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# Oral health disparities in early childhood and intergenerational gaps among noncitizen migrants, Arabs, and Jews in South Tel Aviv, Israel

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## Abstract

**Introduction** Disparities in oral health are related to dental care knowledge, domestic oral hygiene practices and socioeconomic status. This cross-sectional study aimed to compare the oral hygiene and dental care practices of migrant, Arab, and Jewish children residing in Tel Aviv, Israel, and assess the influence of parental dental practices.

**Methods** Data were collected from parents of children aged 3 to 6 years. Parents completed their own and their children's oral health status, oral hygiene practices, dietary habits and dental care knowledge.

**Results** Of the 504 children, 153 (30.4%) were migrants, 117 (23.2%) were Arabs, and 234 (46.4%) were Jews. Twice-daily tooth brushing was reported by 57.5% of migrant children, 47% of Arab children, and 63.7% of Jewish children ($p=0.001$). Compared with Arab and Jewish children, migrant children had higher rates of tooth filling and urgent dental interventions under general anesthesia (22.9%, 11.1%, and 9%, respectively; $p<0.001$). The parent–child association for twice-daily tooth brushing was strong overall (69.8%), particularly among migrants (70.9%) and Jews (72.3%), but weaker among Arabs (63.0%), $p<0.01$.

**Conclusion** Migrant children exhibited better tooth brushing habits than Arab children did but required more urgent dental interventions, highlighting gaps in preventive care. The strong parent–child link in oral hygiene, particularly among migrants and Jews, suggests that culturally sensitive, family-focused interventions could help reduce these disparities and improve dental health outcomes for underserved populations.

**Keywords** Dental care, Toothbrushing, Transients and migrants, Parent–child relations, Social class

## Introduction

International migration has increased in recent decades, and it is estimated that 3.6% of the world population in 2022 resided beyond the borders of their national origin [1]. International migration is driven mainly by financial forces and better employment prospects. Family reunification, education, wars, persecution, and natural calamities also influence migration trends. Current migration routes are mainly from developing countries to developed countries, often following cultural or linguistic ties [2].

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Israel is a country of 9.7 million people, and the population composition includes 7.1 million (73.6%) Jews and 2.1 million (21.1%) Arabs [3]. In addition, some 200,000 noncitizen migrants stay in Israel and are classified by their legal status. Approximately half are holding a valid work visa, while the others—mostly living in South Tel Aviv—are considered irregular or noncitizen migrants, who are individuals residing in the hosting country without legal authorization, often due to expired visas or unauthorized entry [4, 5]. Approximately 39,000 children aged 0–6 years received healthcare services from 15 mothers and child health clinics (MCHCs) in Tel Aviv. Of those, 92.2% were Arabs and Jews, whereas the remaining 7.8% were noncitizen migrants [5, 6].

The Israeli National Health Insurance Law provides comprehensive and universally accessible healthcare services for all citizens [7]. Basic pediatric dental care is included for children up to 18 years of age. Migrant children who are not citizens can be insured if their parents pay a monthly premium, and the coverage is similar to that provided to citizen children [8]. Despite this, financial constraints, language barriers, and limited health literacy often restrict access to preventive dental care, leaving this population underserved [6].

Early childhood caries is a common pediatric health condition [9], and its presence depends on the balance between pathogenic factors and an individual's innate defense mechanisms. Dental hygiene practices and nutritional habits significantly influence the formation or protection of early childhood caries. From a clinical perspective, caries can manifest as oral discomfort and masticatory dysfunction, which may lead to nutritional deficiencies, inadequate weight gain, sleep disturbances, behavioral alterations, and disruptions in interpersonal relationships [10].

A national school-age survey of a child sample in 2007 in Israel revealed that an average of 3.3 baby teeth were affected by caries and that approximately 65% of children had caries to varying degrees, similar to the rates reported in other OECD countries. Subgroup analysis revealed that the incidence of dental caries among Arabs was twice as high as that among the Jewish population (4.3 and 2.2 affected teeth, respectively) [11]. Disparities were also found across socioeconomic strata and origins in relation to tooth brushing habits: half of the Jewish children from medium and high socioeconomic statuses brushed twice a day compared with Arabs (33%) and Jews (17%) from lower socioeconomic statuses [12].

