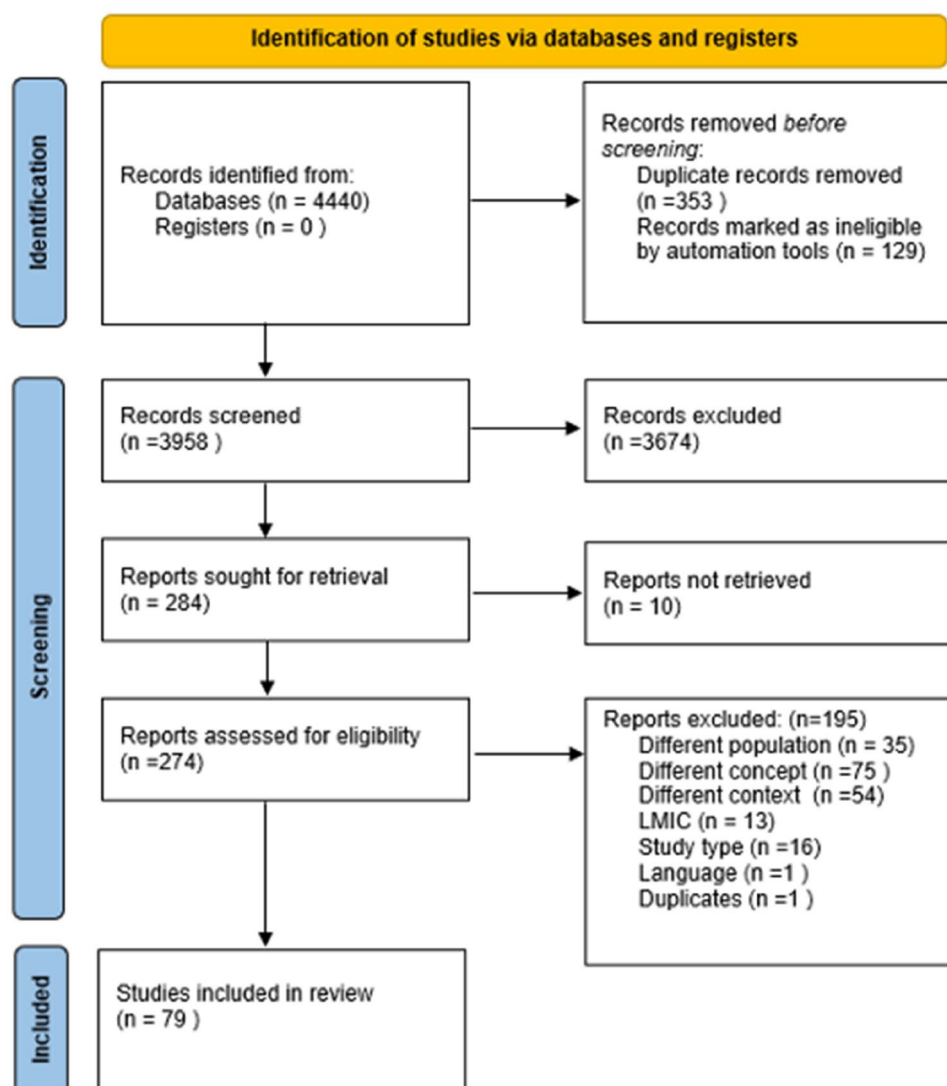
## Results

The database search, conducted on 10 August 2023, initially resulted in 3706 articles, which were uploaded to Rayyan (Ouzzani et al., 2016) for duplicate screening. After removing duplications and applying a five-year publication filter, 3320 articles remained for initial screening. During the title and abstract screening, 3109 articles were excluded, and for eight articles no full-text version was available, leaving 203 articles for full-text review. Of these, 150 articles were excluded for the following reasons: 27 articles did not match the target age range of  $\leq 65$  years, 50 were focused on a different concept, 45 were conducted in different context such as COVID-19 or country specific programs, 12 studies were conducted in low- and middle-income countries (LMICs), 14 studies were review articles, 1 study was published in French and 1 study was identified as a duplicate. An updated search was performed on 19 February 2025, resulting in 734 new articles. After duplicate removal, 638 articles remained for initial screening. After title and abstract screening, 71 articles remained for full-text review. Of these, 26 were additionally included into the results. In total, this scoping review included 79 studies (Figure 1) that provide insights into the characteristics of populations at-risk for underutilization of oral healthcare, as well as the underlying reasons for underutilization.

