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Oral Health Inequalities and Barriers to Dental Care among Migrants in Cyprus: Implications for the Global South and Sustainable Development

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Abstract: Background: Migrants frequently encounter structural barriers to healthcare that contribute to persistent oral-health inequalities. In Cyprus, the oral-health status and access barriers affecting migrant communities remain insufficiently documented, limiting the development of equity-driven public-health strategies. Objective: To compare oral-health status, functional impacts, preventive behaviours, and access to dental care between migrants and non-migrants in Cyprus, and to examine sociodemographic and behavioural predictors of oral-health outcomes. Methods: A cross-sectional survey was conducted among 200 adults (100 migrants and 100 non-migrants) recruited from public health centers in Nicosia between April and May 2025. A structured questionnaire assessed self-reported oral-health status, functional limitations, oral-hygiene practices, dental-care utilisation, and perceived access barriers. Between-group differences were analysed using chi-square tests. Results: Migrants reported significantly poorer oral health than non-migrants, including higher prevalence of toothache (59% vs. 21%), bleeding gums (68% vs. 21%), halitosis (67% vs. 15%), and gum disease (56% vs. 23%) (all $p < 0.001$). Functional impairments were more common among migrants, including difficulty chewing (42% vs. 10%), brushing (32% vs. 11%), and smiling confidently (36% vs. 12%) (all $p < 0.001$). Preventive behaviours were markedly less favourable among migrants, who brushed less frequently, reported substantially lower use of fluoride toothpaste (16% vs. 81%), and relied more on toothpicks for oral hygiene (66% vs. 21%) (all $p < 0.001$). Migrants also experienced significantly greater barriers to dental care, particularly language difficulties, transportation constraints, and dental anxiety. Conclusions: Substantial oral-health inequalities persist between migrants and non-migrants in Cyprus. Culturally responsive, migrant-inclusive oral-health strategies are urgently needed to reduce access barriers, strengthen preventive care, and advance SDG-3 (Good Health and Well-being) and SDG-10 (Reduced Inequalities)

Keywords: migrants; oral health; inequalities; global south; sustainable development; Cyprus

1. Introduction

Global displacement has reached unprecedented levels, with more than 122 million people forcibly displaced worldwide [1]. Migrants and refugees arriving in host countries frequently experience profound health inequalities, including substantial disparities in oral health [2]. Oral-health problems among forcibly displaced populations are typically driven by cumulative disadvantage resulting from disrupted living conditions, limited access to

preventive care, poor hygiene environments and chronic stress associated with displacement [3]. As a result, refugees and migrants often present with higher rates of untreated dental caries, periodontal disease and oral pain compared with host populations [4,5].

In the European context, migrant populations remain disproportionately affected by barriers to healthcare access, including linguistic, cultural, financial and structural constraints [2,6]. These inequalities extend to oral health, where access to dental services is frequently inadequate or fragmented. Evidence from Europe further indicates limited availability of oral health services for displaced populations and higher levels of untreated dental conditions among refugees [5,7]. Similar patterns have been observed in other high-income settings, including significant unmet oral health needs impacting quality of life for refugees and asylum seekers in Australia [8], underscoring that oral health inequalities among migrants represent a broader global public-health challenge.

Cyprus, located at the crossroads of Europe, the Middle East and Africa, has experienced disproportionately high levels of asylum applications relative to its population size compared with other European Union Member States. According to Eurostat data, Cyprus has consistently ranked among the EU countries with the highest number of asylum applications per capita in recent years, placing sustained pressure on national health and social systems [9]. Despite this demographic context, empirical evidence on oral-health inequalities affecting migrant populations in Cyprus remains scarce. While previous research has documented broader socioeconomic and health disparities among migrant communities in Cyprus and other European settings [2], oral health has received limited systematic investigation. Understanding the magnitude and determinants of oral-health inequalities is therefore essential for informing equity-oriented interventions and public-health strategies that align with national health priorities and global sustainable development objectives, particularly SDG 3 (Good Health and Well-being) and SDG 10 (Reduced Inequalities).

This study addresses this gap by comparing oral-health status, behaviours, access to care and perceived barriers between migrants and non-migrants in Cyprus. Building on global evidence of oral-health inequalities, this research provides context-specific insights relevant both for Cyprus and for broader discussions on migrant health in the Global South and across high-income host environments. The findings can support the development of culturally sensitive, equity-focused strategies to improve access to dental care and reduce oral-health disparities among vulnerable populations.

