

# Referral from well-child care clinics to dental clinics leads to earlier initiation of preventive dental visits: A quasi-experimental study

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## Abstract

**Background:** An early first preventive dental visit for children is recommended no later than twelve months. However, still many children have their first dental visit relatively late.

**Aim:** To evaluate whether active or passive referral by a well-child care (WCC) physician of babies for a first preventive dental visit leads to earlier initiation of dental care.

**Design:** From WCC clinics in two Dutch regions, 629 parents of babies participated. Parents received an active referral from a WCC physician for a dental visit for their babies ( $n = 204$ ) or received care as usual (CAU) ( $n = 136$ ) in one region and a passive referral ( $n = 143$ ) or CAU ( $n = 146$ ) in the other region. Active referral involved parents receiving a scheduled appointment at the dental practice, and passive referral involved parents making an appointment themselves. During the WCC visit, parents completed a baseline questionnaire. At age 2.5 years, parents received a follow-up questionnaire about dental attendance.

**Results:** Of the active referral intervention group, 59.3% had their first preventive dental visit in their first year compared with 3.7% in the CAU group ( $p < .001$ ); for the passive referral group, 46.9% compared with 9.6% ( $p < .001$ ).

**Conclusion:** Referral of babies by WCC for their first preventive dental visit leads to earlier initiation of dental care. An active referral had a larger effect than passive referral.

## KEYWORDS

first dental visit, oral health promotion, referral, well-child care

## 1 | INTRODUCTION

The Global Burden of Diseases study reported that dental caries of the primary teeth was the 12th most

prevalent disease in all ages combined.<sup>1</sup> Carious lesions form through a complex interaction over time between acid-producing microorganisms and fermentable carbohydrates and are affected by exposure to fluoride,

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consumption of dietary sugars, and preventive behaviors.<sup>2,3</sup> Before the age of 10, most children's manual and intellectual skills are not developed sufficiently to reach an effective level of oral hygiene, and parents play a significant role in imparting knowledge, attitude, and practice of their oral health care.<sup>4</sup> Parents of children with an adequate level of oral health behaviors more often have a high socioeconomic status and adequate oral health behavior themselves.<sup>5</sup>

Interventions that promote reaching an adequate level of oral health in children can improve oral health considerably if occurring from the eruption of a child's first tooth. A study in North Carolina showed that the age at the first preventive dental visit had a significant positive effect on dentally related expenditures, with the average dentally related costs being less for children who received earlier preventive care.<sup>6</sup> The American Academy of Paediatric Dentistry (AAPD) and the British Society of Paediatric Dentistry both recommend establishing a "dental home" for the child no later than 12 months of age.<sup>7,8</sup>

In the Netherlands, the advice on the age of the first dental visit changed in 2013 from 2 years of age to 6 months.<sup>9</sup> Despite these recommendations, in 2019 only 44% of Dutch 2- and 3-year-olds had visited a dentist/oral health practitioner at least once.<sup>10</sup>

A population approach to oral health promotion is reported to be the most promising for children, potentially leading to decreased caries experience in several "at-risk" subpopulations.<sup>11</sup> A way to reach very young children may be via well-child care (WCC) clinics, offering preventive paediatric care from birth until the age of 18 or 21 years in many countries, including the United States and the Netherlands.

At the WCC clinics, the growth and development of children is monitored, and they receive scheduled immunizations. WCC staff promote healthy behaviors and provide care; parents may also discuss parenting concerns or their child's health with the staff. Oral health education is not an obligatory part of their work. In the United States, it was reported that the 2-, 4-, and 6-month planned visits to a WCC were attended by 63%–90% of parents of young children.<sup>12</sup> In the Netherlands, 92% of all parents of newborns (age 0–4 years) visited the WCC clinic regularly in 2019.<sup>13</sup> Considering the reach of the WCC, an intervention that utilizes WCC access with an individualized preventive referral to a dental clinic may be promising to promote early initiation of dental visits for parents of newborns. We therefore conducted a study (Healthy Teeth All Aboard [HTAA]) in which 4- to 11-month-old children were referred from the WCC to a dental clinic. At the dental clinic, oral healthcare professionals treated the children according to the Non Operative Caries Treatment Program.<sup>14,15</sup> The aim of HTAA was to improve oral health among young children and to