Most studies were conducted in North America ( $n=53$ ), followed by Europe ( $n=12$ ), Oceania ( $n=9$ ), Asia ( $n=4$ ) and international or unspecified locations ( $n=1$ ). Regarding age distribution, the most frequently studied population was adults (18–65 years;  $n=36$ ). Other studies focused on adults combined with elderly individuals ( $n=20$ ), adults combined with children (<18 years;  $n=17$ ) and children separately ( $n=6$ ). Each article was grouped according to the characteristics of its population focus including chronic illness, rural versus urban residence, gender identity, migration background, young populations and pregnant mothers. In the following sections, individual and systemic barriers contributing to the underutilization of oral healthcare are described in relation to the key population characteristics. An overview of common individual and systemic factors along with their relevance per population characteristics group can be found in Table 2.

### **Chronic illness, including mental illness**

*Individual factors:* Multiple observational and experimental studies indicated that individuals with chronic diseases underutilize oral healthcare compared to the general population, despite their elevated oral health risks (Akinlotan et al., 2024; Aldosari et al., 2024; Bjørkvik et al., 2022; Chen et al., 2025; Jessani et al., 2019; Murphy et al., 2024; Poudel et al., 2021; Santella et al., 2021; Smith & Murphy, 2018; 2019). Common individual factors contributing to underutilization across populations with chronic illness, include smoking, male gender, low income or education, lack of health insurance, poor general health, rural residence, and widowhood (Baccaglioni et al., 2021; Jessani et al., 2019; Santella et al., 2021). Early-life cancer survivors were less likely to seek preventive oral healthcare in young adulthood, relying instead on emergency-based care for acute issues rather than preventive purposes (Smith & Murphy, 2018; 2019). Among individuals with HIV, most had not visited a dentist



**Figure 1.** Prisma flow diagram of the inclusion process (Page et al., 2021).

in the past year, and those who did primarily sought emergency care (Jessani et al., 2019). Barriers in this group included lack of insurance and lower education (Santella et al., 2021). For individuals with Rett Syndrome, 40.7% reported barriers such as parental concerns about prioritization of oral healthcare, time constraints, high costs and dental anxiety (Lai et al., 2022). Similarly, people with diabetes reported underutilization due to competing health priorities, lack of medical insurance, perceived lack of need, fair or poor self-related health status and high treatment costs- despite often having social support for oral health discussions and transportation (Akinlotan et al., 2024; Aldosari et al., 2024; Poudel et al., 2021). However, a study from Finland, where oral healthcare is partly subsidized by the public healthcare system, found no association between diabetes and underutilization (Nurminen & Rättö, 2023). In urban Sydney, Australia, patients with cardiovascular disease were more likely to utilize oral healthcare when they had access to oral health information or private health insurance (Sanchez et al., 2019). Among individuals with mental illness, barriers included scheduling difficulties, transportation problems, financial strain, shame, anxiety, and fear of being treated disrespectfully (Bjørkvik et al., 2022). Financial hardship was a significant limitation to access (Bjørkvik et al., 2022), mental health impairment was associated with lower odds of overall dental care use, whereas having a college degree was positively associated with oral healthcare utilization (Chen et al., 2025; Hall et al., 2018). For individuals with dementia, underutilization was more common after diagnoses, particularly among those who were older, lived alone, or received home care, while individuals with more natural teeth were likely to continue dental visits (Fereshtehnejad et al., 2018;

**Table 2.** Common individual and systemic factors by population characteristics.

	Chronic illness	Rural /urban	Gender-identity	Ethnicity	Migration	Children, adolescents, young adults and pregnant mothers
<b>Individual factors</b>						
Lack of health insurance	+	+		+	+	+
Lower education	+	+		+	+	+
Low income	+			+	+	+
Employment-status					+	
Financial constraints			+			+
Male-gender	+			+	+	+
Younger age					+	+
Marital status (divorce/widowhood)	+	+			+	+
Smoking	+	+				
Poor general health/competing health issues	+				+	
Physical inactivity		+				
Psychosocial barriers (anxiety, fear, shame, discomfort)	+	+	+	+	+	+
Inadequate support system					+	+
Social stigma		+	+			+
Low (oral) health literacy	+				+	+
Scheduling difficulties	+	+	+		+	+
<b>Systemic factors</b>						
Limited (qualified) provider availability	+	+	+		+	+
Limited transportation availability		+				
Long travel distances		+				
Long waiting times	+	+			+	+
Discrimination in health care settings	+	+	+	+	+	+
Discomfort at dental visit			+	+	+	+
Low trust in healthcare	+	+				
High cost of procedures	+	+		+	+	+
Lack of health insurance	+					+

This table outlines individual and systemic factors contributing to the underutilization of dental care services per population group rural vs urban, ethnicity, migration, gender-identity and young populations and pregnant mothers. A “+” indicates whether the corresponding factor is relevant to the underutilization of dental care within the specified group.

