

Oral health profile of Australian children from different immigrant backgrounds

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Objectives: To profile the oral health of Australian children from different immigrant backgrounds. **Method:** Cross-sectional data for Australian children were obtained from the 2012–14 National Child Oral Health Study (NCOHS). Three categories of immigrant status were created based on parents' country of birth and language (non-immigrant, non-visible immigrant, and visible immigrant). Descriptive analyses reported weighted estimates for experience of dental caries, self-rated oral health, and dental services utilisation separately for children aged 5–9 years and 10–14 years. **Results:** The sample comprised 10,610 children aged 5–9 years (3,605 from immigrant backgrounds), and 8,741 children aged 10–14 years (3,074 from immigrant backgrounds). Children from non-visible immigrant backgrounds presented worse dental service utilisation and poorer self-rated oral health than children from non-immigrant and visible immigrant families. Greater inequalities in dental caries experience were observed in the 5–9-year-olds. Untreated caries was substantially higher among visible immigrant children aged 5–9 years (38.8%, 95% CI: 35.5–42.3) than non-immigrant (24.9%, 95% CI: 23.4–26.6) and non-visible immigrant children (21.0%, 95% CI: 17.7–24.7). **Conclusions:** Australian children from immigrant families constitute a highly heterogeneous group with substantial discrepancies in oral health outcomes.

Keywords: Dental caries, migrants, oral health care inequalities, oral health service utilisation

Introduction

The 2021 Australian Census revealed that first and second-generation immigrants constitute most of the Australian population (51.5%) (Australian Bureau of Statistics, 2021). As a colonial-settler society, immigration has been a key historical feature in building contemporary Australia's identity (Tazreiter and Burrige, 2022). Immigrants' invaluable contributions include human capital (related to experience and skills that support regional development), cultural diversity (a set of resources related to language, accent, customs, practices, perspectives, and ideas), and civic participation. Despite the role immigrants play in nation-building, the neoliberal logic underpinning the immigrant policy in Australia fosters individual responsabilisation of newcomers, including health status and access to healthcare (Walsh, 2011).

Immigration is a social determinant that shapes health outcomes across all stages of life, including childhood (Castañeda *et al.*, 2015). The health trajectories of immigrant children are largely determined by pre-migration social positions, circumstances of immigration, and subsequent integration policies. Processes related to immigration introduce several intersecting layers of social stratification to immigrants' positions in society, increasing the risks to illness (Monani *et al.*, 2021). Because dental disease disproportionately affects the most vulnerable groups, immigrant children may be at increased risk of poor oral health. In Australia, immigrant children from non-English speaking backgrounds present consistently lower healthcare utilisation across a range of services (paediatric, dental, mental health and emergency) compared

to Australian-born and English-speaking immigrant children (Guo *et al.*, 2020).

Consistent discrepancies in health indicators have been reported between immigrants from English-speaking and non-English-speaking backgrounds (Joshi *et al.*, 2018; Gunaratnam *et al.*, 2018; Jatrana *et al.*, 2017). These findings suggest potential effects of ethnic markers (including language) on health. For most of the twentieth century, Australia formally distinguished immigrants based on their country of birth. Up to the 1960s, the immigration policy in Australia, known as the White Australia policy, was heavily grounded on economic and cultural nationalism (Walsh, 2011). The government actively recruited migrants from European countries, preferably the British, while limiting the entry of racialised, non-European individuals. As a result of shifts in the migration policy, Australia's population has become increasingly diverse. The proportion of Australians born overseas increased from 18% to 28% between 1911–2021 and nearly 6 million people (22.8%) speak a language other than English at home (Australian Bureau of Statistics, 2022).

Despite the substantial contribution of immigrant families to the ethnic and cultural makeup of the Australian population, little is known about the oral health and utilisation of dental services among children from immigrant backgrounds. Existing evidence is limited to small-scale studies in a few locations (Quach *et al.*, 2015; Gibbs *et al.*, 2015). Given that nationally representative estimates are essential for structuring dental services that meet the needs of immigrant children, this study aims to profile the oral health of Australian children from different immigrant backgrounds at a national population level.