2. Methods

2.1. Study Design

This study employed a cross-sectional observational design to assess disparities in oral health, oral-health–related behaviours and barriers to accessing dental care among migrants and non-migrants in Cyprus. The design enabled the comparison of the two population groups at a single point in time, providing a snapshot of inequalities in oral-health status and service utilisation.

2.2. Setting

The study was conducted in Nicosia, Cyprus, where a large and culturally diverse migrant population resides. Data were collected over a two-month period, from April to May 2025, in public dental clinics and primary care centres, as well as in community areas with a high density of migrant residents. These sites were selected to capture a broad representation of socioeconomic and cultural backgrounds and to reflect the population typically using publicly accessible dental services.

2.3. Participants

Eligible participants were adults aged 18 years or older who could communicate in Greek or English and who provided written informed consent. Migrants were defined as individuals born outside Cyprus and living in the country for at least six months; non-migrants were those born and residing in Cyprus. Convenience sampling was used at all recruitment sites. Individuals directly involved in the research or employed at the participating clinics were excluded. A total of 200 participants (100 migrants and 100 non-migrants) were included. No individuals were excluded after enrolment, and there were no missing data. The sample size was based on feasibility within the available recruitment period.

2.4. Variables

Sociodemographic variables included sex (male/female), age (categorical: six brackets), marital status (single/married), education (seven ordered levels), income (six categories, including "prefer not to answer"), and ethnicity (migrant/non-migrant with country of origin recorded for migrants). Oral-health status was assessed using self-reported ratings of overall oral health (excellent to very poor) and a list of oral conditions such as tooth pain, bleeding gums, bad breath, cavities, gum disease or none. Functional oral-health impacts experienced in the previous six months, including difficulty chewing, speaking clearly, brushing teeth, leaving the house, sleeping, resting, smiling confidently, emotional changes, difficulty working and difficulty enjoying social contact, were measured with binary yes/no responses.

Behavioural variables comprised brushing frequency (seven-category ordinal scale), toothbrush replacement interval (three categories), toothpaste use (yes/no), fluoride toothpaste use (yes/no/don't know), and the use of tooth-cleaning tools (toothbrush, floss, toothpick, interdental brush), each coded as a separate yes/no variable. Additional health-related behaviours included smoking (yes/no, with cigarettes per day recorded numerically when applicable) and sugar consumption patterns. Sugar intake was measured using a five-point frequency scale ("1–2 a day", "1–3 a week", "less than weekly", "rarely", "never") for fresh fruit, sweets/desserts, sugar-sweetened and non-sugar-sweetened sodas, jam/honey and sugar chewing gum.

Access to dental services was assessed through self-reported time since last dental visit (never to more than two years), reason for last visit (preventive care, pain relief, continuation of treatment or other), dentist change in the past six months and reasons for such a change. Barriers to dental care were captured using a multiple-response checklist covering financial, logistical, cultural, linguistic, motivational and perceptual obstacles. Cultural beliefs regarding oral health were assessed using yes/no/not sure responses addressing the perceived importance of oral health, the perceived importance of seeing a dentist and the use of traditional or cultural remedies.

2.5. Data Sources and Measurement

Data were collected via a structured, self-administered questionnaire provided in Greek and English. All items used categorical or binary response formats, as described above. Multi-option questions (oral-health conditions, barriers, cleaning tools) were coded as separate dichotomous variables (1 = selected, 0 = not selected). No composite scores were created; each item was analysed individually. The questionnaire was not pilot-tested. Participants completed the instrument privately in the study setting after receiving brief instructions from a researcher. All data were anonymous and processed in accordance with GDPR requirements.

2.6. Bias

Information bias was minimised by using a standardised questionnaire with identical wording for all participants. Selection bias was mitigated by recruiting from multiple clinics and community locations, although convenience sampling may limit generalisability. Because the dataset contained no missing responses**,** there was no risk of bias due to incomplete data.

2.7. Study Size

The total study sample consisted of 200 participants. The sample size was determined pragmatically based on feasibility and the anticipated availability of eligible individuals during the data-collection period.

2.8. Statistical Methods

Descriptive statistics were used to summarise sociodemographic characteristics, oral-health status, functional impacts, oral-hygiene behaviours and barriers to dental care for migrants and non-migrants. Categorical variables were analysed using chi-square tests to assess between-group differences. All statistical analyses were conducted using IBM SPSS Statistics version 29. A p-value < 0.05 was considered statistically significant.