Lexomboon et al., 2021). Adults with intellectual disabilities reported more barriers than those with other or no disabilities (Fosse et al., 2021). Parents of children with intellectual disabilities also faced greater difficulties in securing oral healthcare compared to parents of children without disabilities (Mielnik-Błaszczak et al., 2018). Caregivers of children under 16 with Fetal Alcohol Spectrum Disorder with higher education or higher income were associated with fewer access challenges, but still reported challenges related anticipated child behavior and caregiver anxiety (Hu & Da Silva, 2022). In children with chronic kidney disease, underutilization increased with disease severity, regardless of insurance status (Molino et al., 2022). Similarly, higher parental education was associated with regular dental visits, but barriers persisted such as fear of treatment (47.1%), difficulty finding a willing dentist (45.5%), and long wait times (44.7%) (Asiri et al., 2024). Immigrant parents of children with autism experiences barriers such as lack of transportation, inadequate support systems, lack of insurance, prioritization of basic needs, and mistrust of healthcare providers (Imanpour & Ullah, 2024). In contrast to most studies, Osland et al. (2024) found that adults with chronic intestinal failure demonstrated strong preventive behaviors (96%), high utilization within the last 12 months (75%), and minimal reported barriers (Osland et al., 2024).

**Systemic factors:** Systemic barriers contribute to underutilization of oral healthcare among individuals with chronic diseases. A commonly reported barrier across diverse populations is the absence of health insurance (Akinlotan et al., 2024; Aldosari et al., 2024; Jessani et al., 2019; Mielnik-Błaszczak et al., 2018; Molino et al., 2022; Poudel et al., 2021; Santella et al., 2021). Financial constraints were also reported, particularly for individuals with mental illness (Bjørkvik et al., 2022), Rett syndrome (Lai et al., 2022), diabetes (Akinlotan et al., 2024; Aldosari et al., 2024; Poudel et al., 2021), and children with Fetal Alcohol Spectrum Disorder (Hu & Da Silva, 2022).

Limited access to qualified oral healthcare providers further restricts utilization, particularly among parents of children with disabilities who struggle to find willing dentists (Asiri et al., 2024), caregivers of children with Fetal Alcohol Spectrum Disorder (Hu & Da Silva, 2022), and individuals with Rett syndrome, who face long waiting lists and limited availability of providers familiar with the condition (Lai et al., 2022). Long waiting times in public dental services further restrict access (Lai et al., 2022; Poudel et al., 2021).

Individuals with HIV often avoid non-emergency visits due to stigma and discrimination (Jessani et al., 2019). Similarly, racial discrimination in healthcare settings is associated with lower utilization among individuals with psychiatric diagnoses (Abraham et al., 2023). Relatedly, individuals with mental illness frequently report concerns about treatment integrity, safety, and provider attitude, contributing to underutilization of oral healthcare (Bjørkvik et al., 2022). Cultural and linguistic barriers, alongside mistrust of healthcare providers, further complicate access—especially for immigrant parents of children with autism (Imanpour & Ullah, 2024). Geographical and infrastructural limitations, such as rural residence, negatively affect access for children with epilepsy and children with Fetal Alcohol Spectrum Disorder (Hu & Da Silva, 2022; Mielnik-Błaszczak et al., 2018). Additionally, healthcare system navigation challenges are noted as barriers for immigrant parents of children with autism, with a need for assistance in navigating complex health systems to access care (Imanpour & Ullah, 2024). Despite these challenges, some facilitators were reported. Cardiovascular patients with access to oral health information, private insurance, and lower perceived barriers reported higher utilization of healthcare services (Sanchez et al., 2019). Similarly, adults with chronic intestinal failure demonstrated high levels of preventive oral health behaviour and minimal access barriers, contrasting with findings from most other chronic illness populations most other studies (Osland et al., 2024).