This study aims to compare oral hygiene practices and dental care among migrants, Arabs, Jewish children and their parents and identify intergenerational differences. The findings of this study can be used to establish tailored interventions to improve dental health in affected populations.

## Methods

This cross-sectional study included approximately 1,700 children aged 3–6 years who attended 50 kindergartens in South Tel Aviv between November 2022 and August 2023 and their parents. Children with any developmental delay or those who studied in special educational institutions were excluded. The response rate among eligible participants was 29.6%.

Parents were requested to complete the study questionnaire, which consisted of 47 items divided into four sections: demographic details; current dental status and practices of the parents; children's dental health; and knowledge and attitudes. The questionnaires were available electronically or in a printed version in Hebrew, English, Arabic, or Tigrinya. Kindergartens that achieved a high response rate were rewarded.

Continuous variables between independent variables of migrants, Arabs, and Jews were compared via one-way ANOVA if the data were normally distributed or the Kruskal–Wallis test for all other distributions. Categorical variables were compared via the chi-square test or Fisher's exact test, as appropriate. Comparisons between parents' and children's dental habits were performed via the McNemar's test for related dependent variables. A P-value lower than 0.05 was considered statistically significant. Variables that were statistically significant in the bivariate analysis were included in the multivariable logistic regression model to identify attributes that were associated with twice-daily children's tooth brushing and were represented by odds ratios (ORs) and 95% confidence intervals (CIs).

The dataset supporting the conclusions of this article is included within the article, and the English version of the questionnaire can be found in Additional file 1.

## Results

The study included 504 parents and their children, divided by 153 (30.4%) migrants, 117 (23.2%) Arabs, and 234 (46.4%) Jews, with an average child age of 4.9 years (Table 1). The majority of the children were born in Israel and were medically insured, including 94.8% of the migrant children. Compared with Jewish parents, migrants and Arab parents were more likely to be unemployed, have a lower education level and be less likely to smoke.

### Parents' dental habits by population group

Compared with Arab and Jewish parents, migrant parents reported worse teeth (43.8%, 52.1%, and 67.1%, respectively; $p < 0.001$). Damaged parental teeth were