### Why this paper is important to paediatric dentists

- Often young children have their first dental visit later than the recommended age. For a good start of preventive dental care for children, it is important to reach newborns and their parents.
- Referral of children by WCC clinics for a first preventive dental visit in their first year is effective in achieving earlier uptake of preventive dental care for young children. Paediatric dental practitioners might consider collaboration with WCC clinics to reach more children in a timely manner, especially children from high-carries-risk populations.

reduce oral health inequalities currently present at 5 years of age. This paper is the first paper related to this HTAA project and aims to evaluate whether referral (both active or passive) of parents of babies for a first preventive dental visit by WCC staff leads to earlier initiation of dental care than care as usual (CAU).

## 2 | MATERIALS AND METHODS

### 2.1 | Ethics approval

The Medical Ethics Committee of the University Medical Center Groningen provided a waiver for full assessment and further required the study to be performed in accordance with the Helsinki Declaration (Ref. METc2014.175). The study was part of the HTAA study and was registered in 2015 (Trial NL4174). It follows the CONSORT guidelines.<sup>16</sup>

The HTAA study was conducted as a quasi-experimental trial with a premeasurement at baseline before the intervention and a postmeasurement at 2 years after the intervention (first follow-up) and at 5 years after intervention (second follow-up). In this paper, we used data from the baseline measurement and the first follow-up.

### 2.2 | Study setting and participants

Inclusion criteria were children: (1) living in the municipality of the WCC clinic they were visiting; (2) aged between 1 and 12 months at baseline; and (3) who had not been to the dentist or oral health practitioner yet. In this paper, we used data from parents who completed the first follow-up questionnaire ( $n = 629$ ) (Figure 1).