Methods

Cross-sectional data for Australian children were obtained from the 2012-14 National Child Oral Health Study (NCOHS). The survey provides nationally representative estimates of key oral health outcomes, family and community factors, and dental services utilisation among Australian children aged 5 to 14 years (Do and Spencer, 2016). The study adopted a stratified two-stage sampling plan within each Australian state/territory. In the initial stage, schools were randomly selected from all primary and secondary schools within each jurisdiction. To achieve an adequate representation of the target population within each state, schools were stratified according to regions (geographical areas for New South Wales, Victoria and Queensland were based on Area Health Services/Health Districts, whereas Northern Territory, Tasmania, South Australia, and Western Australia were classified as Capital City/Rest of State). The second stage sampled participants from selected schools (Do and Spencer, 2016) yielding 24,664 Australian schoolchildren enrolled across 841 schools.

Parents provided information on sociodemographic characteristics, family and community factors, and dental services utilisation through a structured questionnaire. Oral epidemiological examinations were performed by trained examiners and included assessment of dental caries in primary and permanent teeth. The intraclass correlation coefficient (ICC) for caries assessment scores between examiners indicated good to excellent reliability (range from 0.67 to 0.99).

Survey weights were calculated separately for each state/territory to adjust the sociodemographic composition of the sample to the target population. Data were weighted by school type and a range of child, parent, and household sociodemographic characteristics. This procedure ensured that the weighting strategy was consistent across all jurisdictions and epidemiological information could be combined to create a nationally representative dataset. A detailed description of the weighting strategy developed for NCOHS is available in the study final report (Do and Spencer, 2016).

Ethical approval for the study was obtained from the University of Adelaide Human Research Ethics Committee, and relevant research ethics committees, educational sectors and health departments in each jurisdiction. Signed, informed consent was provided by parents.

Three categories of immigrant status were developed based on parents' country of birth. Australian-born parents were classified as non-immigrant, parents born outside Australia were classified as either visible or non-visible immigrants to reflect racialised and non-racialised identities. Non-immigrant status was defined as children with both parents born in Australia. Non-visible immigrant status was defined as children with both parents born in English speaking countries with historical ties to Anglo-Celtic cultures, namely United Kingdom, Ireland, New Zealand, Canada, and United States of America. Visible immigrant status was characterised as children with both parents born in any other country (non-English speaking countries and/or without historical ties to Anglo-Celtic cultures).

Outcomes included experience of dental caries, self-rated oral health, and dental services utilisation. Experience of dental caries was measured as the number of decayed, missing, and filled teeth in the primary (dmft index) and permanent dentitions (DMFT index). The prevalence of untreated dental caries was calculated as the proportion of children with one or more primary or permanent teeth assessed as decayed. Information on self-rated oral health was obtained by asking parents to rate their child's oral health against a five-point Likert scale, with response options ranging from excellent, very good, good, to fair and poor. Outcomes related to dental services utilisation included age of first dental visit, time of last dental visit, type of clinic of last dental visit, reason for last dental visit, and health insurance. Age of first dental visit was recorded by asking parents the age of the child when first visiting a dentist or dental therapist. Responses were categorised as 1 year of age or younger; 2-4 years; 5 years or older; and never been to the dentist/dental therapist. Time of last dental visit was obtained by asking parents when their child last visited a dentist or dental therapist. A binary response variable was generated by dichotomising the response options into 1 year or less / more than a year. Type of clinic of last dental visit was categorised as public, private, or public hospital. Reason for last dental visit was measured by asking parents the reason for their child's last visit to a dentist or dental therapist, with response options dichotomised as check-up / problem. Information on the proportion of children covered by private health insurance was also obtained by asking parents whether their child had private health insurance other than Medicare (response options categorised as yes / no).

Parents' characteristics were described according to age, sex, educational level, and employment status. Information on educational level was obtained by asking each parent their highest level of education. Response options were grouped into three categories (secondary school or less, trade to diploma, and university degree). Employment status was derived from the question "Do you currently have full time or part time work of any kind?". Response options included full-time job; part-time job; and not currently working, reported for each parent separately (guardian 1 and guardian 2). Children's characteristics included age, sex, and usual place of residence (metropolitan; inner regional; outer regional; and remote/very remote).

Descriptive analyses reported weighted proportions with 95% confidence intervals (95% CI). All outcomes and contextual factors were stratified by immigration status. Estimates were obtained separately for children aged 5-9 years and 10-14 years to capture the dental caries experience in primary and permanent teeth. All analyses accounted for sampling weights for complex survey design. The weighting process ensured that the sample was representative across key sociodemographic characteristics of the Australian population, such as location of residence, household income, parental education, parental and child age, country of birth, parental employment status, family composition and child sex derived from the Australian Bureau of Statistics (ABS) 2011 census data. Analyses used Stata MP 17.0.

