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ORIGINAL RESEARCH

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Evaluation of children's age and reasons for first dental visit in Spain. A multicentre study

Clara Sandibel Garcete Delvalle[1,*], Adrián Curto[2], Marta Bruna del Cojo[1], Eva María Martínez Pérez[1], Cristina Gómez Polo[2], Leyre Simón Prado[1]

[1]Department of Dentistry, School of Medicine, CEU San Pablo University, 28668 Madrid, Spain
[2]Department of Surgery, School of Medicine, University of Salamanca, 37007 Salamanca, Spain

***Correspondence**
clara.garcetedelvalle@ceu.es
(Clara Sandibel Garcete Delvalle)

Abstract

Background: To the best of our knowledge, no multicentre study has evaluated the age and reasons for the first dental visit (FDV) among children in Spain. In response, we conducted this multicentre study to assess and analyse the present findings, raise awareness of the topic, and motivate establish preventive programs to encourage earlier FDVs, before the onset of dental caries. The aims of this investigation consisted of determining the age and the main reasons for the first dental consultation. **Methods**: A multicentre study was designed, and children who attended their FDV at three different centres were recruited. Seven reasons for the FDV were considered. To identify the severity of caries, a simplified 4-stage classification system was employed. The chi-square test and Cramer's V coefficient were used for analysis, and the threshold for statistical significance was set at $p < 0.05$. **Results**: The study included 687 paediatric patients. The mean age at FDV was 4.83 years and the most common reasons for the dental visit were caries detected by parents (n = 203), followed by preventive measures (n = 184) and then by pain (n = 152). Overall, 63.9% of the children were affected by caries, of which 33.6% had lesions extended to the dentin. No statistically significant difference was found based on sex. However, there was a direct association between age, the need for treatment, and caries severity. **Conclusions**: Children attended their FDV late, with the main reason being caries detected by parents. The prevalence of caries was high, and in most cases, these caries lesions were severe, extending into the dentin. Increased age was associated with the presence of caries and the need for treatment. This suggests that children are not generally attending the dentist for preventive measures.

Keywords

Child; Dental caries; Oral health; First dental visit; Early childhood caries; Paediatric dentistry; Multicentre study

1. Introduction

Dental caries continues to affect approximately 48% of children worldwide [1]. In a recent study conducted in Spain, seven out of ten children under six years old who attended the Policlinic University CEU San Pablo in Madrid were affected by caries [2]. Early childhood caries (ECC) is defined as "the presence of one or more dental caries (non-cavitated or cavitated lesions), absences (due to caries), or filled surfaces, in any primary tooth of a child under six years of age" [3]. Dental caries has a negative consequence on children and their families, and it is difficult to assess this impact even in children of the same age, since cognitive development varies among individual children [4].

This first dental visit (FDV) is crucial for reducing future fears and/or anxieties related to dental care. In fact, this first contact between the child and the oral health professional stimulates greater interest in the child's oral health [5]. The American Academy of Paediatric Dentistry (AAPD) recommends that the first dental visit should occur by the child's first birthday [6]. However, in clinical practice, this visit is frequently delayed [7]. The willingness to attend FDV within the first year of age is influenced by predisposing factors, such as oral health knowledge, susceptibility to caries, the perceived oral health of the child, and the low awareness for FDV [8].

To the best of our knowledge, no multicentre study has evaluated the age and reasons for the FDV among children in Spain. The multicentre design allows the inclusion of children from different regions and provides a broader assessment of first dental attendance patterns in Spain.

This study aimed to (1) determine the age and the severity of carious lesions at the first dental visit, and (2) identify the main reason for dental consultation and determine who arrives for preventive treatments.