**Table 1** Demographic and oral health characteristics of migrant, Arab, and Jewish children and parents

| Variable | | Migrants *N* = 153 (30.4%) | Arabs *N* = 117 (23.2%) | Jews *N* = 234 (46.4%) | *p* |
|---|---|---|---|---|---|
| Children | Gender (male) | 78 (51) | 56 (47.9) | 115 (49.1) | 0.8 |
| | Age[a] | 4.9 ± 0.8 | 4.8 ± 0.8 | 4.9 ± 0.9 | 0.4 |
| | Number of children in the family[a] | 2.7 ± 1.2 | 2.6 ± 1.3 | 2.4 ± 0.9 | 0.01 |
| | Israeli-born | 143 (93.5) | 113 (96.6) | 231 (98.7) | 0.02 |
| | Medically insured | 145 (94.8) | 115 (98.3) | 233 (99.6) | < 0.001 |
| | Muslim religion | 23 (15) | 99 (84.6) | 0 (0) | < 0.001 |
| Parent | Gender (male) | 56 (36.6) | 21 (17.9) | 16 (6.8) | < 0.001 |
| | Age | 36.6 ± 5.7 | 34.1 ± 5.9 | 37.2 ± 6.1 | < 0.001 |
| | Single | 30 (19.6) | 15 (12.8) | 39 (16.7) | 0.3 |
| | Israeli-born | 0 (0) | 101 (86.3) | 186 (79.5) | < 0.001 |
| | Unemployed | 42 (27.5) | 30 (25.6) | 19 (8.1) | < 0.001 |
| | Higher education | 50 (32.7) | 38 (32.5) | 168 (71.8) | < 0.001 |
| | Medically insured | 131 (85.6) | 115 (98.3) | 233 (99.6) | < 0.001 |
| | Smoker (current or past) | 20 (13.1) | 29 (24.8) | 112 (47.9) | < 0.001 |
| | Current "good" teeth condition | 67 (43.8) | 61 (52.1) | 157 (67.1) | < 0.001 |
| | Teeth ache in the last year | 60 (39.2) | 61 (52.1) | 85 (36.3) | 0.1 |
| | Satisfied with teeth condition | 108 (70.6) | 87 (74.4) | 161 (68.8) | 0.4 |
| | Embarrassed while smiling | 25 (16.3) | 21 (17.9) | 22 (9.4) | 0.03 |
| | Experiencing difficulties while chewing solid food | 40 (26.1) | 25 (21.4) | 14 (6) | < 0.001 |
| | Brushing teeth twice daily | 86 (56.2) | 73 (62.4) | 159 (67.9) | 0.2 |
| | Using dental floss several times a week | 62 (40.5) | 76 (65) | 167 (71.4) | < 0.001 |
| | Dentist visits during the last year | 70 (45.8) | 71 (60.7) | 160 (68.4) | < 0.001 |
| Child oral hygiene | Started brushing teeth before the age of 2 years | 75 (49) | 37 (31.6) | 157 (67.1) | < 0.001 |
| | Any oral hygienic education | 64 (41.8) | 45 (38.5) | 111 (47.4) | 0.07 |
| | Site of oral hygienic education: kindergarten | 16 (10.5) | 4 (3.4) | 5 (2.1) | < 0.001 |
| | Site of oral hygienic education: MCHC | 61 (39.9) | 21 (17.9) | 26 (11.1) | < 0.001 |
| | Site of oral hygienic education: dentist | 26 (17) | 29 (24.8) | 60 (25.6) | < 0.001 |
| | Site of oral hygienic education: internet | 8 (5.2) | 4 (3.4) | 20 (8.5) | < 0.001 |
| | Brushed teeth twice daily | 88 (57.5) | 55 (47) | 149 (63.7) | 0.001 |
| | Parents assist the child with toothbrushing | 141 (92.2) | 100 (85.5) | 198 (84.6) | 0.005 |
| | Use of special brush | 143 (93.5) | 114 (97.4) | 226 (96.6) | 0.06 |
| | Use of special paste | 114 (74.5) | 107 (91.5) | 229 (97.9) | 0.02 |
| | Dentist visit in the last year | 65 (42.5) | 49 (41.9) | 137 (58.5) | 0.002 |
| | Last year's dentist visit was done at HMO | 61 (39.9) | 45 (38.5) | 119 (50.9) | 0.002 |
| | Required urgent dental care last year | 39 (25.5) | 22 (18.8) | 30 (12.8) | 0.006 |
| | Teeth filling ever | 45 (29.4) | 19 (16.2) | 51 (20.8) | 0.03 |
| | Required general anesthesia for dental care | 35 (22.9) | 13 (11.1) | 21 (9) | < 0.001 |
| | Soft drinks consumption more than once weekly | 68 (44.4) | 81 (69.2) | 118 (50.4) | < 0.001 |
| | Sweets consumption more than once weekly | 80 (52.3) | 101 (86.3) | 215 (91.9) | < 0.001 |
| | Salty snacks consumption more than once weekly | 67 (43.8) | 88 (75.2) | 182 (77.8) | < 0.001 |
| Parental dental knowledge | "Sweet products are bad for your teeth" | 143 (93.5) | 112 (95.7) | 219 (93.6) | 0.7 |
| | "Tooth brushing twice per day is crucial for preventing tooth decay and preserving healthy gums" | 145 (94.8) | 112 (95.7) | 228 (97.4) | 0.2 |
| | "Milk teeth do not require good care as they are going to fall anyway" | 33 (21.6) | 26 (22.2) | 8 (3.4) | < 0.001 |
| | "Annual dental visits are important for early detection of dental disease" | 121 (79.1) | 109 (93.2) | 220 (94) | < 0.001 |
| | "Good oral and dental health is related to the good general health" | 135 (88.2) | 107 (91.5) | 205 (87.6) | 0.3 |
| | Are you aware that your child deserves dental treatments free of charge through your HMO? | 106 (69.3) | 86 (73.5) | 171 (73.1) | 0.7 |

**Table 1** (continued)

*Abbreviations*: *HMO* Health Maintenance Organization, *MCHC* Mother and Child Health Clinic

[a] Presented as the mean ± SD

also associated with difficulty chewing solid food (26.1%, 21.4%, and 6%, respectively, $p < 0.001$). Migrant parents reported a lower frequency of dental floss use than parents from other ethnic groups did. Arab parents had a lower rate of dental clinic visits in the past year compared to other parents (Table 1).