2.9. Ethical Considerations

The study received ethical approval from the Cyprus National Bioethics Committee (ΕΕΒΚ ΕΠ 2025.01.114). All participants provided written informed consent prior to participation. The study complied with national ethical standards and with the General Data Protection Regulation (GDPR). Data were collected anonymously and stored securely.

3. Results

3.1. Sample Characteristics

A total of 200 adults participated in the study, comprising 100 migrants and 100 non-migrants. Among the migrant participants (n = 100), the largest subgroups originated from Central and Sub-Saharan Africa and the Middle East. Specifically, 26% were from Cameroon, 22% from the Democratic Republic of Congo, 24% from Syria, 13% from Iran, 11% from Afghanistan, and 4% from Ukraine. This distribution reflects the predominant migration flows currently affecting Cyprus and highlights the heterogeneity within the migrant category examined in this study. Sex distribution did not differ significantly between the two groups ($p = 0.235$): among non-migrants, 52.0% were men and 48.0% were women, whereas among migrants, 44.0% were men and 56.0% were women (Table 1). Age distributions showed statistically significant differences ($p < 0.05$). Among non-migrants, 20.0% were aged 18–24, 21.0% were 25–34, 23.0% were 35–44, 7.0% were 45–54, 11.0% were 55–64 and 18.0% were over 65 years. In contrast, migrants were more concentrated in younger and middle age groups: 21.0% were 18–24, 13.0% were 25–34, 21.0% were 35–44, 24.0% were 45–54, 11.0% were 55–64 and 10.0% were over 65 years. Income distributions were significantly different ($p < 0.001$). Among non-migrants, 36.1% earned less than €1000 per month, 53.6% earned €1000–2999, 10.3% earned €3000–4999 and none earned over €5000. Among migrants, 35.5% earned €1000–2999, 22.6% earned €3000–4999, 28.0% earned over €5000 and 4.3% preferred not to answer. Marital status also differed significantly between groups ($p < 0.01$): 64.0% of non-migrants were married compared with 44.0% of migrants, whereas 56.0% of migrants were single compared with 36.0% of non-migrants. Educational attainment demonstrated the starkest contrast ($p < 0.001$). Among migrants, 20.0% had no education or had not completed primary school, 57.0% had completed primary school and 15.0% had completed lower secondary education. In comparison, non-migrants exhibited significantly higher educational levels: 29.0% had completed upper secondary school, 20.0% had completed post-secondary non-tertiary education and 35.0% held a university degree.

Table 1. Sample characteristics of migrants and non-migrants (n = 200).

Characteristic	Non-Migrants (n = 100)	Migrants (n = 100)	*p*-Value [1]
Sex			
Male	52 (52.0%)	44 (44.0%)	0.235
Female	48 (48.0%)	56 (56.0%)	
Age group			
18–24	20 (20.0%)	21 (21.0%)	
25–34	21 (21.0%)	13 (13.0%)	
35–44	23 (23.0%)	21 (21.0%)	<0.05
45–54	7 (7.0%)	24 (24.0%)	
55–64	11 (11.0%)	11 (11.0%)	
>65	18 (18.0%)	10 (10.0%)	
Monthly net income			
< €1000	35 (36.1%)	9 (9.7%)	
€1000–2999	52 (53.6%)	33 (35.5%)	<0.001
€3000–4999	10 (10.3%)	21 (22.6%)	
> €5000	0 (0.0%)	26 (28.0%)	
Prefer not to answer	0 (0.0%)	4 (4.3%)	
Marital status			
Married	64 (64.0%)	44 (44.0%)	<0.01
Single	36 (36.0%)	56 (56.0%)	
Educational level			
No education/incomplete primary	0 (0.0%)	20 (20.0%)	
Primary school	8 (8.0%)	57 (57.0%)	
Lower secondary (Gymnasium)	6 (6.0%)	15 (15.0%)	<0.001
Upper secondary (Lyceum/6-year HS)	29 (29.0%)	7 (7.0%)	
Post-secondary non-tertiary	20 (20.0%)	0 (0.0%)	
University undergraduate	35 (35.0%)	0 (0.0%)	
Postgraduate	2 (2.0%)	1 (1.0%)	

Abbreviations: HS = High School; € = Euro. [1] *p*-values from χ^2 test.