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2. Materials and methods

A multicentre descriptive cross-sectional study was conducted between April 2025 and April 2026 at three dental centres: (1) the Master's Degree Program in Paediatric Dentistry at the University of Salamanca, (2) the Master's Degree Program in Paediatric Dentistry at the University of CEU San Pablo in Madrid, and (3) a private clinic in Madrid. This study was reported according to the strengthening the reporting of observational studies in epidemiology (STROBE) guidelines for cross-sectional studies.

The sample size was calculated from the total number of patients who attended the three centres during the year 2023, applying the Yamane's formula, with a margin of error of 0.05 and a 95% confidence interval (CI). The calculated sample size consisted of 687 paediatric patients (186 patients for the centre 1, 201 patients for the centre 2, and 300 patients for the centre 3). Chronological age was calculated for each child by subtracting the date of birth from the date of the FDV.

2.1 Inclusion criteria

- Children attending their FDV accompanied by a parent or legal guardian.

- Parent providing informed consent for the child to participate in the study group.

2.2 Exclusion criteria

- Previous dental visit(s).

The sample was collected by trained researchers (AC; EMMP; CSGD; CGP) who were calibrated and coordinated by the main investigator (CSGD).

The reason for the FDV was obtained from interviews with parents and/or legal guardians. Reasons for the FDV were assigned into the same seven categories previously applied in the Bulut and Bulut study [9].

2.3 Reasons for consultation

1. First prophylactic visit. No caries lesions or oral pathologies present; visit for preventive purposes.
2. Pain.
3. Dental caries lesion(s) detected by parents.
4. Dental trauma.
5. Orthodontic problems.
6. Referral by a paediatrician.
7. Other reasons.

The data were grouped into two main categories, according to Mika *et al.* [10] study.

- 1. Prophylactic visit. No oral pathologies present; visit for preventive purposes.

- 2. Children requiring treatment as of their FDV. Treatment needed for pain or because of cavities or other lesions.

To identify the severity of caries, the simplified 4-stage ECC classification code was used [11], as described below in Table 1 (Ref. [11]). This method has been previously used both in the clinical management of ECC and in epidemiologic settings [11]. The 4-stage ECC classification has been proven to make diagnostic decision-making simpler, quicker, and more importantly, it indicates stage-specific treatment options. For these reasons, the simplified 4-stage classification was used in this study.

The examination of all tooth surfaces (mesial, distal, buccal, lingual/palatal, occlusal/incisal) was conducted in a systematic manner so that no surface was missed. Children were examined in a dental chair or while they were being held by a parent or legal guardian. Teeth were cleaned with a prophy brush and dried to allow for more accurate diagnosis of caries lesions.

The study was approved by the Ethics Committee of the University of CEU San Pablo, with approval code 971-25 128. Data were collected anonymously in accordance with current data protection legislation. The legal guardians/parents of each study subject signed an informed consent form regarding the transfer of the child's medical records, allowing their use for research purposes.

Patient data were pseudonymized, and clinical information was separated from any information that could identify the participant. A unique consecutive number was assigned to each participant upon inclusion so that only age, sex, and the study variables appeared in the results. These data have been securely stored at the Faculty of Dentistry of CEU San Pablo University and is only accessible by the researchers.

The statistical analyses were performed using IBM SPSS Statistics version 28 (IBM Corp. Released 2024. IBM SPSS Statistics for Windows, version 28, Armonk, NY, USA). The chi-square test was used for cross-tabulation of categorical variables, and a statistically significant chi-square test indicated an association between categorical variables. Additionally, Cramer's V coefficient was used as a measure of the strength of the association between variables. Specific values for Cramer's V index were interpreted accordingly: 0 to 0.10—there was effectively no effect; 0.10 to 0.30—the effect was small; 0.30 to 0.50—the effect was medium or moderate; and any value over 0.50—the effect was considered strong. Statistical significance was established when $p < 0.05$.

3. Results

The study included 687 children who attended their FDV at the University of Salamanca's dental clinic (n = 186), the CEU San Pablo University polyclinic (n = 201), and a private clinic (n = 300). Of these, 299 (43.5%) were males, and 388 (56.5%) were females.