#### Children's dental care by population group

Arab children demonstrated the lowest rate of tooth brushing initiation before the age of two, followed by migrants and Jews (31.6%, 49%, and 67.1%, respectively; $p < 0.001$). Arab children older than 2 years of age were also the least likely to brush their teeth twice daily, followed by migrant and Jewish children (47%, 57.5%, and 63.7%, respectively; $p < 0.001$). Arab children also had the lowest frequency of dental visits in the preceding year.

Compared with their Arab and Jewish counterparts, migrant children had a higher rate of tooth filling and required more urgent dental interventions, including treatments under general anesthesia (22.9% and 11.1% vs. 9% for migrants, Arabs, and Jews, respectively; $p < 0.001$). The consumption of soft drinks and snacks was significantly lower among migrant children (Table 1).

#### Frequency of tooth brushing

Children who brushed their teeth twice daily were compared with children who brushed their teeth at lower frequencies (Table 2). Arab children were less likely to brush their teeth twice daily, whereas Jewish children were more likely to brush their teeth twice daily. Compared with parents whose children brushed less frequently, parents who brushed their teeth twice daily maintained better oral hygiene themselves. Children who brushed their teeth less twice daily also started to brush their teeth at a later age and were less likely to receive oral hygiene training, utilize specialized toothbrushes, or undergo annual dental check-ups than children who brushed their teeth twice daily. In contrast, children who brushed their teeth less frequently than twice daily required advanced dental treatments under general anesthesia, and their parents' knowledge of oral health was relatively limited.

According to the multivariate analysis (Table 3), being Arab was associated with a lower likelihood of children brushing their teeth twice daily (OR = 0.6, 95% CI: 0.3–0.9, $p = 0.02$). In contrast, better parental dental hygiene and visiting a dentist in the past year were associated with twice-daily tooth brushing among the children.

#### Intergenerational gap

Arab children brushed their teeth less frequently than their parents did (47% vs. 62.4%, respectively, $p = 0.004$). However, no statistically significant differences were found between migrant parents and their children or between Jewish parents and their children (Table 4). The parent–child association regarding the frequency of twice-daily tooth brushing was generally high (69.8% in the entire study population). The association was stronger among migrants and Jews than among Arabs (70.9%, 72.3%, and 63.0%, respectively, $p < 0.01$).

## Discussion

This study examined oral health behaviors and disparities among migrant, Arab, and Jewish children in South Tel Aviv, with a particular focus on parent–child associations. Arab children in this study were less likely to brush their teeth twice daily compared with Jewish or migrant children, whereas migrant children reported more teeth filing and were more likely to use general anesthesia for dental treatment than Jewish or Arab children. The associations between the frequency of parents and children's tooth brushing habits were stronger among migrants and Jews than among Arabs.

#### Disparities in oral hygiene and dietary habits among adults

Twice-daily tooth brushing is widely recommended by dental associations to prevent dental decay [13, 14]. However, only 63.1% of all adults reported brushing their teeth twice daily, with a lower prevalence observed among the migrant population than among Jews and Arabs. These findings are consistent with previous Israeli research, which demonstrated that Jews reported higher rates of brushing teeth daily than Arabs did [15]. Migrant parents reported a lower frequency of dental visits and flossing their teeth, a lower level of dental health knowledge, and a worse rating of their teeth status than parents in other groups did. These observations echo findings from another study focusing on Ethiopian migrants to Israel [16], which demonstrated that older Ethiopian migrants experienced poor oral health and lower dental care utilization. In general, migrants from low-income countries moving to high-income countries face an increased risk of poor oral health [17], as they may not be aware of the risks related to a high-carbohydrate diet and may not be exposed to interventions in Hebrew regarding oral hygiene recommendations. Effective strategies