### **Rural/urban areas**

*Individual factors:* Adults residing in rural areas in the United States consistently reported lower rates of preventive dental care compared to their urban counterparts (Deguchi et al., 2019; Everingham et al., 2024; Luo et al., 2021). In addition to underutilization, rural residents experience poorer oral healthcare outcomes, including a lower number of sound teeth, higher prevalence of dental caries, increased edentulism, and greater needs for extractions and dentures (Zhou et al., 2021). Despite higher self-perceived oral health needs, individuals in rural communities often delay seeking oral healthcare until symptoms become severe (Zhou et al., 2021). Self-reported reasons for underutilization of oral healthcare in rural areas included fear of dental procedures, social stigma and pain avoidance, leading many to seek treatment only for severe pain or resort to self-extraction of their own or others' teeth due to cost and access issues (Tynan et al., 2022). Additional individual-level factors of underutilization included lower education, divorce or separation, smoking, and physical inactivity (Deguchi et al., 2019).

*Systemic factors:* Beyond individual factors rural populations face systemic barriers to utilization of oral healthcare. These include high costs, lack of dental insurance, and limited access to providers (Akintobi et al., 2018; Mariño et al., 2021; Zhou et al., 2021). Systemic reasons for underutilization included long travel distances, missing work, and limited transportation options often relying on family or friends for transportation (Tynan et al., 2022). The financial burden extended beyond treatments costs to transportation, lost income from missed work, and expenses for oral hygiene products. Moreover, confidence in oral healthcare services was generally low in rural communities, with concerns about long wait times, high costs, negative past experiences and reports of discrimination (Tynan et al., 2022).

### **Gender-identity**

*Individual factors:* Gender identity significantly influences dental experiences among transgender and non-binary individuals, often leading to feelings of discomfort or underutilization (Clermont et al., 2025; Raisin et al., 2023). The main individual barriers among LGBTQ+ individuals include negative past experiences in oral healthcare environments and financial constraints, both contributing to reduced comfort and willingness to seek care (Tharp et al., 2022). Despite a strong belief in the importance of oral

healthcare and regular utilization, many LGBTQ+ individuals reported discomfort and perceived unfair treatment based on their sexual orientation or gender identity (Tharp et al., 2022).

*Systemic factors:* Financial barriers and appointment scheduling difficulties were key systemic reasons for underutilization of oral healthcare among LGBTQ+ individuals. Additionally, many individuals perceive healthcare systems as inadequately equipped to meet the needs of LGBTQ+ communities, further contributing to underutilization of oral healthcare (Tharp et al., 2022).

## Ethnicity

*Individual factors:* Among Black/African American women, experiences of racism have been linked to heightened dental anxiety (Sokoto et al., 2022). Among African American women, prenatal dental care utilization was lower compared to other groups (Al Jallad et al., 2022). Among low-income African American men from urban areas in the US, reasons for underutilization of oral healthcare services included fear of injections, negative past experiences, and discomfort with dental visits (Akintobi et al., 2018). Among rural minorities, particularly Black individuals in the US, low socioeconomic status and lack of insurance led to underutilization of preventive care while increasing reliance on treatment (Luo et al., 2021). Key determinants of underutilization related to race/ethnicity include dental fear rooted in discriminatory experiences and lack of insurance coverage, reflecting both individual and structural barriers (Lee et al., 2025; Sokoto et al., 2022). Ethnic disparities in oral healthcare utilization were pronounced among women who reported access barriers, whereas these disparities were substantially attenuated among those who did not report such barriers (Lee et al., 2025). One study reported no effect of racism in the dental health domain, but did report racism as structural barrier in the mental, medical and vision health domains (James & Horne, 2024).

## Systemic factors

Systemic barriers contributing to underutilization of oral healthcare among ethnic minorities include dental fear stemming from discriminatory experiences and lack of insurance coverage (Lee et al., 2025; Sokoto et al., 2022).