The average age of Spanish children at their FDV was 4.83 years. Broken down by clinic, the average age during the FDV at the University of Salamanca was 6.83 years, while 4.85 years at CEU San Pablo University, and 3.56 years at the private clinic. In terms of sex, girls were reported to make their FDV at an average age of 5 years and boys at 4.6 years, as described in Table 2. Only 1.45% (n = 10) of the children in this study had their FDV before their first birthday.

The dispersion of the variables analysed in Table 2 was moderate, and the results of the normality test were significant (p value < 0.001), indicating that the variables did not follow a normal distribution.

When the sample was grouped by age range, it was found that 20.81% of the children had their FDV before reaching their second year of life, 25.61% at 3 to 4 years, 37.26% at 5 to 6

TABLE 1. Criteria for ECC lesion classifications used by Evans *et al.* [11].

ECC Code	Description
ECC 0: Sound	There are no existing restorations or signs of early-stage ECC lesions.
ECC 1: Smooth white spot lesion	The tooth surface has a smooth white spot or white zone lesion, especially noticeable on the buccal surface. Arrested white spot lesions with a translucent appearance should also be recorded as ECC-1.
ECC 2: Enamel breakdown	The tooth surface has a white zone lesion showing signs of enamel breakdown. This sign is confirmed when the World Health Organization (WHO) Community Periodontal Index (CPI) probe detects a roughened or broken enamel surface. However, the base of the defect must be hard and therefore within the enamel to qualify for ECC-2. Lesions of this type mostly occur on the buccal and occlusal surfaces and sometimes on the lingual surface. Lesions on the occlusal surface may present as dentin shadows, with or without enamel breakdown, and should be scored ECC-2.
ECC 3: Caries extending into the dentin	The tooth surface has a visible caries extending into the dentin. If necessary, this sign is confirmed using the WHO CPI probe which reveals a soft dentin base.

ECC: Early childhood caries.

TABLE 2. Descriptive statistics. Quantitative analysis of age in the general sample segmented by centre and sex (N = 687).

Variables	Exploration: Shape			Centrality		Variability		
	Asymmetry	Kurtosis	Normal *p* value	Mean	Median	Range (min./max.)	Standard deviation	Width of IQR
Mean age	−0.28	−0.81	<0.001*	4.83	5.10	0.10/9.70	1.99	3.19
Age by centre								
U. of Salamanca	0.33	−0.32	<0.001*	6.83	6.90	5.10/8.80	0.82	1.10
U. of CEU San Pablo	−0.45	−0.11	<0.001*	4.85	5.10	0.10/8.10	1.58	2.50
Private clinic	0.29	−0.37	<0.001*	3.56	3.40	0.10/9.70	1.71	2.70
Age by sex								
Boys	−0.21	−0.88	<0.001*	4.60	4.85	0.10/8.80	1.96	3.11
Girls	−0.35	−0.73	<0.001*	5.00	5.30	0.10/9.70	2.01	3.10

U.: University; min.: Minimun; max.: Maximum; IQR: Interquartile range.
*NS: non-significant deviation; the variable is normally distributed. *: significant deviation; the variable is not normally distributed.*
When n >50, the Kolmogorov–Smirnov normality test was used; when n <50, the Shapiro–Wilk test was used.

years, and 16.3% at ≥7 years, as described in Table 3.

The main reason for a child's FDV was caries detected by the parents (n = 203 (29.5%)), followed by the first preventive visit (n = 184 (26.8%)) and pain (n = 152 (22.1%)). These data show that children visit the dentist for pain and/or caries in more than 50% of the cases, as described in Table 4.

The fourth most common reason for a child's first dental visit was dental trauma (n = 72 (10.5%)). More than half of the sampled children (63.9% (n: 439)) had caries, indicating a high prevalence in early dentition (approximately 64%). Among these children, 33.6% had caries extending into the dentin, 26.6% had caries confined to the enamel, and 3.6% presented with demineralization lesions, as described in Table 4.