**Table 2** Characteristics of children who brush their teeth twice daily vs. less frequently

| Variable | | Child brushes teeth twice daily *N* = 292 (57.9%) | Child brushes teeth at lower frequencies *N* = 212 (42.1%) | *p* |
|---|---|---|---|---|
| Children | Gender (male) | 140 (47.9) | 109 (51.4) | 0.5 |
| | Age[a] | 4.9 ± 0.9 | 4.8 ± 0.8 | 0.5 |
| | Number of children in the family[a] | 2.4 ± 1.1 | 2.6 ± 1.5 | 0.06 |
| | Origin: Jews | 149 (51) | 85 (40.1) | 0.01 |
| | Migrant | 88 (30.1) | 65 (30.7) | |
| | Arab | 55 (18.8) | 62 (29.2) | |
| | Israeli-born | 285 (97.6) | 202 (95.3) | 0.2 |
| | Medically insured | 285 (97.6) | 208 (98.1) | 1.0 |
| Parent | Gender (male) | 57 (19.5) | 36 (17) | 0.5 |
| | Age | 36.7 ± 5.6 | 35.9 ± 5.9 | 0.07 |
| | Single | 45 (15.4) | 39 (18.4) | 0.4 |
| | Israeli-born | 172 (58.9) | 118 (55.7) | 0.5 |
| | Unemployed | 241 (82.5) | 167 (78.8) | 0.1 |
| | Higher education | 157 (53.8) | 99 (46.7) | 0.1 |
| | Medically insured | 279 (95.5) | 199 (93.9) | 0.3 |
| | Smoker (current or past) | 96 (32.9) | 65 (30.7) | 0.6 |
| | Current "good" teeth condition | 175 (59.9) | 110 (51.9) | 0.05 |
| | Teeth ache in the last year | 148 (50.7) | 125 (59) | 0.07 |
| | Satisfied with teeth situation | 209 (71.6) | 147 (69.3) | 0.5 |
| | Embarrassed while smiling | 27 (9.2) | 41 (19.3) | 0.001 |
| | Experience difficulties while chewing hard food | 40 (13.7) | 39 (18.4) | 0.2 |
| | Brush teeth twice daily | 222 (76) | 96 (45.3) | < 0.001 |
| | Using dental floss several times a week | 81 (27.7) | 46 (21.7) | 0.1 |
| | Dentist visits during the last year | 194 (66.4) | 107 (50.5) | < 0.001 |
| Child oral hygiene | Started brushing teeth before the age of 2 years | 184 (63) | 85 (40.1) | < 0.001 |
| | Any oral hygienic education | 143 (49) | 77 (36.3) | 0.004 |
| | Site of oral hygienic education: kindergarten | 15 (5.1) | 10 (4.7) | 0.6 |
| | Site of oral hygienic education: MCHC | 66 (22.6) | 42 (19.8) | 0.4 |
| | Site of oral hygienic education: dentist | 74 (25.3) | 41 (19.3) | 0.1 |
| | Site of oral hygienic education: internet | 21 (7.2) | 11 (5.2) | 0.7 |
| | Parents assist the child with toothbrushing | 258 (88.4) | 181 (85.4) | 0.6 |
| | Use of special brush | 280 (95.9) | 203 (95.8) | 0.6 |
| | Use of special paste | 286 (97.9) | 194 (91.5) | 0.001 |
| | Dentist visits in the last year | 161 (55.1) | 90 (42.5) | 0.008 |
| | Last year's dentist visit was done at HMO | 144 (49.3) | 91 (42.9) | 0.3 |
| | Teeth filling ever | 60 (20.5) | 55 (25.9) | 0.2 |
| | Required general anesthesia for dental care | 29 (9.9) | 40 (18.9) | 0.004 |
| | Soft drinks consumption more than once weekly | 34 (11.6) | 44 (20.8) | 0.003 |
| | Sweets consumption more than once weekly | 33 (11.3) | 32 (15.1) | 0.2 |
| | Salty snacks consumption more than once weekly | 59 (20.2) | 58 (27.4) | 0.03 |
| Parental dental knowledge | "Sweet products are bad for your teeth" | 280 (95.9) | 194 (91.5) | 0.03 |
| | "Tooth brushing twice per day is crucial for preventing tooth decay and preserving healthy gums" | 287 (98.3) | 198 (93.4) | 0.001 |
| | "Milk teeth do not require good care as they are going to fall anyway" | 37 (12.7) | 30 (14.2) | 0.01 |
| | "Annual dental visits are important for early detection of dental disease" | 287 (98.3) | 183 (86.3) | 0.01 |
| | "Good oral and dental health is related to the good general health" | 261 (89.4) | 186 (87.7) | 0.9 |
| | Are you aware that your child deserves dental treatments free of charge through your HMO? | 215 (73.6) | 148 (69.8) | 0.3 |