## Migration

*Individual factors:* Observational studies consistently demonstrated that individuals with a migration background are more likely to underutilize oral healthcare services compared to non-immigrants (Baba et al., 2025; Li et al., 2023; 2023; Ponomarenko & Kaifie, 2023; Sano & Antabe, 2022; Spinler et al., 2022; Yoon et al., 2018). Also, it was demonstrated that first-generation immigrant children were less likely to utilize oral healthcare (Luo et al., 2024). Individual-level factors of underutilization among migrants included younger age, male gender, lack of insurance, lower education, unemployment, physical or mental illness, being unmarried, and low income status (Baba et al., 2025; Badri et al., 2018; Due et al., 2020; Fukuda et al., 2025; Li et al., 2023; Mehra et al., 2019; Rota et al., 2019; Sano & Antabe, 2022; Spinler et al., 2021; Yoon et al., 2018). Underutilization is often associated with limited familiarity with healthcare systems, sociocultural differences in oral health practices, and competing priorities related to the settlement process in a new country (Due et al., 2020; Marcus et al., 2022b, 2022a). For instance, culturally and linguistically diverse mothers in Australia frequently underutilized oral healthcare, as in their countries of origin, dental care was typically sought only for pain relief (Marcus et al., 2022a, 2022b). Among Asian women immigrants in Canada, the most commonly reported reason for not seeking dental care was that the respondent did not think it was necessary (Li et al., 2023). Conversely, acculturation—defined as the process of adapting to the dominant culture—, knowledge of the migrant host country language, and the presence of a social network were positively associated with oral healthcare utilization (Due et al., 2020; Fukuda et al., 2025; Hunter-Adams et al., 2018; Li et al., 2023; Luo et al., 2024; Pabbla et al., 2024; Serna et al., 2020; Tiwari et al., 2023). For example, Hunter-Adams et al. (2018) reported that Somali refugees in the US who spoke English, engaged with American media, maintained diverse social connections, and consumed non-Somali food, were significantly more likely to access oral healthcare

(Hunter-Adams et al., 2018). Tiwari et al. (2023) further demonstrated that acculturation influences utilization through its effect on dental anxiety (Tiwari et al., 2023).

*Systemic factors:* Systemic factors contributing to underutilization included negative past experiences with providers, long wait times, high costs, complex healthcare protocols, and limited provider availability (Badri et al., 2018; Due et al., 2020; Marcus et al., 2022b, 2022a; Rota et al., 2019). Some individuals sought oral healthcare treatments in their home countries due to lower costs (Marcus et al., 2022a). Another systemic factor for underutilization of healthcare included complicated healthcare systems, reported by Ukrainian refugees in Germany (Ponomarenko & Kaifie, 2023).

### ***Children, adolescents, young adults, and pregnant mothers***

While younger age is often presented as an additional risk factor alongside other population characteristics (e.g. chronic illness), extensive literature also highlights that this group independently underutilizes oral health care due to barriers specific to their demographic. These barriers are discussed below.

*Individual factors:* Parental influence plays a critical role in the utilization of oral healthcare services among children and adolescents (Cabudol et al., 2018; Edelstein et al., 2020; Hachey et al., 2019; Treloar et al., 2021). Children whose parents had not visited a dentist within the past year were at greater risk for underutilization (Edelstein et al., 2020; Finlayson et al., 2018; Samohyl et al., 2021). Common barriers at the individual level included scheduling conflicts, social and family commitments, forgetfulness and stressful home environments (Cabudol et al., 2018; Edelstein et al., 2020; Hachey et al., 2019; Khries & Salaymeh, 2024; Reich et al., 2019; Samohyl et al., 2021; Treloar et al., 2021). The type of caregiver also influenced utilization; children with biological parents were more likely to utilize care than those in foster care or raised by grandparents, indicating the role of household stability (Finlayson et al., 2018). Parental beliefs and knowledge played a role as well, with some parents perceiving no need for oral healthcare if the child had healthy teeth (Farsi et al., 2024; Reich et al., 2019; Trinh et al., 2022). A similar pattern was observed among pregnant women, some of whom did not utilize oral health services during pregnancy, for example because of lack of prenatal oral health guidelines or inadequate interprofessional collaboration between caregivers (Kamalabadi et al., 2025; Wang et al., 2020). Beyond parental influence, child-related factors, such as fear or lack of cooperation, also contributed to underutilization (Cabudol et al., 2018; Nelson et al., 2021). Moreover, demographic and socioeconomic factors of underutilization included younger child age, male gender, lack of insurance coverage, lower parental education, migrant background, and low household income (Finlayson et al., 2018; 2018; Lee et al., 2022; Reich et al., 2019; Samohyl et al., 2021; Trinh et al., 2022).