In 73.2% (n = 503) of cases, the child's first visit to the dentist was for some dental treatment, while only 26.8% (n = 184) were for prophylaxis/preventive measures. In addition, there were few referrals by paediatricians and other reasons (# 6 and 7 from the list). For this reason, they were grouped to increase the statistical power, therefore we present an analysis of both combined, as described in the Table 4. Retained primary teeth, bruxism and lingual frenulum were among the other reasons reported for FDV.

To analyse whether sex was associated with different clinical and dental check-up characteristics, data regarding reasons for the visit, need for treatment, presence of caries, and caries severity were compared between boys and girls. No statistically significant difference was found based on sex, as described in Table 5, where the following could be observed.

Reasons for the dental check-up: No statistically significant relationship was observed between sex and reasons for consultation (χ^2 = 4.26; *p* value = 0.372), and the effect size was very small (Cramer's *V* = 0.079), indicating that the association between sex and reason for consultation is minimal. The most frequent reason for consultation in both sexes was the detection of dental caries by parents (30.8% in boys and 28.6% in girls). Pain-related visits were slightly more frequent among girls (24.7%) than among boys (18.7%), while the proportion of initial preventive visits was similar between

TABLE 3. Frequency table of sociodemographic results (N = 687).

Descriptive Items (N = 687)	%	N
Sex		
1. Male	43.50%	299
2. Female	56.50%	388
Age groups in years (mon)		
1. <1 yr (0–11 mon)	1.45%	10
2. 1 yr (12–23 mon)	7.42%	51
3. 2 yr (24–35 mon)	11.93%	82
4. 3 yr (36–47 mon)	12.80%	88
5. 4 yr (48–58 mon)	12.80%	88
6. 5 yr (59–71 mon)	14.70%	101
7. ≥6 yr (>72 mon)	38.86%	267
Age Range in years		
1. ≤2 yr	20.81%	143
2. 3 to 4 yr	25.61%	176
3. 5 to 6 yr	37.26%	256
4. ≥7 yr	16.30%	112

TABLE 4. Results of the study variables in the total sample (N = 687).

Variables	%	N
Reasons for General Consultation (7 reasons)		
1. First preventive visit	26.8%	184
2. Pain	22.1%	152
3. Dental caries detected by parents	29.5%	203
4. Trauma	10.5%	72
5. Orthodontic problems	5.8%	40
6. Referral by paediatrician	2.5%	17
7. Other reasons	2.8%	19
Reasons for General Consultation (5 reasons)		
1. First preventive visit	26.8%	184
2. Pain	22.1%	152
3. Dental caries detected by parents	29.5%	203
4. Trauma and orthodontic problems	16.3%	112
5. Referred by paediatrician/other reasons	5.2%	36
Need for General Treatment (2 main reasons)		
1. Comes for preventive care	26.8%	184
2. Comes due to the need for treatments	73.2%	503
Presence of General Caries		
1. Absence of caries	36.1%	248
2. Presence of caries	63.9%	439
General Caries Severity		
1. No caries	36.1%	248
2. Demineralization lesion	3.6%	25
3. Enamel caries	26.6%	183
4. Dentin caries	33.6%	231

the two groups (28.4% among boys and 25.5% among girls). Visits due to trauma or orthodontic complications, referrals from paediatricians, and other reasons represented smaller proportions in both sexes.

Need for treatment: When analysing whether the children attended for prevention or treatment, we found no significant differences between the sexes (χ^2 = 0.73; p value = 0.393), with a very small effect size (V = 0.033). In total, approximately 26.8% (184) of the patients were attending the clinics for prevention, while 73.2% (503) were attending for treatment, with similar percentages among boys and girls.