3.2. Oral-Health Inequalities between Migrants and Non-Migrants

Marked disparities in oral-health status were observed between migrants and non-migrants (Table 2). Self-rated oral health differed significantly between the two groups ($p < 0.001$), with non-migrants reporting far more favourable evaluations. Among non-migrants, 12.0% rated their oral health as "very good," 30.0% as "good," and 55.0% as "average," whereas among migrants only 1.0% rated their oral health as "very good," 2.0% as "good," and 25.0% as "average". In contrast, ratings of "poor" and "very poor" were substantially higher among migrants (39.0% and 25.0% respectively) than non-migrants (1.0% and 2.0%).

Functional impacts of oral-health problems were considerably more common among migrants across nearly all indicators. Migrants were significantly more likely to report difficulty chewing (42.0% vs. 10.0%; $p < 0.001$), difficulty speaking clearly (15.0% vs. 6.0%; $p = 0.038$), difficulty brushing their teeth (32.0% vs. 11.0%; $p < 0.001$), difficulty sleeping (12.0% vs. 3.0%; $p = 0.016$) and difficulty resting (16.0% vs. 1.0%; $p < 0.001$). They also more frequently reported difficulty smiling without embarrassment (36.0% vs. 12.0%; $p < 0.001$), difficulty performing their main daily work (26.0% vs. 9.0%; $p = 0.002$) and difficulty enjoying social contact (17.0% vs. 5.0%; $p = 0.007$). Only one functional indicator, changes in emotional state, did not reach statistical significance (21.0% vs. 12.0%; $p = 0.086$).

Substantial disparities were also evident in the prevalence of oral-health conditions. Migrants had significantly higher prevalence of toothache (59.0% vs. 21.0%; $p = 0.000$), bleeding gums (68.0% vs. 21.0%; $p < 0.001$), bad breath (67.0% vs. 15.0%; $p < 0.001$) and gum disease (56.0% vs. 23.0%; $p < 0.001$). The prevalence of dental caries was higher among migrants (40.0% vs. 27.0%), but this difference approached borderline significance ($p = 0.051$). Of particular note, 59.0% of non-migrants reported having no oral-health conditions, compared with only 1.0% of migrants ($p < 0.001$).

Table 2. Oral-health inequalities between migrants and non-migrants.

Oral-Health Indicator	Non-Migrants (n = 100)	Migrants (n = 100)	*p*-Value [1]
Self-rated oral health			
Very good	12.0%	1.0%	<0.001
Good	30.0%	2.0%	
Average	55.0%	25.0%	
Poor	1.0%	39.0%	
Very poor	2.0%	25.0%	
Don't know	0.0%	8.0%	
Functional impacts (past 6 months)			
Difficulty chewing	10.0%	42.0%	<0.001
Difficulty speaking clearly	6.0%	15.0%	0.038
Difficulty brushing teeth	11.0%	32.0%	<0.001
Difficulty sleeping	3.0%	12.0%	0.016
Difficulty resting	1.0%	16.0%	<0.001
Difficulty smiling without embarrassment	12.0%	36.0%	<0.001
Emotional change	12.0%	21.0%	0.086
Difficulty working	9.0%	26.0%	0.002
Difficulty enjoying social contact	5.0%	17.0%	0.007
Oral-health conditions			
Toothache	21.0%	59.0%	<0.001
Bleeding gums	21.0%	68.0%	<0.001
Bad breath	15.0%	67.0%	<0.001
Dental caries	27.0%	40.0%	0.051
Gum disease	23.0%	56.0%	<0.001
No conditions reported	59.0%	1.0%	<0.001

[1] *p*-values from χ^2 test.

3.3. Behavioural Differences Between Groups

Marked behavioural differences were observed between migrants and non-migrants (Table 3). Brushing frequency varied significantly ($p < 0.001$), with migrants brushing far less often: 3.0% brushed once per month and 28.0% once per week, while non-migrants more commonly brushed once per day (47.0%) or twice daily (10.0%). Toothbrush replacement also differed ($p < 0.001$), with only 4.0% of migrants replacing their toothbrush within three months compared to 33.0% of non-migrants; 62.0% of migrants replaced it only when broken, versus 6.0% of non-migrants. Use of toothpaste (80.0% vs. 96.0%; $p < 0.001$) and fluoride toothpaste (16.0% vs. 81.0%;

$p < 0.001$) was significantly lower among migrants, who also had substantially poorer fluoride awareness (71.0% responded "don't know" vs. 14.0%). Migrants reported lower adoption of interdental hygiene practices, including floss use (9.0% vs. 25.0%; $p = 0.003$) and toothbrush use (85.0% vs. 100.0%; $p < 0.001$), while relying more heavily on toothpicks (66.0% vs. 21.0%; $p < 0.001$). Health-harming behaviours were also more common among migrants, who exhibited higher smoking prevalence (52.0% vs. 18.0%) and significantly greater sugar consumption (60.0% vs. 26.0%) as reported in the thesis narrative.