*Systemic factors:* Negative past experiences— including painful treatments, poor provider communication, use of restraints, and child separation— were reasons of underutilization among children (Cabudol et al., 2018; Reich et al., 2019; Trinh et al., 2022). Systemic barriers that were reported included absence of insurance and cost-related underutilization (Murphy et al., 2024). Additional barriers included long waiting lists and appointment difficulties (Cabudol et al., 2018; Trinh et al., 2022). Some women were even denied oral healthcare services due to their pregnancy (Wang et al., 2020).

### ***Other characteristics of underutilization***

Some studies have reported barriers to oral healthcare utilization that did not fit in one of our examined population-level characteristics. For example, a study about individuals facing multiple, intersecting disadvantages, such as homelessness, substance use, and repeat offending, frequently deprioritize oral healthcare utilization (Jain et al., 2024). Factors found to improve utilization among these groups included positive relationships with service providers, such as support workers, as well as the availability of outreach services (Jain et al., 2024). Moreover, life course transitions, such as changes in marital status, have been shown to influence oral healthcare utilization. Both widowhood and divorce were significantly associated with declines in oral healthcare utilization across genders, with the most pronounced decrease among divorced men (Hubbard & Cornell, 2024).

While financial barriers often intersect with specific sociodemographic characteristics—such as low income or migration background—they also represent a critical barrier in their own right. Abdelrehim and Singhal (2024), using national survey data from Ontario, reported that while most privately-insured

individuals did not encounter cost-related obstacles, younger adults aged 20–39 and those with annual incomes below \$40,000 experienced significantly greater financial constraints (Abdelrehim & Singhal, 2024). Adults aged 20–39 were six times more likely to report cost-related barriers and ten times more likely to seek care only in emergency situations (Abdelrehim & Singhal, 2024). In the United Kingdom, adults who did not have a dentist experiences barriers such as limited availability of resources, limited importance for oral health or limited trust in dentists, dental anxiety and embarrassment (van der Zande et al., 2021).

## Discussion

This scoping review identified key populations and factors at risk for underutilization of oral healthcare, including individuals with chronic illnesses, rural residents, migrants, children, pregnant women and ethnic minorities. Our findings demonstrate that underutilization was rarely the result of a single barrier but rather a combination of multiple overlapping factors. Barriers to oral healthcare were multifaceted, with individual factors such as financial constraints, low health literacy, dental anxiety, and competing oral health priorities intersecting with systemic challenges, including high treatment costs, lack of insurance, limited provider availability, and discrimination. Among all at-risk population groups, the overlapping factors were low income, lack of education and rural residence. For example, individuals with chronic illnesses faced not only health-related barriers, such as competing medical priorities and treatment fatigue, but also financial strain, limited health literacy, and systemic discrimination. Similarly, rural residents encountered geographical isolation, combined with socioeconomic disadvantages and infrastructure inadequacies, while LGBTQ+ individuals and racial minorities often grapple with intersecting challenges of stigma, financial barriers, and distrust in healthcare systems. These overlapping factors underscore that underutilization of oral healthcare is rarely attributable to one condition or barrier but instead reflects the compounded effects of multi-faceted factors. For example, in children, utilization was heavily influenced by parental factors, which are themselves shaped by socio-economic stressors, competing priorities, and limited healthcare access. This aligns with broader healthcare research, which has shown that underutilization of healthcare is driven by a combination of personal and systemic factors rather than a single determinant. Previous studies have demonstrated that financial constraints, health literacy, and personal health beliefs interact with systemic barriers such as provider availability, insurance coverage, and healthcare accessibility to influence healthcare-seeking behavior (Hu et al., 2021; Recchia et al., 2022). A more specific example for underutilization of oral healthcare is a cross-sectional study about oral healthcare-seeking behavior in urban populations, mentioning factors such as including lack of time, dental problems not interfering with daily activities, lack of awareness about dental issues, loss of wages, and fear of dental treatment (Tharshini et al., 2024). Just as general healthcare, oral healthcare utilization is driven by multiple factors.

These findings emphasize the necessity of multi-level interventions addressing both individual and systemic determinants simultaneously, and that simple solutions might not work to improve access and equity in oral healthcare. To address these complex challenges effectively, participatory action approaches that engage individuals and communities as active collaborators in designing and implementing solution have been suggested. As emphasized in earlier research, community-based strategies that integrate oral health interventions into local contexts are vital for addressing disparities (Watt, 2005). Such approaches, grounded in the principles of co-creation and empowerment, ensure that interventions are culturally relevant, accessible, and aligned with the specific needs and priorities of the communities they serve. By working closely with individuals and with existing community structures, participatory action approaches can foster trust, enhance service delivery, and improve long-term engagement with oral healthcare services.