Results

The sample comprised 10,610 children aged 5-9 years and 8,741 aged 10-14 years with available information on country of birth of both guardians. Parents identified as guardian 1 were predominantly female (Table 1). Guardians from non-visible and visible immigrant backgrounds had higher levels of tertiary education than non-immigrant guardians. Guardians 1 from immigrant backgrounds were more frequently employed full-time, more frequently not employed, but less frequently part-time employed than their non-immigrant counterparts.

The prevalence of untreated dental caries was substantially higher among visible immigrant children aged 4-9 years than their counterparts. A similar pattern was observed in the group aged 10-14 years, although confidence intervals did not overlap only between the

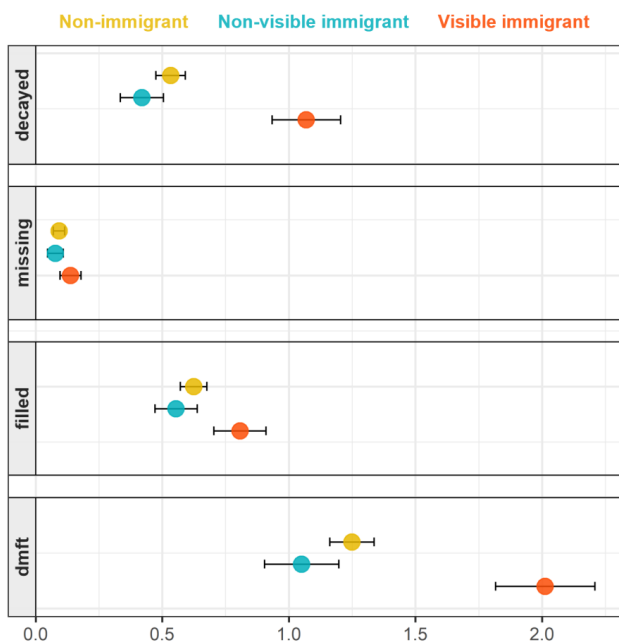
non-visible immigrant and visible immigrant groups.

The mean dmft for non-immigrant children was 1.25 (95% CI: 1.16-1.34). The decayed component accounted for 0.53 (95% CI: 0.47-0.59), whereas the missing component accounted for 0.09 (95% CI: 0.07-0.11), and the filled component was 0.62 (95% CI: 0.57-0.68). The mean dmft for non-visible immigrant children was 1.05 (95% CI: 0.90-1.20), which comprised 0.42 (95% CI: 0.33-0.50) in the decayed component, 0.08 (95% CI: 0.05-0.11) in the missing component, and 0.55 (95% CI: 0.47-0.64) in the filled component. The mean dmft for visible immigrant children was 2.01 (95% CI: 1.82-2.21), which comprised 1.07 (95% CI: 0.33-0.50) in the decayed component, 0.14 (95% CI: 0.10-0.18) in the missing component, and 0.81 (95% CI: 0.70-0.91) in the filled component (Figure 1).

Table 1. Sociodemographic characteristics of parents according to immigration status.

	Guardian 1			Guardian 2		
	Non-immigrant	Invisible immigrant	Visible immigrant	Non-immigrant	Invisible immigrant	Visible immigrant
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Total (unweighted)	N=18,064	N=2,208	N=3,716	N=14,438	N=2,006	N=3,488
Sex						
Female	88.4 (87.6-89.1)	88.3 (86.1- 90.1)	70.7 (68.3-72.9)	11.8 (11.0-12.7)	7.8 (6.3-9.7)	35.2 (32.8-37.7)
Male	11.6 (10.9-12.4)	11.7 (9.9-13.9)	29.3 (27.1-31.7)	88.2 (87.3-89.0)	92.2 (90.3-93.7)	64.8 (62.3-67.2)
Education						
Secondary school or less	39.9 (38.0-41.8)	28.9 (25.6-32.3)	33.9 (30.1-38.0)	33.7 (31.9-35.6)	26.1 (22.9-29.6)	34.6 (30.9-38.4)
Trade to diploma	34.3 (33.0-35.6)	36.5 (33.3-40.0)	27.8 (25.4-30.4)	43.5 (42.0-45.1)	41.6 (37.6-45.8)	27.2 (24.9-29.7)
University degree	25.8 (24.1-27.7)	34.6 (30.8-38.6)	38.3 (34.8-41.9)	22.7 (20.8-24.8)	32.3 (28.3-36.5)	38.2 (34.7-41.8)
Employment						
Full-time	30.5 (29.3-31.7)	32.6 (29.7-35.8)	38.5 (35.8-41.4)	83.3 (82.1-84.5)	87.5 (85.4-89.4)	61.3 (57.8-64.6)
Part-time	40.9 (39.5-42.2)	36.6 (33.5-39.7)	25.0 (22.9-27.3)	8.9 (8.2-9.7)	6.2 (5.0-7.7)	13.9 (12.4-15.7)
Not working	28.7 (27.1-30.2)	30.8 (27.5-34.3)	36.4 (33.1-39.9)	7.8 (6.9-8.8)	6.3 (4.8-8.0)	24.8 (21.6-28.3)