Presence/absence of caries: The presence of caries was slightly more frequent in girls (66.8%, n = 259) than in boys (60.2%, n = 180), although the difference did not reach statistical significance (χ^2 = 3.14; p value = 0.076), and the effect size was very small (V = 0.068). These findings indicate that the distribution of patients with and without caries was quite similar between males and females.

Caries severity: When caries severity was analysed, no significant differences were observed between boys and girls (χ^2 = 4.61; p value = 0.100), and the effect size was very small (V = 0.082). Overall, approximately one-third of the children had no caries (39.8% of boys, 33.2% of girls), while one-third had initial caries (demineralization lesions + enamel caries; 26.4% of boys, 33.2% of girls). Similarly, one-third had advanced caries (dentin caries; present in 33.8% of the boys and 33.5% of the girls), indicating a comparatively balanced distribution among both sexes.

Relationships between the age during the FDV, need for treatment, and presence/absence of caries: our results indicate that as age increased, the number of patients seeking treatment increased, while preventive visits decreased. There was a significant association, and the effect size (V = 0.325) was moderate, indicating that age influences the need for treatment. We also found that the absence of caries predominated in the younger age groups and that the frequency of caries increased with age. There was a significant association, and the effect size (V = 0.557) was large, suggesting a strong influence of age on the presence of caries, as described in Table 6.

More than half (63.9%) of the children were affected by caries in this study, among the 575 children aged ≤6 years, 332 (57.7%) presented with caries.

4. Discussion

Although the AAPD recommends that the FDV should occur by 12 months [6], socioeconomic factors may influence access to early dental care [12]. The mean ages of the children arriving at their FDV at the university clinics in our study were 6.83 and 4.85 years, respectively. However, the mean age of the children who visited the private clinic was 3.56 years. Although this age is still older than the recommended age for a FDV, these children are noticeably younger than those who attended the university clinics. FDVs and check-ups are free of charge at the University of CEU San Pablo Polyclinic and at the University of Salamanca Dental Clinic, however they are not free of charge at the private clinic. Therefore, socioeconomic status could play a significant role in the decision to arrange a child's first dental visit, whether

TABLE 5. Relationships between sex and variables of the first dental visit (N = 687).

Variables	Sex		% (N)
	Male % (N)	Female % (N)	
Reason for dental check-up			
1. Initial preventive visit	28.4% (85)	25.5% (99)	26.8% (184)
2. Pain	18.7% (56)	24.7% (96)	22.1% (152)
3. Carious lesions detected	30.8% (92)	28.6% (111)	29.5% (203)
4. Traumatic dental injuries and malocclusions	17.4% (52)	15.5% (60)	16.3% (112)
5. Referral by a paediatrician or other reasons	4.7% (14)	5.7% (22)	5.2% (36)
Total	43.5% (299)	56.5% (388)	100% (687)
$\chi^2 = 4.26^{NS}$ (p value = 0.372) | $V = 0.079$			
Treatment needs			
1. Attended a routine preventive visit	28.4% (85)	25.5% (99)	26.8% (184)
2. Presented with a perceived need for care	71.6% (214)	74.5% (289)	73.2% (503)
Total	43.5% (299)	56.5% (388)	100% (687)
$\chi^2 = 0.73^{NS}$ (p value = 0.393) | $V = 0.033$			
Presence/absence of caries			
1. Absence of caries	39.8% (119)	33.2% (129)	36.1% (248)
2. Presence of caries	60.2% (180)	66.8% (259)	63.9% (439)
Total	43.5% (299)	56.5% (388)	100% (687)
$\chi^2 = 3.14^{\dagger}$ (p value = 0.076) | $V = 0.068$			
Severity of caries			
1. No caries	39.8% (119)	33.2% (129)	36.1% (248)
2. Early-stage caries	26.4% (79)	33.2% (129)	30.3% (208)
3. Advanced-stage caries	33.8% (101)	33.5% (130)	33.6% (231)
Total	43.5% (299)	56.5% (388)	100% (687)
$\chi^2 = 4.61^{NS}$ (p value = 0.100) | $V = 0.082$			