Table 3. Behavioural differences between migrants and non-migrants.

Behavioural Indicator	Non-Migrants (n = 100)	Migrants (n = 100)	*p*-Value [1]
Brushing frequency			
Once per month	0.0%	3.0%	
A few times per month	1.0%	12.0%	
Once per week	4.0%	28.0%	<0.001
A few times per week	37.0%	23.0%	
Once per day	47.0%	27.0%	
Twice or more per day	10.0%	7.0%	
Toothbrush replacement			
Within 3 months	33.0%	4.0%	<0.001
>3 months	61.0%	34.0%	
When broken	6.0%	62.0%	
Use of toothpaste	96.0%	80.0%	<0.001
Use of fluoride toothpaste	81.0%	16.0%	<0.001
Fluoride knowledge ("Don't know")	14.0%	71.0%	<0.001
Use of interdental cleaning tools			
Toothbrush	100.0%	85.0%	<0.001
Floss	25.0%	9.0%	0.003
Toothpick	21.0%	66.0%	<0.001
Interdental brush	12.0%	7.0%	0.182
Smoking prevalence	18.0%	52.0%	<0.001
High sugar consumption	26.0%	60.0%	<0.001

[1] *p*-values from χ^2 test.

3.4. Access to Dental Care and Barriers

Substantial inequalities in dental care utilisation were evident between migrants and non-migrants (Table 4). Migrants were significantly more likely to delay dental visits, with 45.0% reporting that they had not visited a dentist for more than two years, compared with 12.0% of non-migrants ($p < 0.001$). Preventive dental attendance was far more common among non-migrants, 61.0% of whom reported attending for preventive reasons, whereas migrants sought care predominantly for pain relief (54.0% vs. 16.0%; $p < 0.001$). Barriers to accessing dental care were disproportionately concentrated among migrants across nearly all categories. Financial constraints were reported by 39.0% of non-migrants but only 10.0% of migrants ($p < 0.001$), indicating that for migrants, other obstacles outweighed cost. Migrants reported substantially higher rates of language difficulties (53.0% vs. 0%; $p < 0.001$), lack of transportation (30.0% vs. 1.0%; $p < 0.001$), fear or anxiety about dental procedures (42.0% vs. 11.0%; $p < 0.001$), cultural or religious barriers (23.0% vs. 0%; $p < 0.001$), and waiting to see if a dental problem would resolve on its own (41.0% vs. 6.0%; $p < 0.001$). Migrants also more frequently reported a lack of nearby dental providers (20.0% vs. 8.0%; $p = 0.014$) and lack of time (37.0% vs. 12.0%; $p < 0.001$). These barriers had tangible effects on utilisation patterns. Migrants were significantly more likely to have changed dentist in the past 12 months (60.0% vs. 17.0%; $p < 0.001$), suggesting instability in care access and potential discontinuity of treatment.

Table 4. Access to dental care and barriers among migrants and non-migrants.

Indicator	Non-Migrants (n = 100)	Migrants (n = 100)	*p*-Value[1]
Time since last dental visit			
<6 months	38.0%	12.0%	
6–12 months	30.0%	18.0%	<0.001
1–2 years	20.0%	25.0%	
>2 years	12.0%	45.0%	
Reason for last dental visit			<0.001
Preventive treatment	61.0%	19.0%	

Table 4. *Cont.*

Indicator	Non-Migrants (n = 100)	Migrants (n = 100)	*p*-Value[1]
Pain relief	16.0%	54.0%	<0.001
Treatment continuation	23.0%	27.0%	
Barriers to dental care			
High cost/inability to pay	39.0%	10.0%	<0.001
Long waiting times	17.0%	3.0%	0.001
Lack of time	12.0%	37.0%	<0.001
Lack of transportation	1.0%	30.0%	<0.001
Fear or dental anxiety	11.0%	42.0%	<0.001
Waiting to see if problem resolves	6.0%	41.0%	<0.001
Cultural / religious reasons	0.0%	23.0%	<0.001
Language barriers	0.0%	53.0%	<0.001
No nearby dentist	8.0%	20.0%	0.014
No dental problem/no need	33.0%	10.0%	<0.001
Changed dentist in last 12 months			
Yes	17.0%	60.0%	<0.001
No	83.0%	40.0%	

[1] *p*-values from χ^2 test.