Children aged 4-9 years



Children aged 10-14 years

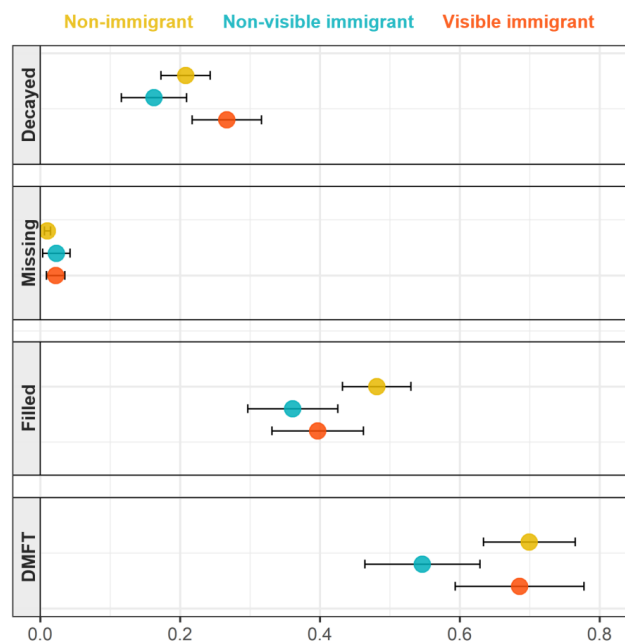


Figure 1. Dental caries experience according to age group and immigrant status.

Discussion

In the 10-14-year-olds, mean DMFT for non-immigrant children was 0.70 (95% CI: 0.63-0.76), which comprised 0.21 (95% CI: 0.17-0.24) decayed, 0.01 (95% CI: 0.00-0.01) missing and 0.48 (95% CI: 0.43-0.53) filled. The mean DMFT for non-visible immigrant children was 0.55 (95% CI: 0.46-0.63). The decayed component accounted for 0.16 (95% CI: 0.12-0.21), missing accounted for 0.02 (95% CI: 0.00-0.04), and filled was 0.40 (95% CI: 0.33-0.46). The mean DMFT for visible immigrant children was 0.69 (95% CI: 0.59-0.78), which comprised 0.27 (95% CI: 0.22-0.32) decayed, 0.02 (95% CI: 0.01-0.04) missing component, and 0.40 (95% CI: 0.33-0.46) filled.

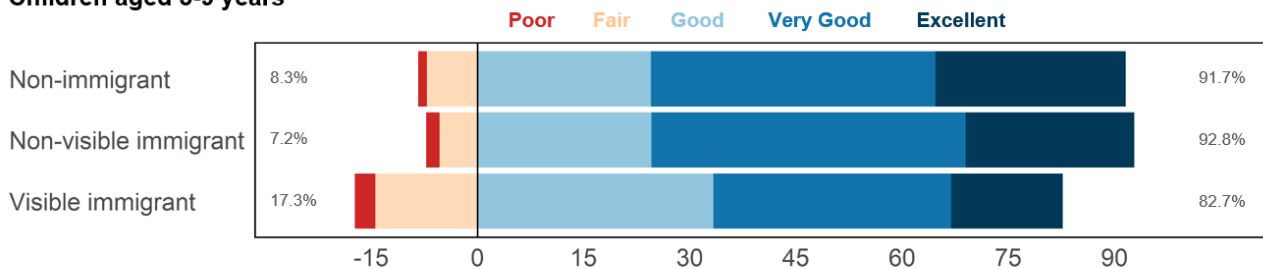
A consistent pattern of poorer ratings of oral health was observed for visible immigrant children in both age groups (Figure 2). More parents from visible immigrant backgrounds rated the oral health of their children as fair or poor than from non-immigrant and non-visible immigrant backgrounds in both age groups. The confidence intervals did not overlap in the 5-9-year-olds (Table 2).