"Carious lesions detected": dental caries detected by parents. Trauma and orthodontic problems…: 4. Trauma and orthodontic problems. Attends due to need…: Attends due to need for treatment. "Early-stage caries": demineralization lesions + enamel caries. "Advanced-stage caries": dentin caries. NS: not significant, †: almost significant ($p < 0.10$). | Statistical tests/comparisons: χ^2 (chi square). Effect size or magnitude: V (Cramer's V); from 0.00 to 0.10: null, negligible, or very small effect; from 0.10 to 0.30: small effect; from 0.30 to 0.50: medium or moderate effect; more than 0.50: large effect.

TABLE 6. Relationships between patient's age, need for treatment, and the presence/absence of caries.

Variables	Chi-square test	Cramer's V coefficient
Relationship between patient age and need for treatment	71.52** (<0.001)	0.325
Relationship between patient age and the presence/absence of caries	210.70** (<0.001)	0.557

***highly significant.*

for prevention or for a treatment need such as pain or caries detected by the parents. Nainar *et al*. [13] indicate the need to customize the FDV according to the children's socioeconomic status and risk stratification. Most parents/legal guardians were unaware of the age at which children should have their FDV. It is necessary to raise awareness about early dental visit among parents and paediatricians [9].

Unfortunately, the main reason for FDVs is pain [10]. In our study, children had their FDVs at approximately 4.83 years of age, mainly due to caries detected by parents and the suffering of dental pain. In countries, such as Nigeria, children have their FDVs even later in life than in Spain, between 7 and 9 years of age, and the primary reason for these visits is also dental pain [14]. This suggests that we are far from providing a comprehensive oral health care [15]. Canada implemented free of charge FDVs for children under 36 months of age, with the purpose of gathering feedback from the parents' and caregivers' perspectives on the program [16]. Most participants were aware of the program and the appropriate age for a child's first visit. Almost all agreed

with the recommendation to see a dentist by one year of age [16]. This type of measure could encourage families to arrange children's first visits, providing parents/legal guardians with the preventive tools to avoid oral pathologies.

In addition, Germany is also advocating on improving dental healthcare access and preventive measures, and estimates that only 90% of children under 3 years old will be caries-free by 2030, emphasizing the need to educate health care professionals and parents/legal guardians on incorporating preventive protocols to achieve their 2030 oral health goal [17]. Furthermore, parents of newborns also receive information on the timely initiation of tooth brushing and the proper use of bottles, among other measures that promote oral health [17]. Spain should incorporate these measures into its health care system to prevent caries, which currently has a high prevalence in the paediatric population. In this study, almost 64% (n = 439) of the children had caries, and in 33.6% (n = 231) of cases, the caries was so severe that affected the dentin.

Caries is a preventable disease in which risk factors, protective factors, and individual susceptibility play very important roles [7]. According to a recent study in the University of CEU San Pablo Polyclinic, more than half of the children presented high risk of caries, indicating the need to customized treatment plans for each patient [18].

The main reason for the FDV in our study was caries detected by parents. Overall, 73.2% of the children came for dental treatment due to caries, whereas only 26.8% came for preventive appointments. These results are consistent with those of other authors, who reported that pain and caries, along with the need for treatment, were the main reasons for children's visits [9, 10, 19, 20].

Bulut and Bulut *et al.* [9] indicate that the age at FDV is unknown to parents and even to some health care professionals. In our study, only 2.5% (n = 17) of the children were referred by a paediatrician, compared to the Bulut and Bulut results of 0% (n = 0) [9]. According to some authors, most of paediatricians have knowledge on dental caries, but a few knew the correct recommended age for a child's FDV [21].