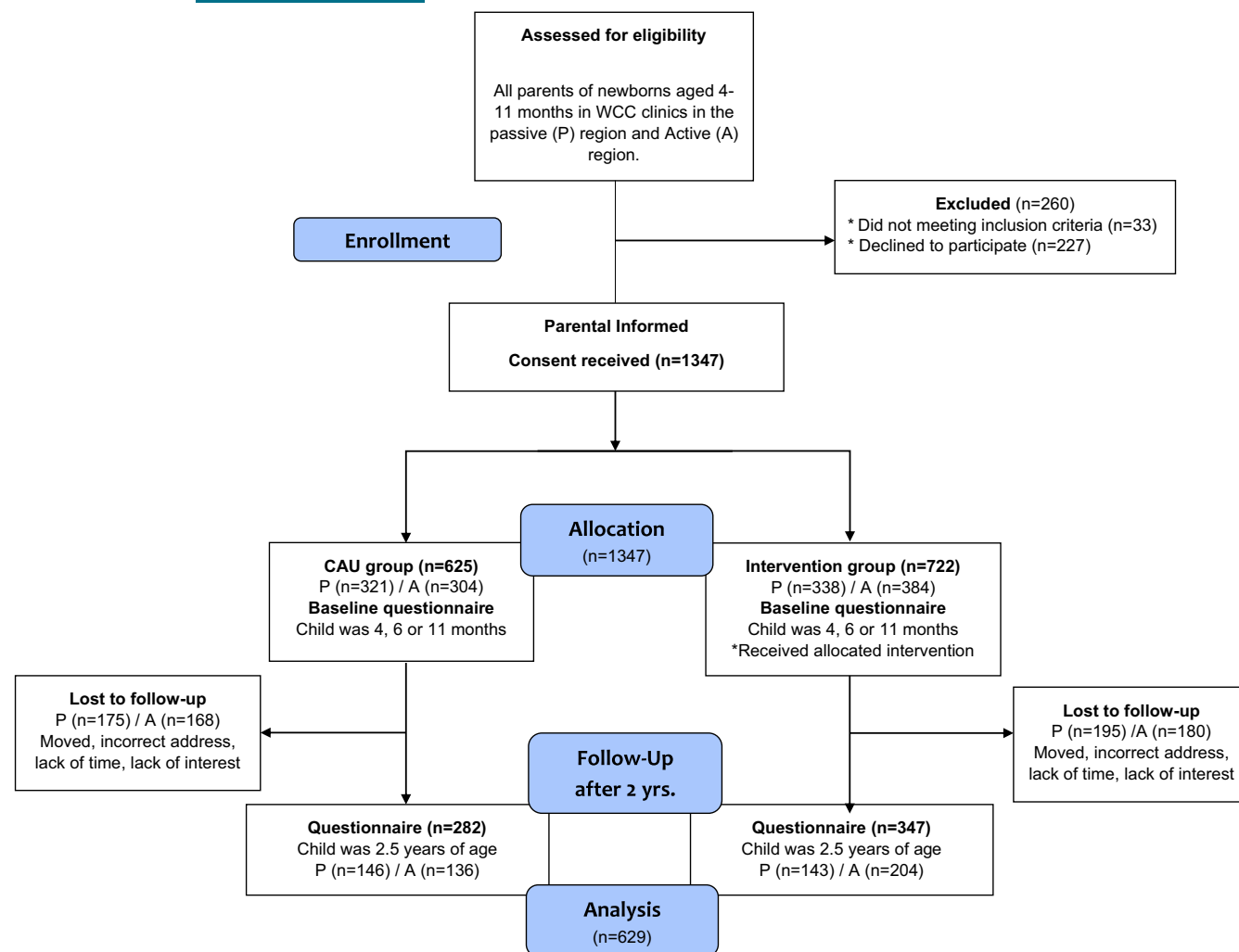


FIGURE 1 Study flowchart.

## 2.3 | Intervention

The intervention consisted of a preventive referral for children aged 4–11 months from the WCC clinic to a dental practice. The WCC physicians and nurses were trained during a 2-h workshop given by an author (Deborah Ashley Verlinden) regarding preventive oral health information for parents and how to communicate and clarify the advice for the first dental visit to parents.

At the WCC clinic, active and passive referrals were given for this first dental visit for children by one of the physicians during the appointment at 4, 6, or 11 months of age. WCC physicians referred parents to local dental practices participating in this trial. In one region (The Hague), an active referral was given because this referral method was preferred by both the WCC clinic and the dental practice. Active referral parents were asked for permission to share their contact details at the WCC clinic so that dental practices could call parents to make the first appointment. In the other region (Northern Netherlands), a passive referral method was preferred by the participating organizations. In that case,

parents were asked to make an appointment themselves for the first preventive dental visit of their child by contacting the dental practice whose details were provided.

Parents were informed by the WCC physician about child dental development, the importance of caries prevention, and dental insurance coverage in the Netherlands. Information included the importance of caring for teeth from the eruption of the first tooth at around 6 months, and the benefits of visiting a dental practitioner regularly from early in life. In addition, the physicians emphasized that dental care up to 18 years of age is fully covered in the basic health insurance package in the Netherlands.

## 2.4 | Care as usual

Parents in the CAU group (with no referral to the dental practitioner) received CAU in the WCC clinic. Usual child oral health education, however, was offered if this was part of their routine.

## 2.5 | Procedure

Parents in both the intervention group and the CAU group were asked to complete a baseline questionnaire at the WCC clinic when their child was 4–9 months of age. Questions regarded background variables such as child's gender and age, ethnicity (Dutch, Non-Dutch born), educational level of the mother (ISCED level 0–4 = low, ISCED 5–8 = high),<sup>17</sup> and the number of children in the household.