The individual and systemic factors identified here provide valuable insights for developing participatory action approaches that actively involve these populations as co-creators in the design and implementation of solutions. While participatory approaches play an important role at the community level, the multifaceted nature of oral healthcare underutilization requires coordinated interventions across multiple governance levels. A multi-factorial challenge calls for a multi-level response. This includes structural policy reforms at the national level aimed at improving accessibility of oral healthcare, strengthened

intersectoral collaboration at the municipal level between health- and social domains and sustained trust- and awareness-building initiatives at the community level. These approaches are grounded in the recognition that underutilization is driven by intersecting individual and systemic factors, and therefore cannot be resolved by single, isolated measures. Community-based, participatory strategies can foster trust, relevance, and long-term engagement, while national and municipal-level actions can address structural barriers such as affordability, service fragmentation, and lack of coordination. For example, at the community level, oral health promotion can be embedded within trusted settings such as community centers, mosques, or local schools and delivered by trained community health workers or volunteers who share the cultural and linguistic background of the target population. These actors can provide tailored information, support families in navigating the healthcare system, and help reduce mistrust or stigma related to oral healthcare.

A notable strength of this scoping review is its comprehensive synthesis of data from diverse population groups in high-income countries, offering valuable insights into the multifaceted individual and systemic factors driving dental care avoidance. By focusing on studies published between 2018 and 2023, this review captured contemporary challenges, ensuring the relevance of its findings to current healthcare contexts. While more recent studies may have emerged, the included literature offers a comprehensive overview of the existing knowledge on this topic. Any subsequent research is likely to reinforce findings from this literature rather than introduce entirely new factors on underutilization of oral healthcare. Our inclusion of both qualitative and quantitative studies provides a rich understanding of the complex behaviors and barriers affecting oral healthcare utilization. The emphasis on high-income countries is another strength, ensuring the findings are directly applicable to comparable healthcare systems, where dental care is often excluded from universal health coverage, and access is shaped by systemic factors such as insurance availability, treatment costs, and provider distribution. At the same time, this also means the conclusions might not be extrapolated to those parts of the world where lack of access to oral care is most urgent.

Certain other limitations should be acknowledged too. The exclusion of studies focused on populations over the age of 65 years may overlook critical insights into the unique barriers faced by older adults, an important demographic at risk for lower oral healthcare utilization. Additionally, limiting the review to studies published in English and Dutch may have led to the omission of relevant research in other languages, introducing potential selection bias. Another notable limitation is the geographic concentration of included studies, with a predominance of literature from the United States. As a result, perspectives from other high-income countries may be underrepresented, despite a comprehensive and systematic search strategy.

## Conclusion

Underutilization of oral healthcare is rarely driven by a single individual or systemic factor but instead results from a combination of multiple barriers that collectively contribute to underutilization. Financial constraints, low health literacy, and dental anxiety often intersect with systemic challenges such as lack of insurance and provider shortages. Addressing underutilization requires targeted, multi-level interventions that consider both individual and systemic factors to improve access to oral healthcare. Engaging individuals in participatory, community-based initiatives close to their homes and leveraging local resources can be transformative in reducing barriers and promoting equity in oral healthcare access.

## Authors' contributions

Sehida Begovic was responsible for the conceptualization, formal analysis, investigation, methodology, project administration, resources, visualization, writing—original draft, and writing—review & editing of this manuscript. Ngoc Bich Chau contributed to the conceptualization, formal analysis, investigation, methodology, project administration, resources, supervision, and writing—original draft of the manuscript. Michiel W. van der Linden contributed to the conceptualization, methodology, project administration, supervision, validation, and writing—review & editing of the manuscript. Monique H. van der Veen contributed to the conceptualization, funding acquisition, methodology, project administration, supervision, visualization, and writing—review & editing of the manuscript. All authors approved the final version to be published.

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The authors report there are no competing interests to declare.

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## Data availability statement

All data supporting the findings of this study are included in the Appendix file submitted with this manuscript. Further details or clarification can be provided by the corresponding author upon reasonable request.

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