We suggest that the prevention needs to begin in infancy, oral health education should be extended to all health care professionals to promote the importance of making the FDV before the child's first birthday in order to prevent and intercept the development of oral pathologies [16]. The healthcare system should seek to integrate medical and dental practices better.

The prevalence of caries in the whole study group was 63.9% (n = 439), which means that only 4 out of ten patients were free from caries. The most common reason for FDV was dental caries, and numerous other studies have reported caries and pain as the main causes of FDV [10, 19, 22].

Describing the frequency of cavities according to age, among children aged ≤6 years, the prevalence of caries was 57.7%. The disease increases with age, so these results reinforce going to the FDV according to the recommended guidelines (≤12 months of age) [6]. It is necessary to establish stronger cooperation between Spanish paediatricians, gynaecologists, general practitioners and dentist. A more effective health care preventive-oriented model of dental care focused on early diagnosis, preventive measures, and early dental treatment interventions in the youngest children should be implemented. With the aim to increase the attendance of young children, especially from communities with high dental need, the British Society of Paediatric Dentistry (BSPD) launched "Dental Check by One" (DCby1) in September 2017. DCby1 is a public health campaign which aims to increase the dental attendance of children aged 0–2 years (https://dentalcheckbyone.co.uk) [23]. These types of campaigns are very necessary and serve as a model. We encourage Spanish scientific societies, such as the Spanish Society of Integrated Paediatric Dentistry and the Spanish Society of Paediatric Dentistry to create campaigns with the same aim.

The reason for dental consultation between boys and girls were not statistically significant. These results agree with the results of Mika *et al.* [10]. Only 10 children made their FDV before the first year of life, and compared to the recommended guidelines (≤12 months of age), a delay of 5.83 years in the FDV was observed for children attending the University of Salamanca clinic, a delay of 3.85 years for children attending the University of CEU San Pablo clinic, and a delay of 2.56 years for children attending the private clinic.

The null hypothesis was rejected, and the alternative hypothesis was accepted; there was an association between age and the need for treatment, and this association was not due to chance.

5. Limitations

We found a statistically significant association between age and the need for treatment resulting from this condition, as other authors indicate [24]. However, as in every cross-sectional study, only association could be established. This means that the results could probably reflect cumulative exposure over time rather than a direct effect. A causal relationship would need to be supported by longitudinal studies. Another limitation was the inability to calculate the Kappa index and that the examiners were not blinded. However, this research was a multicentre study that addressed an important public health problem: the timing and reasons for the FDV and its relationship between age among other clinical findings. In future studies, it will be very interesting to design a longitudinal study that incorporates more variables and limits possible biases/errors by blinding the examiners.

6. Conclusions

Children in this multicentre Spanish sample attended their FDV late in relation to the recommended guidelines (≤12 months of age), with the main reason being caries detected by parents. The prevalence of caries was high, and in most cases, these caries lesions were severe, extending into the dentin. Increased age was associated with the presence of caries and the need for treatment. This suggests that children are not generally attending the dentist for preventive measures.

ABBREVIATIONS

CPI, Community Periodontal Index; ECC, Early childhood caries; FDV, First dental visit; AAPD, The American Academy of Paediatric Dentistry; WHO, World Health Organization; BSPD, British Society of Paediatric Dentistry; DCby1, Dental Check by One.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

AUTHOR CONTRIBUTIONS

AC and CGP—performed the research in the dental clinic of the University of Salamanca. CSGD and EMMP—performed the research in the dental clinic of the CEU San Pablo University. CSGD—performed the research in the private clinic; designed and leads the research study and wrote the manuscript. LSP, MBC and CSGD—revised the original draft. All the authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by the Ethics Committee of the University of CEU San Pablo, with approval code 971-25 128.

All guardians signed informed consent forms regarding the transfer of the data from their medical records, allowing their use for research purposes.

The study was conducted in accordance with the Declarations of Helsinki, and it was reported according to the STROBE guidelines for cross-sectional studies.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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