4. Discussion

This study provides the first detailed comparison of oral-health status, behaviours, and access to dental care between migrants and non-migrants in Cyprus. The findings reveal substantial inequalities across all domains examined. Migrants exhibited significantly higher prevalence of oral-health symptoms, including toothache, bleeding gums, halitosis, and gingival disease, and reported markedly greater functional limitations, such as difficulty chewing, speaking, brushing, resting, and engaging socially. Preventive oral-hygiene behaviours were considerably poorer among migrants, who brushed less frequently, replaced toothbrushes less regularly, and demonstrated lower awareness and use of fluoride toothpaste. Migrants also faced significantly more barriers to accessing dental care, including linguistic, cultural, structural, and psychological obstacles. Taken together, these findings indicate a consistent pattern of oral-health disadvantage among migrant communities in Cyprus.

The migrant sample was primarily composed of individuals originating from Sub-Saharan Africa (Cameroon and Congo; 48% combined) and the Middle East (Syria, Iran, Afghanistan; 48% combined), with a smaller proportion from Eastern Europe (Ukraine; 4%). This distribution is important for interpreting the observed inequalities, as migration trajectories, exposure to conflict, pre-migration access to preventive dental services, and post-arrival socioeconomic vulnerability differ substantially across these regions. The disparities observed in this study likely reflect structural disadvantage and cumulative disruption of healthcare access rather than a homogeneous "migrant effect". Future research with adequately powered subgroup analyses is needed to explore intra-migrant heterogeneity in oral-health outcomes.

Migrants in the present study exhibited a substantially higher prevalence of toothache, bleeding gums, halitosis, and self-reported periodontal disease. These findings are consistent with international evidence indicating that refugees and asylum seekers frequently present with severe unmet dental needs and higher levels of untreated caries and periodontal disease compared with host populations. Review studies have demonstrated that refugees and asylum seekers experience a disproportionate burden of oral disease, driven by disrupted living conditions, limited access to preventive services, and cumulative disadvantage across the migration trajectory [3,10]. Similar patterns have been documented across European settings, where refugees commonly present with advanced oral disease at first clinical contact, reflecting long-standing barriers to timely and preventive dental care [5,7]. Furthermore, a comprehensive systematic review of migrants residing in Europe reported consistently poorer oral-health status, higher caries burden, and greater reliance on emergency rather than preventive dental services compared with host populations [4]. Collectively, this body of evidence strongly supports the oral-health disparities observed in the Cypriot migrant population examined in this study.

Our findings also align with recent evidence from high-income host countries demonstrating pronounced differences in oral-health–related quality of life (OHRQoL) between refugee and non-refugee populations. A questionnaire-based study conducted in Austria reported significantly poorer OHRQoL among refugees, characterised by greater functional limitations and social discomfort associated with oral conditions [11]. Similar patterns have been observed in other high-income settings, including Australia, where refugees and asylum seekers from the Middle East and South Asia reported poor oral health, substantial impacts on quality of life and general health, and high levels of unmet dental need [8]. Evidence from European scoping and systematic reviews further

indicates that refugees frequently experience delayed dental treatment and unmet oral-health needs due to persistent structural barriers to care, including limited service availability, language difficulties, and restricted access to preventive services [7,12]. These patterns closely reflect those observed in the present study, where migrants experienced substantial functional impacts such as difficulty chewing, speaking, smiling, and sleeping.

Some of the strongest inequalities observed in our data relate to access barriers. Elevated rates of language difficulties, fear, transportation challenges, and limited information among migrants directly mirror findings from multiple systematic reviews [12,13]. A recent study conducted in London also identified fear, low health literacy, lack of continuity in care, and mistrust of services as key obstacles among asylum seekers and refugees [14]. Comparable patterns of structural disadvantage have been documented beyond dentistry. For example, evidence from Canada indicates that immigrants face multilayered barriers to healthcare access, including language difficulties, low health literacy, limited awareness of available services, and fragmentation of health systems, mirroring the obstacles observed in migrant oral-health access [15]. Such cross-sector evidence reinforces the extent to which oral-health inequalities are embedded within broader structural inequities affecting migrant populations. These barriers not only reduce utilisation of preventive care but also increase reliance on emergency or pain-driven care, a pattern similarly observed among migrants in Cyprus.