In both age groups, more children from non-visible immigrant backgrounds first visited a dentist or dental therapist at one year of age or younger than non-immigrant and visible immigrant children. More children from visible immigrant backgrounds aged 5-9 years had their first dental visit at age 5 years or older or had never visited a dentist or dental therapist than their counterparts. At 10-14 years, the proportion of visible immigrant children who never visited a dentist or dental therapist declined substantially. Seeking treatment in the last dental visit due to a problem was more frequent among children from visible immigrant backgrounds aged 5-9 years compared to non-immigrant and non-visible immigrant children in the same age group. Visible immigrant children had higher utilisation of dental treatment in a public hospital and lower private insurance coverage than their counterparts across all ages (Table 2).

Our findings reveal heterogeneous patterns of dental service utilisation, self-rated oral health and experience of dental caries among non-immigrant and immigrant children from different ethnic/cultural backgrounds living in Australia. In general, children from Anglo-Celtic backgrounds presented similar or better oral health than children from non-immigrant families. Children from visible immigrant families had consistently higher disease burden, worse self-ratings of oral health, and poorer utilisation of dental services. Inequalities in oral health were more prominent in the 5-9-year-olds. Our findings indicate that a binary categorisation of migration status based on country of birth alone is likely to mask inequalities in child oral health between groups from different ethnic backgrounds. To the best of our knowledge, this is the first study to examine oral health inequalities among Australian children based on different categories of immigrant status.

Immigrant parents from both visible and non-visible backgrounds had higher educational attainment than non-immigrant parents, reflecting the migrant policies adopted by Australia, especially since the late 1990s, to attract highly skilled immigrants (Boese and Moran, 2021). Australia was the first country after Canada to introduce highly selective migrant policies based on a score-test to screen migrants according to their qualifications, language skills, and professional experience (Walsh, 2011). Evidence demonstrates that parents' highest level of education is associated with lower experience of dental caries and lower dental related hospitalisation among children, better oral health knowledge, and better child oral hygiene practices (Gibbs *et al.*, 2016; Ruhe *et al.*, 2022; Saldūnaitė *et al.*, 2022; Feldens *et al.*, 2010).

Children aged 5-9 years



Children aged 10-14 years

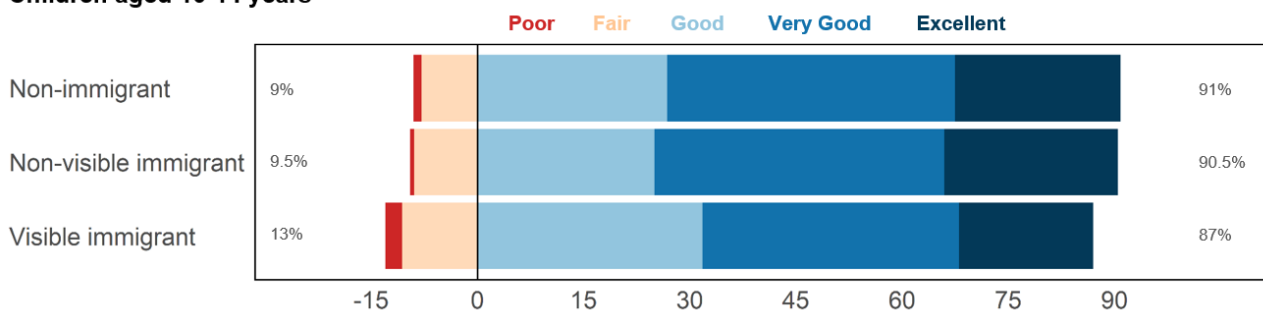


Figure 2. Proportion of parent's ratings of their children's oral health according to age group and immigrant status.

Table 2. Utilisation of dental services, self-rated oral health, and prevalence of untreated dental caries according to child immigration status.