After 2 years, parents received a mailed follow-up questionnaire; if they had not responded within 3 weeks, an email reminder was sent with a link to an online version of the questionnaire. If necessary, a reminder by telephone followed when the digital questionnaire was not completed within 4 weeks.<sup>18</sup>

## 2.6 | Primary outcomes

The primary outcome was whether the child had the first dental visit within the first year of life, or not (reported by parents at the first follow-up).

## 2.7 | Sample size

The sample size was determined based on the primary outcome of the clinical part of the main HTAA project, which was caries experience (number of decayed, missing and filled primary teeth; dmft) at the age of 5 years. A power calculation was performed for  $\alpha = 0.05$ ,  $\beta = 0.80$ , and a clinically relevant differences between intervention and CAU of 0.25 dmft (39%) and 12% fewer children with  $\text{dmft} = 0$  than in the CAU group. This showed a required sample size of 250 children in both the intervention and CAU groups with complete datasets. This number was sufficient to detect a difference of 8.4% between the groups in visiting a dental professional in the first year with a power of 80% at  $\alpha = 0.05$ , a contact rate of 0% at baseline, and a follow-up contact rate of 8.7% in CAU.<sup>19</sup>

## 2.8 | Allocation

Participants were allocated to the WCC clinic in the “active” (A) region and in the “passive” (P) region. Region A had approximately 500 000 citizens of whom fewer than 50% had Dutch ethnicity and Region P had approximately 120 000 citizens of whom more than 80% had Dutch ethnicity. The assignment of WCC clinics for control or intervention conditions was made randomly, and the management or the practitioners of WCC clinics could not choose which condition they preferred. In Region A, four WCC clinics participated:

Two were assigned to the intervention group and two to the control group. For Region P, three intervention clinics were included, in addition to three control clinics.

## 2.9 | Statistical analyses

First, we determined the participants' flowchart. Second, we assessed background characteristics of the intervention and CAU groups at baseline for the parents who filled out the follow-up questionnaire. Third, we compared the rates of children having their first dental visit in their first 12 months between the intervention and the CAU group, for Regions P and A based on parental report in the follow-up questionnaire. Fourth, multilevel logistic regression model analyses for the outcome dental visit in the first year were used, accounted for clustering by WCC clinic and adjusted for educational level of the mother<sup>22–24</sup> for Region P and Region A separately and for the total group. The IBM SPSS Statistics (version 22; IBM Corp., NY, USA) program was used for all analyses.

## 3 | RESULTS

### 3.1 | Flow of participants

There was a total of 1347 participants (Figure 1) of whom 722 were allocated to the intervention group and 625 to the CAU group. The response rate for the 2-year follow-up was 46.7% ( $n = 629$ ) (intervention group  $n = 347$ ; CAU group  $n = 282$ ).

### 3.2 | Background characteristics

Table 1 shows the characteristics of parents that were not in follow-up vs. parents in follow-up in the intervention (I) and CAU groups. Percentages of children of low-educated mothers and non-Dutch mothers are higher in the children that were not in follow-up than children in the follow-up. This difference is relatively larger in the CAU group than in the intervention group. In 2021, the mean percentage for low education was 52%, and 22% of 35- to 45-year-olds had a non-Dutch ethnicity.<sup>20,21</sup> Percentages for low educational level and non-Dutch mothers in the follow-up group are quite similar to the national percentages for adults in the Netherlands. For parental oral health behavior, no significant differences were found between the intervention and CAU groups.

The background characteristics of parents who completed the follow-up questionnaire are shown in Table 2.

The two groups differed in educational level and ethnicity of the mother in Region A and gender of the child in Region P.

### 3.3 | Initial dental visit in the child's first year of life

The proportions of children having their first dental visit in their first year in Regions A and P are shown in Table 3. Children who received an active referral had an

odds ratio (OR) of 34.2 for having a first dental visit in their first year versus children in the CAU group (95% confidence interval [CI]: 14.5–80.5). Children who received a passive referral had an OR of 6.0 for having a first dental visit in their first year versus children in the CAU group (95% CI: 1.6–22.8).

