# A Case-Control Research Examined the Effect of Traumatic Oral Damage on Early Toddler's

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## Abstract

There are no long-term research that examine how traumatic dental injury (TDI) af ects preschoolers' oral health-related quality of life. A population-based case-control study was conducted with a representative sample of 335 children, ages 3-5, enrolled in public and private preschools in the city of Campina Grande, Brazil, to examine the ef ect of TDI on in preschoolers. Age, gender, type of preschool and monthly household income of the case group and the control group were matched at a ratio of one to four (67 cases and 286 controls). Applicatiostc   p chi-square test with linear trend, and McNemar's test. "Felt pain" (19.4%) and "di f culty eating" (16.4%) were the most often mentioned comments. In the case group, the prevalence of TDI was 37.3%, compared to 33.9% in the control group. There were no statistically signif cant variations in the presence of TDI between the case and control groups (odds ratio = 1.16; 95% CI: 0.66-2.02). Preschoolers' quality of life was una f ected by TDI.

**Keywords:** Tooth Injuries; Quality of life; Primary Teeth; Epidemiology

## Introduction

Any harm of a physical, chemical, or thermal type that a ects one or more teeth and the oral cavity is referred to as a traumatic dental injury (TDI). Young children frequently experience TDI due to their underdeveloped motor and cognitive systems [1]. Preschoolers are more prone to falls and subsequent oral cavity damage during the learning phase, which involves the movements of standing, walking, and running2. Because of its high occurrence rate among this group of people, TDI is in fact regarded as a public health issue3-5. e consequences of TDI on dental-facial aesthetics, social interactions, and pain and di culties chewing can all have a detrimental in uence on one's quality of life. 6–9. e way someone feels about their quality of life determines e World Health Organization10 states that one's position in life in respect to their objectives, expectations, standards, and worries depends on the cultural context and value system in which they live [2]. Oral health-related quality of life (OHRQoL) is a multifaceted concept that considers the e ects of oral problems, as TDI, on functional, social, and psychological well-being because oral health is a crucial component of overall health1. ere are many evaluation techniques available to quantify self-reported OHRQoL. For di erent age groups of kids, speci c assessment instruments have been created, taking into account various phases of cognitive, social, and emotional development. ese metrics have been utilised in epidemiological research to support clinical indicators and give a clearer picture of health status13 [3]. e Early Childhood Oral Health Impact Scale (ECOHIS) is frequently used in dentistry to evaluate how oral health issues and associated treatment experiences a ect preschool children's and their families' quality of life11. For use with Brazilian children, this questionnaire has been translated14, examined, and validated. All research studies that evaluate the e ects of TDI.

## Methods

### Ethical Issues

## C  C

e case and control groups' children were chosen by two researchers (R.G.V.-A. and G.B.G.). Nine of the original 814 kids were not included because they provided one or more "do not know" replies on the Child Impact Section of the Brazilian ECOHIS (B-ECOHIS).

e remaining 805 children evaluated in the cross-sectional study were divided into two groups: 248 (38.8%) having an in uence on OHRQoL was chosen for the case group, and 557 (61.2%) had no impact on OHRQoL. When the minimal sample size of 67 cases and 268 controls (n = 335) was obtained, the groups were matched at a ratio of 1:4 for age, gender, preschool type, and monthly household income [7]. e score on the Child Impact Section was used to determine the impact on OHRQoL. Items on the B-ECOHIS were classi ed as having a non-negative in uence on OHR- QoL if responses were "never" or "hardly ever," while items with responses of "sometimes," "frequently," or "very o en" were classi ed as having a negative impact on OHR- QoL.

## C  E

e training and calibration exercise consisted of two steps. e theoretical step involved a discussion of the criteria for the diagnosis of TDI and the analysis of photographs. A specialist in paediatric dentistry (the gold standard) coordinated this step. e second step was the clinical step, in which ve dentists examined 50 previously selected children between 36 and 71 months of age. e three dentists with the best level of intra-examiner and interexaminer agreement per- formed all clinical examinations during the collection of data for the main study. Cohen's Kappa coe cients ranged from 0.88 to 0.90 for intra-examiner agreement and from 0.85 to 0.90 for interexaminer agreement.

## E  C

Ages 36 to 71 months, enrollment in preschool, the absence of orthodontic treatment, and completion of the questionnaires were requirements for inclusion. Four maxillary incisors lost due to caries or physiological exfoliation, which could impair the clinical diagnosis of TDI, were the exclusion criteria.

## A

e Statistical Package for Social Sciences (SPSS for Windows, version 17.0; SPSS Inc, Chicago, IL, USA) was used for data organisation and statistical analysis. To describe the sample and illustrate the distribution of the B-ECOHIS items, the frequency distribution of the data was determined. e independent variables in the case and control groups were compared using McNemar's test and the chi-square test with linear tendency. At 5% (P 0.05), the level of signi cance was chosen. e conditional logistic regression model included explanatory variables with P 0.20 in the bivariate analysis as well as those having theoretical relevance (independent of the P-value). Using the backward stepwise approach, unadjusted and multiple conditional logistic regressions were run. e nal logistic regression with numerous conditions for dental caries and malocclusion, the model was modi ed [8].

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Variables that were used to match the groups. Between the case and control groups, there were no discernible statistical variations in the distribution frequency of these variables. ree hundred thirty- ve preschoolers were chosen, with 50.7% (or 170) of them being males and 49.3% (or 165) being girls [9]. No kids were disquali ed from the study because they refused to cooperate during the clinical evaluation.

e oldest age group for youngsters was 4 years old (40.0%). According to the frequency distribution for household income, 82.1% of the sample had incomes up to three times the minimum monthly salary, while 17.9% had incomes above the minimum monthly pay. Of the sample, 50.7% attended public preschools and 49.3% attended private preschools. Figure 2 displays the frequency distribution [10].

## D

According to the independent variables, the preschoolers. e prevalence of TDI was 34.6%, and enamel fracture was the most prevalent kind (14.9%). e ndings showed no statistically signi cant

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