Variable	Children aged 5-9 years			Children aged 10-14		
	Non-Immigrant	Invisible immigrant	Visible immigrant	Non-Immigrant	Invisible immigrant	Visible immigrant
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Total (unweighted)	N=7,005	N=1,411	N= 2,194	N=5,667	N=1,339	N=1,735
Sex						
Female	48.2 (46.1 -50.4)	48.2 (43.3-53.2)	50.7 (46.5-54.9)	50.9 (48.3-53.5)	46.6 (41.5-51.8)	51.4 (45.6-57.1)
Male	51.8 (49.6 -53.9)	51.8 (46.8-56.7)	49.3 (45.1-53.5)	49.1 (46.5-51.7)	53.4 (48.2-58.5)	48.6 (42.9-54.4)
Location						
Metropolitan	61.8 (57.9-65.6)	80.0 (75.7-83.8)	89.7 (87.2-91.7)	59.7 (55.9-63.4)	79.5 (75.9-82.7)	91.2 (89.1-93.0)
Inner regional	24.6 (21.0-28.6)	13.6 (10.5-17.4)	6.2 (4.7-8.3)	25.5 (22.2-29.0)	14.4 (11.7-17.6)	5.8 (4.4-7.7)
Outer regional	12.1 (9.6-15.0)	5.8 (4.2-8.0)	3.5 (2.5-4.8)	13.1 (10.7-15.9)	5.4 (4.0-7.2)	2.4 (1.7-3.3)
Remote/Very remote	1.5 (0.6-3.6)	0.5 (0.2-1.4)	0.6 (0.2-1.6)	1.8 (1.0-3.0)	0.7 (0.4-1.4)	0.6 (0.3-1.2)
Self-rated oral health						
Excellent	29.6 (25.2-28.8)	23.8 (20.4-27.6)	15.7 (13.3-18.5)	23.4 (21.3-25.6)	24.5 (20.9-28.4)	18.9 (15.8-22.4)
Very good	40.2 (38.2-42.2)	44.4 (40.3-48.6)	33.6 (30.3-37.1)	40.7 (38.7-42.8)	41.0 (36.9-45.1)	36.3 (32.7-40.0)
Good	24.5 (22.7-26.4)	24.6 (20.8-28.9)	33.4 (30.4-36.4)	26.8 (25.0-28.7)	25.0 (21.3-29.2)	31.8 (28.1-35.7)
Fair	7.1 (6.2-8.1)	5.4 (3.8-7.4)	14.4 (11.9-17.3)	7.9 (6.9-9.2)	8.9 (6.7-11.8)	10.6 (8.2-13.7)
Poor	1.2 (0.9-1.7)	1.8 (1.1-3.1)	2.9 (1.8-4.4)	1.1 (0.7-1.7)	0.6 (0.3-1.3)	2.4 (1.6-3.8)
Age first visit						
1 year or younger	7.2 (6.3-8.3)	12.5 (10.1-15.4)	5.3 (4.2-6.6)	8.0 (7.0-9.1)	12.1 (9.8-14.9)	6.0 (4.4-8.0)
2-4 years	53.5 (51.5-55.4)	56.0 (52.2-59.8)	42.4 (38.6-46.3)	55.3 (53.1-57.4)	55.0 (50.7-59.2)	42.8 (39.3-46.4)
5 years or older	23.4 (21.7-25.1)	20.7 (17.9-23.8)	28.3 (25.3-31.4)	34.5 (32.6-36.6)	31.7 (28.1-35.6)	43.9 (40.3-47.6)
Never visited a dentist/therapist	15.9 (14.4-17.6)	10.8 (8.7-13.2)	24.0 (20.3-28.1)	2.3 (1.8-2.9)	1.2 (0.6-2.4)	7.3 (5.6-9.4)