Our results also reflect oral-health profiles reported among vulnerable migrant groups in other geographical contexts. Research in North Africa demonstrates a high prevalence of dental caries and oral pathologies, often linked to adverse living conditions and limited access to preventive services [16]. A systematic review of migrants from low- and middle-income countries residing in Europe similarly reports substantial burdens of dental caries, periodontal disease, and unmet treatment needs, driven by socioeconomic vulnerability, disrupted care pathways, and limited access to oral-health services [17]. These studies attribute poor oral health to pre-migration living conditions, limited access to care during transit, and persistent socioeconomic hardship after arrival, factors that likely contribute to the patterns observed in our study. Given that many migrants arriving in Cyprus originate from countries within the Global South, these findings underscore how global inequalities and disrupted health systems shape oral-health trajectories long before resettlement, reinforcing the need for policies aligned with SDG-3 **(**Good Health and Well-being) and SDG-10 (Reduced Inequalities) that address both upstream determinants and local access barriers.

This study has several limitations. First, the cross-sectional design precludes causal inference. Second, convenience sampling may introduce selection bias, limiting generalisability to all migrant communities in Cyprus. Third, reliance on self-reported data may have introduced recall or social desirability bias, particularly regarding hygiene behaviours and sugar intake. Finally, although the questionnaire captured a wide range of determinants, certain contextual and psychosocial variables known to influence oral-health inequities were not assessed.

Despite these limitations, the study has important public-health implications. The magnitude and consistency of the inequalities observed highlight the urgent need for culturally responsive oral-health promotion strategies that addresses linguistic and cultural barriers, strengthen migrants' health literacy, and expand access to preventive dental services. Integrating migrant-sensitive oral-health strategies into national health planning can support progress toward SDG-3 (Good Health and Well-being) and SDG-10 (Reduced Inequalities), particularly in contexts such as Cyprus that experience migration flow from the Global South. Enhanced workforce training, reduction of structural and financial barriers, and mobile or community-based clinic models may further facilitate equitable access. Future research should adopt longitudinal designs incorporating clinical assessments and socioeconomic adjustment to examine changes in oral-health outcomes over time and disentangle pre-migration, transit, and post-arrival determinants of inequality. Studies with adequately powered subgroup samples are needed to explore intra-migrant heterogeneity across countries and regions of origin. Additionally, rigorous evaluation of culturally tailored preventive interventions is essential to identify effective strategies for reducing oral-health disparities. Policymakers should prioritise equity-oriented, culturally responsive prevention initiatives targeting communities at heightened risk, as identified in this study.

5. Conclusions

Migrants in Cyprus experience substantial oral-health inequalities reflected across clinical symptoms, functional impacts, preventive behaviours, and access to dental care. These disparities align with international evidence documenting the vulnerability of refugee and migrant groups and underscore the need for equity-driven, culturally adapted, and structurally informed oral-health strategies. Addressing these gaps is essential for improving population oral health and advancing national commitments to sustainable development.

Author Contributions

K.G.: Validation, Methodology, Writing—Original Draft Preparation; F.P.: Conceptualization, Investigation, Methodology, Formal analysis, Visualization, Project administration; D.L.: Conceptualization, Formal analysis, Methodology, Supervision, Writing—Reviewing and Editing. All the authors take responsibility for all aspects of reliability and freedom from bias of the data presented and their discussed interpretation. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

This study was performed following the Declaration of Helsinki guidelines, and all procedures involving research study participants were approved by the Cyprus National Bioethics Committee (CNBC) ((ΕΕΒΚ ΕΠ 2025.01.114).

Informed Consent Statement

Written informed consent has been obtained from the patients to publish this paper.

Data Availability Statement

The non-identifiable data supporting the findings of this study are publicly available in Zenodo and can be accessed at https://doi.org/10.5281/zenodo.18890237.

Conflicts of Interest

The authors declare no conflict of interest.

Use of AI and AI-Assisted Technologies

No AI tools were utilized for this paper.

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