In the intervention group, 54.2% compared with 6.7% in the CAU group had their first dental visit in their first year of life, representing an OR of 16.5 for the intervention group compared with the CAU group (95% CI: 7.2–38.1).

**TABLE 1** Characteristics of participants not in follow-up versus in follow-up in intervention (I) and care as usual (CAU) groups.

| Baseline characteristics of mother         | Not in follow-up |               |     | In follow-up |               |       |
|--------------------------------------------|------------------|---------------|-----|--------------|---------------|-------|
|                                            | I (n = 375)      | CAU (n = 343) | p   | I (n = 347)  | CAU (n = 282) | p     |
| Non-Dutch (%)                              | 37               | 37            | .97 | 23           | 7             | <.001 |
| Low educated (%)                           | 71               | 65            | .09 | 62           | 46            | <.001 |
| Toothbrushing <2×/day (%)                  | 16               | 17            | .68 | 19           | 15            | .20   |
| Last dental visit more than 1 year ago (%) | 19               | 18            | .74 | 14           | 12            | .32   |

**TABLE 2** Background characteristics of the participating children in the intervention group and care as usual (CAU) in Regions A and P.

|                                     | Region A                  |               |       | Region P                   |               |      |
|-------------------------------------|---------------------------|---------------|-------|----------------------------|---------------|------|
|                                     | Active referral (n = 204) | CAU (n = 136) | p     | Passive referral (n = 143) | CAU (n = 146) | p    |
|                                     | (%)                       | (%)           |       | (%)                        | (%)           |      |
| Male gender of child                | 51.5                      | 47.1          | .36   | 59.4                       | 43.8          | <.01 |
| Mother Dutch born                   | 62.7                      | 87.5          | <.001 | 97.2                       | 97.9          | .56  |
| Low educational level of the mother | 58.8                      | 28.7          | <.001 | 62.9                       | 60.3          | .68  |
| Age child in months (SD)            | 28.8 (4.7)                | 29.2 (5.4)    | .52   | 27.4 (3.4)                 | 27.3 (3.3)    | .83  |
| One child in family                 | 43.6                      | 34.6          | .09   | 43.3                       | 37.7          | .17  |

**TABLE 3** Rates of having a first dental visit in the first 12 months and odds ratios and adjusted odds ratios of rates for the intervention group versus the care as usual (CAU) group.

| Active referral             | Intervention (I) (n = 204) | CAU (n = 136) | Odds ratio (OR) (95% confidence interval [CI]) | Adjusted OR (95% CI) <sup>a</sup> |
|-----------------------------|----------------------------|---------------|------------------------------------------------|-----------------------------------|
| Age dental visit ≤12 months | 59.3% (121)                | 3.7% (5)      | 27.3 (12.0–61.9)***                            | 34.2 (14.5–80.5)***               |
| Age dental visit >12 months | 40.7% (83)                 | 96.3% (131)   |                                                |                                   |
| Passive referral            | I (n = 143)                | CAU (n = 146) | OR (95% CI)                                    | Adjusted OR (95% CI) <sup>a</sup> |
| Age dental visit ≤12 months | 46.9% (67)                 | 9.6% (14)     | 5.9 (1.6–22.3)***                              | 6.0 (1.6–22.8)***                 |
| Age dental visit >12 months | 53.1% (76)                 | 90.4% (132)   |                                                |                                   |
| Total group                 | I (n = 347)                | CAU (n = 282) | OR (95% CI)                                    | Adjusted OR (95% CI)              |
| Age dental visit ≤12 months | 54.2% (188)                | 6.7% (19)     | 15.7 (7.0–35.3)***                             | 16.5 (7.2–38.1)***                |
| Age dental visit >12 months | 45.8% (159)                | 93.3 (263)    |                                                |                                   |

<sup>a</sup>Adjusted for educational level of the mother, and for clustering on the level of well-child care clinics, the intracluster correlation coefficient (ICC) for the model for the total group = 0.09.