Time of last visit						
1 year or less	78.2 (76.2-80.2)	78.6 (75.1-81.8)	74.3 (70.6-77.7)	78.2 (76.3-79.9)	79.2 (75.8-82.2)	75.0 (71.2-78.4)
More than a year	21.8 (19.8-23.8)	21.4 (18.2-24.9)	25.7 (22.7-29.4)	21.8 (20.1-23.7)	20.8 (17.8-24.2)	25.0 (21.6-28.8)
Reason for last visit						
Check-up	82.4 (80.9-83.9)	82.3 (78.8-85.3)	71.6 (67.2-75.6)	83.2 (81.4-84.9)	86.4 (83.0-89.2)	80.6 (77.6-83.4)
Problem	17.6 (16.1-19.1)	17.7 (14.7-21.2)	28.4 (24.4-32.8)	16.8 (15.1-18.6)	13.6 (10.8-17.0)	19.4 (16.6-22.4)
Type of clinic						
Public	21.9 (19.6-24.3)	27.7 (22.9-33.1)	18.6 (15.3-22.3)	22.3 (20.2-24.6)	25.5 (21.8-29.5)	18.2 (15.3-21.5)
Private	63.2 (60.1-66.3)	59.9 (54.2-65.5)	60.6 (54.6-65.3)	66.2 (63.6-68.7)	65.1 (60.5-69.4)	64.7 (60.6-68.7)
Public Hospital	14.9 (12.9-17.1)	12.3 (9.4-16.0)	21.4 (16.7-26.9)	11.4 (10.0-13.0)	9.4 (7.0-12.5)	17.1 (13.7-21.1)
Private insurance						
Yes	67.9 (65.1-70.6)	68.5 (64.0-72.7)	58.3 (52.3-64.2)	64.5 (61.8-67.2)	65.6 (61.5-69.5)	56.7 (50.7-62.6)
No	32.1 (29.4-34.9)	31.5 (27.3-36.0)	41.7 (35.8-47.7)	35.5 (32.8-38.2)	34.4 (30.5-38.5)	43.3 (37.4-49.3)
Self-rated oral health						
Excellent	29.6 (25.2-28.8)	23.8 (20.4-27.6)	15.7 (13.3-18.5)	23.4 (21.3-25.6)	24.5 (20.9-28.4)	18.9 (15.8-22.4)
Very good	40.2 (38.2-42.2)	44.4 (40.3-48.6)	33.6 (30.3-37.1)	40.7 (38.7-42.8)	41.0 (36.9-45.1)	36.3 (32.7-40.0)
Good	24.5 (22.7-26.4)	24.6 (20.8-28.9)	33.4 (30.4-36.4)	26.8 (25.0-28.7)	25.0 (21.3-29.2)	31.8 (28.1-35.7)
Fair	7.1 (6.2-8.1)	5.4 (3.8-7.4)	14.4 (11.9-17.3)	7.9 (6.9-9.2)	8.9 (6.7-11.8)	10.6 (8.2-13.7)
Poor	1.2 (0.9-1.7)	1.8 (1.1-3.1)	2.9 (1.8-4.4)	1.1 (0.7-1.7)	0.6 (0.3-1.3)	2.4 (1.6-3.8)
Non-treated dental caries						
Yes	24.9 (23.4-26.6)	21.0 (17.7-24.7)	38.8 (35.5-42.3)	20.9 (19.1-22.8)	16.3 (13.7- 19.2)	23.3 (20.3-26.7)
No	75.1 (73.4-76.6)	79.0 (75.3-82.3)	61.2 (57.7-64.5)	79.1 (77.2-80.9)	83.7 (80.8-86.3)	76.7 (73.3-79.7)