**Table 2** (continued)

*Abbreviations HMO* Health Maintenance Organization, *MCHC* Mother and Child Health Clinic

[a] Presented as the mean ± SD

**Table 3** Multivariate analysis of parental factors predicting two-hundred-hundred toothbrushing in children

| Variable | OR (95% CI) | *p* |
|---|---|---|
| Origin: | | |
| Jews | REF | |
| Migrants | 1.1 (0.7–1.7) | 0.8 |
| Arabs | 0.6 (0.3–0.9) | 0.02 |
| Parent embarrassed to smile | 1.9 (1.1–3.5) | 0.03 |
| Parent brush their teeth twice daily | 4.0 (2.6–5.9) | < 0.01 |
| Parent visited the dentist during the last year | 2.0 (1.3–3.0) | < 0.01 |
| Parent brushed their teeth twice daily as a child | 4.7 (2.9–7.7) | < 0.01 |

are needed to enhance dental care accessibility among migrants, including health promotion programs in multiple languages [18, 19] expanding the cultural competency training of dental care professionals [20] and improving accessibility through the establishment of clinics or mobile dental units at affordable costs in underserved areas [21, 22].

### Disparities in oral hygiene and dietary habits among children

The overall frequency of twice-daily tooth brushing among children was 57.9%, which is comparable to that reported in Norwegian [23] and US-based [24] studies (52.9% and 55%, respectively). Arab children brushed their teeth less often, began oral hygiene practices at an older age, and had fewer dental check-ups. Additionally, their relatively higher consumption of sweetened beverages among Arabs, as reported in other studies [25] is indicative of broader dietary habits, further exacerbating the risk for dental caries compared with their peers from other backgrounds [26]. The lower frequency of tooth brushing could be attributed to a combination of socioeconomic status, cultural perceptions and lack of awareness of the importance of oral health [27].

Migrant children presented a unique pattern. Despite their higher reported frequency of toothbrushing, they were more likely to receive urgent dental interventions compared to Jewish or Arab children. It may be that the older age of migrant children when they started brushing their teeth compared to that of Jews, exposed them to dental caries in early stages of life. In addition, it is possible that due to the limited health literacy of migrant parents and other cultural, financial, or systemic barriers to healthcare, they delayed the referral of their children to preventive or dental treatment.

### Generational dynamics in dental health

A positive association in tooth brushing habits was found between parents and children among migrants and Jews, but it was weaker in Arabs. The disparity between Arab and Jews may be attributed to sociocultural factors, such as differences in parental education levels and cultural attitudes toward oral hygiene. Previous research in Arab communities in Israel highlighted the impact of maternal education on children's oral health practices, suggesting that lower educational levels among Arab parents may contribute to weaker associations between parent and