\* $p < .05$ , \*\*\* $p < .001$ .



## 4 | DISCUSSION

To the best of our knowledge, this is the first study to assess whether referral by a WCC clinic physician of parents of babies for a first preventive dental visit leads to earlier initiation of preventive dental care for their child. Such a referral led to a statistically and clinically significant earlier initiation of preventive dental care, with an active referral having a larger effect than a passive referral.

Comparison with previous data is not possible, as no similar data are available. Other studies mainly reported descriptive percentages of WCC clinic physicians or primary care physicians who referred children with poor oral health to a dentist or they described preventive programs that were provided by paediatricians, family physicians, or providers in community health clinics.<sup>25</sup> Results from the program “Into the Mouths of Babies” demonstrated that nondental professionals could integrate preventive dental services into their practices. Even though the program had increased access to preventive dental services for young Medicaid children whose access to dentists was restricted, the promotion of an adequate level of oral health behavior for parents of newborns preferably should be performed by oral health professionals in dental clinics as it allows familiarization of the dental environment for the child.<sup>6,26</sup> Evidently, the present findings suggest that referral to the dental practitioner via a WCC can improve early initiation of dental care.

We found an overall effect of referring children for their first preventive dental visit of 54%, with the effects being largest for active referral. This large effect could be explained by the trust of parents in the WCC physicians' and nurses' advice, also reflected by the high attendance rates at these clinics.<sup>13</sup> Furthermore, it reflects parental understanding of the importance of early preventive dental care. The explanation of the importance of oral health by the WCC physician or nurse is central to parental understanding regarding why they should make an initial appointment for their child. The even larger effect of active referral further suggests that stronger facilitation in care setting provides larger effects. This may, in particular, be effective in case of very deprived or low-health literate families.<sup>27</sup>

Despite 54% of the total intervention group having their initial dental visit in the first year of life, 46% still did not have a dental visit, identifying an opportunity to further improve effectiveness via recalls and the method of referral. One option to improve effectiveness is to ask parents at the following appointment whether they have been to the dental practice with their child. In the current study, there was a one-time referral, indicating that the lesser the action required from the parent, the higher the effectiveness of the referral.

## 4.1 | Strengths and limitations

The main strengths of this study were that it was undertaken in WCC clinics with access to 92% of all parents and children in the Netherlands, increasing the generalizability.<sup>13</sup> The second strength was that we reached risk groups, less well-educated and migrant families, which can be a challenge for many intervention studies with a long-term follow-up.

Our study also had some limitations. First, a relatively high drop-out rate, which may have led to the inclusion of more motivated parents. This is, however, unlikely to affect the difference between intervention and CAU, since the drop-out rates regarding mothers with a low educational level or a non-Dutch ethnicity were larger for the CAU group than for the intervention group. One paper about nonparticipation in a clinical oral health trial in children reported that the presumption that nonparticipating children show less favorable clinical outcomes was not supported.<sup>28</sup> Furthermore, when one of the parents could not read Dutch or English, they were excluded because questionnaires were only available in those two languages. Inferences are thus formally limited to parents speaking these two languages. Another limitation was that the educational level of the mother was lower in the intervention group than in the CAU group of Region A, putatively underestimating the real effect, and therefore, logistic regression analyses were corrected for educational level. Finally, the age at the first dental visit was based on parental report, which could sometimes cover a recall of the first appointment of 1.5 years ago and thus could be less accurate. These recall effects, however, affected both the intervention and control groups, adding random error to effect estimates and thus probably leading to some underestimation of the real effects.