These higher levels of education did not translate into better child oral health among children from visible immigrant backgrounds. Although education is generally a strong marker of socioeconomic position, proportionately more parents from visible immigrant backgrounds were not employed than non-immigrant and non-visible immigrant parents. Parents not engaged in the labour market are likely to experience more difficulties to afford dental treatments, pay for medication, or access healthy foods.

The oral health of children belonging to racialised immigrant identities is likely to be affected by a complex interplay of factors including lower ability to afford private dental services, lower social capital, language barriers, difficulties navigating complex health systems and racism. Chen *et al.* (2017) observed that better physical and mental health were associated higher social integration in a large cohort of humanitarian migrants settled into Australia. Exclusionary practices in health care, from structural processes impacting affordability to staff macroaggressions, can prevent ethnic minorities from accessing health services, further increasing the levels of health needs in these groups (Bastos *et al.*, 2018; Mohamed *et al.*, 2022). In Australia, children from visible immigrant families experience substantially higher levels of racial discrimination than peers from Anglo/European backgrounds (Sharif *et al.*, 2022). These factors constitute tangible barriers to accessing dental services and shape the experience of children from visible immigrant backgrounds navigating health care.

Our findings show that children from non-visible immigrant families present a lower burden of dental caries and better patterns of dental visits compared to non-immigrant children. Jatrana *et al.* (2018) observed that immigrants from English speaking countries consistently present better self-rated, physical and mental health than Australian-born individuals, whereas immigrants from non-English speaking countries show a health disadvantage in relation to the Australian-born population. The phenomenon in which immigrants to a new country present an advantage in health outcomes over the population born in the territory is generally known as the “immigrant health paradox” and has been reported for differentials in mortality, self-rated health, mental health, coronary heart disease incidence, and chronic conditions (Turra and Goldmand, 2007; Rivera *et al.*, 2016; Jin *et al.*, 2015; Gubernskaya, 2015; Hamilton *et al.*, 2019). Sano and Abada (2019) did not find an advantage in oral health among immigrants over the Canadian-born population, rejecting an immigrant health paradox in oral health. Sanders (2010) reported an advantage for first-generation Latino immigrants in oral health-related quality of life compared to non-Latino whites. Scholars have called for a re-examination of the immigrant health paradox arguing that it may oversimplify complex health patterns, especially among disadvantaged groups with vulnerable legal statuses, poor language proficiency, and who are under acculturative distress (Bacong and Menjivar, 2021; John *et al.*, 2012). Measures of socioeconomic status and health may be confounded by the context of migration. We hypothesise that parents’ pre-migration social positions, including educational status and ability to pay for treatment, might partially explain the advantage in oral health outcomes among children from non-visible immigrant backgrounds.

Evidence indicates that factors related to acculturation such as language proficiency have a positive effect on immigrants’ oral health, oral health behaviours, dental service utilisation, and dental knowledge (Dahlan *et al.*, 2019). Parental English proficiency among immigrants has been associated with a range of sociodemographic characteristics including child health insurance coverage, citizenship status, and family income (Flores *et al.*, 2005). Australia’s National Oral Health Plan 2015-2024 has set the implementation of an appropriate funding model that incorporates interpreting services into healthcare settings as a key strategy for reducing the impact of poor oral health among culturally and linguistic diverse groups (AIHW, 2020). A study with refugees settled in Western Australia found that participants often use family members, including children, as interpreters for dental visits (Nicol *et al.*, 2014). Failing to use professional interpreters for dental patients with low English proficiency may represent important risks for misdiagnosis, miscommunication, inability to give consent or follow instructions, and missed appointments.

Discrepancies in oral health were substantially smaller among children from different immigrant status in the 10-14-year-olds. The proportion of children from visible immigrant backgrounds who never visited a dentist or dental therapist and sought treatment due to a problem was lower at older ages. These findings suggest that older children from immigrant families potentially benefit from greater social support networks, better language skills, and reduced barriers to accessing dental services. Longer length of stay in the new country has been associated with lower rates of dental service access, lower need for dental treatment, and reduced prevalence of periodontitis among adults (Cruz *et al.*, 2009; Lu *et al.*, 2018; Lebrun, 2012). Importantly, differences may be due to unmeasured population characteristics such as immigrant generation, language spoken at home, and pre-migration social position. Monitoring the oral health trajectories of children from diverse cultural and ethnic backgrounds is necessary to understand how inequalities emerge during different life stages and the effects of long-term migration outcomes on oral health. Substantial levels of inequity in oral health care have been reported for adult immigrants who mainly speak a language other than English in Australia (Mejia *et al.*, 2022).

This study has a number of limitations. Several relevant factors for the oral health of children from immigrant backgrounds in Australia were not included in NCOHS. Information on migration history, social mobility, length of stay, legal status, cultural background, social support networks, and experience of discrimination were not available for this study. Due to the cross-sectional design, estimates for different age groups do not necessarily reflect children’s trajectories in oral health. Countries of birth were broadly categorised based on whether English is the main language spoken by the population. The categorisation of immigration status does not fully capture the diversity of ethnic identities within and across countries. Future studies should explore the effect of mixed-status families (i.e., parents with different immigrant status) on child’s oral health.

In conclusion, these data provide evidence that children from immigrant families in Australia constitute a

highly heterogeneous group with substantial discrepancies in oral health. Racialised migrant identities in Australia are likely to be affected by greater barriers to dental services and worse oral health during early childhood. Parents' information on first language and cultural background can assist population oral health surveillance in providing a more precise picture of children's oral health needs than country of birth alone. Promoting a culturally safe health system, strengthening oral health surveillance, and prioritizing the health needs of schoolchildren from racialised migrant backgrounds are essential steps towards supporting equitable child development for all.

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