**Table 4** Parent–child tooth brushing habits

| Parents → | Migrant parents | | | Arab parents | | | Jewish parents | | |
|---|---|---|---|---|---|---|---|---|---|
| Children ↓ | Twice daily N (%) | Other frequency N (%) | % parents who presently brush their teeth twice daily | Twice daily N (%) | Other frequency N (%) | % parents who presently brush their teeth twice daily | Twice daily N (%) | Other frequency N (%) | % parents who presently brush their teeth twice daily |
| Twice daily | 61 (70.9) | 27 (40.3) | 56.2 | 46 (63.0) | 9 (20.5) | 62.4 | 115 (72.3) | 34 (45.3) | 67.9 |
| Other frequency | 25 (29.1) | 40 (59.7) | | 27 (37.0) | 35 (79.5) | | 44 (27.7) | 41 (54.7) | |
| % children who brushes teeth twice daily | 57.5 | | | 47 | | | 63.7 | | |
| p* | 0.3 | | | 0.004 | | | 0.3 | | |

[*] McNemar's test

child brushing habits [28]. Relatively limited health literacy among Arab parents further compounds this issue, as it may hinder their ability to instill consistent oral hygiene practices in children, reducing the intergenerational link in oral health behaviors. Migrant children in particular may act as "health mediators" for their parents, bringing home knowledge gained through oral hygiene training programs in kindergartens and influencing parental behaviors. This phenomenon, referred to as reverse intergenerational influence, has been observed in other immigrant populations and underscores the potential for child-focused interventions to impact family health practices [29]. These findings suggest that engaging both parents and children in health promotion programs can amplify their effectiveness in underserved populations.

Studies on early childhood education and sociocultural integration [29, 30] suggests that generational shifts in health behaviors are likely influenced by socioeconomic and cultural integration, with migrant families often adopting new habits through their children's education.

The low number of dental visits among migrant adults, despite the high level of insurance coverage, is concerning and may be attributed to limited health literacy and a lack of awareness of available services [30]. Notably, health promotion interventions in kindergartens not only change children's health habits but also positively influence their parents' behaviors, including dietary choices and physical activity [31, 32]. This underscores the importance of sustaining dental health education programs in South Tel Aviv kindergartens, as these programs can indirectly increase health literacy among migrant parents and encourage preventive dental care. The intergenerational link between dental and dietary practices aligns with findings from previous studies [33, 34].

### Limitations of the study

This study is subject to several limitations. First, its cross-sectional design limits the ability to establish causality. Future longitudinal studies are needed to clarify the causal pathways between parental and child oral health behaviors and to explore how sociocultural and educational interventions can modify these behaviors over time. Second, the questionnaires were subject to recall bias and social desirability bias, as responses relied on parental self-reporting of past and current behaviors. However, the anonymity of our survey and the limited time frame of the questions may limit the possible impact of these biases. Third, selection bias may have occurred due to the convenience sampling method. Finally, the migrant population in this study is heterogeneous, predominantly comprising irregular migrants from Eritrea living in South Tel Aviv.

## Conclusions

This study revealed significant disparities in oral health practices and outcomes among migrant, Arab, and Jewish children in South Tel Aviv. Compared with their Arab peers, migrant children, despite better tooth brushing habits, were more likely to require urgent dental interventions, indicating that preventive care is insufficient in addressing their needs. The strong parent–child association in dental habits, especially among migrants and Jews, suggests that family-centered, culturally sensitive interventions could play a key role in improving oral hygiene. Addressing these disparities through targeted interventions could improve oral health not only for migrant populations in Israel but also for similar underserved groups in other developed countries.

## Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12939-025-02383-9.

Supplementary Material 1.

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**Authors' contributions**
JB—Conceptualization (lead); methodology (equal); writing – original draft (lead); writing – review and editing (equal). AV—Methodology (equal), writing – review and editing (supporting). BH—Methodology (supporting); writing – original draft (supporting), writing – review and editing (supporting). RS—Methodology (supporting); writing – review and editing (supporting). ZM—Conceptualization (supporting); methodology (equal); formal analysis (lead); writing – review and editing (equal); supervision (lead).

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**Data availability**
No datasets were generated or analysed during the current study.

## Declarations

**Ethics approval and consent to participate**
This study received ethical approval from the Ethics Committee of Ashkelon Academic College in accordance with the principles of the Helsinki Declaration. Approval for the distribution of questionnaires among parents was also granted by the Chief Scientist of the Ministry of Education.

**Competing interests**
The authors declare no competing interests.

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