## 4.2 | Implications

Referral from the WCC clinic to the dental practice was an effective method to encourage child preventive dental care from an early age. Further research is needed to promote early visit also even further among low-educated mothers. This may, for instance, be reached by additional actions to make dental care better accessible for underprivileged groups or parents, for example, by small rewards or extension of coverage of dental care for underprivileged parents. The next very important question is whether the early referral actually has a positive effect on the child's oral health and what strategies in dental clinics are most effective in promoting oral health in young children. We are currently collecting data to determine the effect of early referral on clinical oral health outcomes. If a

positive effect is found, the implementation can be rolled out nationally. This implementation could also be guided by experiences of similar interventions that have been implemented in other countries, such as “Dental Check by One”<sup>8</sup> of the British Society of Paediatric Dentistry and “Childsmile” in Scotland,<sup>29</sup> for which our findings also provide support.

Referral by a WCC clinic physician or nurse of parents of babies for a first preventive dental visit leads to earlier initiation of preventive dental care. An active referral method, when parents are contacted by the dental clinic, is more effective than passive referral. Collaboration between WCC and dental care in guiding parents of young children with oral health behavior could promote improved oral health in children.

### AUTHOR CONTRIBUTIONS

Drs. Verlinden conceptualized and designed the study, collected data, drafted the initial manuscript, conducted the analyses, and revised the manuscript. Dr. Schuller and Dr. Vermaire conceptualized and designed the study, collected data, and reviewed and revised the manuscript. Dr. Reijneveld made contributions to the design, coordinated data analyses, and critically reviewed the manuscript for important intellectual content. All authors approved the final manuscript as submitted and agreed to be accountable for all aspects of the work.

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### CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest relevant to this article to disclose.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

### ETHICS STATEMENT

The Medical Ethics Committee of the University Medical Center Groningen provided a waiver for full assessment and further required the study to be performed in accordance with the Helsinki Declaration (Ref. METc2014.175). Informed consent was obtained from all individual participants included in the study.

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### REFERENCES

1. GBD 2015 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the global burden of disease study 2015. *Lancet*. 2015;2016(388):1545–1602.
2. Tinanoff N, Baez RJ, Diaz Guillory C, et al. Early childhood caries epidemiology, aetiology, risk assessment, societal burden, management, education, and policy: global perspective. *Int J Paediatr Dent*. 2019;29(3):238–248.
3. Leong PM, Gussy MG, Barrow S-YL, de Silva-Sanigorski A, Waters E. A systematic review of risk factors during first year of life for early childhood caries. *Int J Paediatr Dent*. 2013;23(4):235–250.
4. Gallahue DL, Ozmun JC, Goodway J. *Understanding Motor Development: Infants, Children, Adolescents, Adults*. McGraw-Hill; 2012.
5. Poutanen R, Lahti S, Hausen H. Oral health-related knowledge, attitudes, and beliefs among 11 to 12-year-old Finnish school-children with different oral health behaviors. *Acta Odontol Scand*. 2005;63(1):10–16.
6. Savage MF, Lee JY, Kotch JB, Vann WF Jr. Early preventive dental visits: effects on subsequent utilization and costs. *Paediatrics*. 2004;114(4):e418–e423.
7. American Academy of Paediatric Dentistry. *Policy on Early Childhood Caries (ECC): Classifications, Consequences, and Preventive Strategies. The Reference Manual of Paediatric Dentistry*. American Academy of Paediatric Dentistry; 2020:79–81 Accessed July 20, 2022. <https://www.aapd.org/research/oral-health-policies--recommendations/early-childhood-carie-s-classifications-consequences-and-preventive-strategies/>
8. British Society of Paediatric Dentistry. The impact of Dental Check by One. Accessed August 24, 2022. <https://dentalchec.kbyone.co.uk/the-impact-of-dental-check-by-one/>
9. Royal Dutch Dental Association (In Dutch) Guideline Dental care for children. Nieuwegein. 2013 Accessed January 20, 2022. <https://nvvk.org/wp-content/uploads/2015/02/RichtlijnMondzorgJeugd.pdf>
10. Royal Dutch Dental Association. The State of Dental Care. 2020 Demand for Dental care (In Dutch). Accessed July 20, 2022. <https://www.staatvandemondzorg.nl/vraag-naar-mondzorg/tandartsbezoek/>
11. Batchelor P, Sheiham A. The limitations of a ‘high-risk’ approach for the prevention of dental caries. *Community Dent Oral Epidemiol*. 2002;30:302–312.
12. Wolf ER, Hochheimer CJ, Sabo RT, et al. Gaps in well-child care attendance among primary care clinics serving low-income families. *Paediatrics*. 2018;142(5):e20174019.

13. Central Bureau for Statistics. StatLine. Perceived health, use of care and lifestyle in children up to 12 years of age. 2019 Accessed July 20, 2022. <https://www.cbs.nl/nl-nl/cijfers/detail/83716NED?q=consultatiebureau>
14. Ekstrand KR, Christiansen MEC, Qvist V. Influence of different variables on the inter-municipality variation in caries experience in Danish adolescents. *Caries Res*. 2003;37:130-141.
15. Ekstrand KR, Christiansen MEC. Outcomes of a non-operative caries treatment programme for children and adolescents. *Caries Res*. 2005;39:455-467.
16. Boutron I, Moher D, Altman DG, Schulz KF, Ravaud P. Extending the CONSORT statement to randomized trials of nonpharmacologic treatment: explanation and elaboration. *Ann Intern Med*. 2008;148:295-309.
17. UNESCO. *International Standard Classification of Education ISCED 2011*. UNESCO Institute for Statistics; 2012.
18. Smyth DA, Christian JD, Melani L, eds. *Internet, Phone, Mail, and Mixed-Mode Surveys the Tailored Design Method* Dillman. 4th ed. Wiley; 2014.
19. Central Bureau for Statistics. StatLine. Contact with dentist. 2020 Accessed September 19, 2022. <https://www.cbs.nl/nl-nl/maatwerk/2021/16/contact-met-tandarts-2020>
20. Central Bureau for Statistics. StatLine. More and More Highly Educated People in the Netherlands: What Kind of Profession do They Have? CBS; 2023a.
21. Central Bureau for Statistics. StatLine. Population; Highest Level of Education Achieved and Origin Changed on: May 16. 2023. 2023b.
22. Lambert MJ, Vanobbergen JSN, Martens LC, de Visschere LMJ. Socioeconomic inequalities in caries experience, care level and dental attendance in primary school children in Belgium: a cross-sectional survey. *BMJ Open*. 2017;7:e015042.
23. Schwendicke F, Dörfer CE, Schlattmann P, Page LF, Thomson WM, Paris S. Socioeconomic inequality and caries: a systematic review and meta-analysis. *J Dent Res*. 2015;94:10-18.
24. Hakeberg M, Wide BU. Dental care attendance and refrainment from dental care among adults. *Acta Odontol Scand*. 2017;75(5):366-371.
25. Rozier RG, Sutton BK, Bawden JW, Haupt K, Slade GD, King RS. Prevention of early childhood caries in North Carolina medical practices: implications for research and practice. *J Dent Educ*. 2003;67(8):876-885.
26. Lobbezoo F, Aarab G. Medicine and dentistry working side by side to improve Global Health equity. *J Dent Res*. 2022;101(10):1133-1134.
27. Geboers B, Reijneveld SA, Koot JAR, de Winter AF. Moving towards a comprehensive approach for health literacy interventions: the development of a health literacy intervention model. *Int J Environ Res Public Health*. 2018;15:1268.
28. Vermaire JH, van Loveren C, Poorterman JHG, Hoogstraten J. Non-participation in a randomized controlled trial: the effect on clinical and non-clinical variables. *Caries Res*. 2011;45(3):269-274.
29. Childsmile from birth. Accessed September 20, 2022. <http://www.child-smile.org.uk/parents-and-carers/childsmile-from-birth.aspx>

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