

Background

Mode of childbirth delivery and the association with caries risk is an area where a lot more research is needed. The relationship between the mode of childbirth delivery and caries risk has been investigated by multiple authors with mixed results. Some authors have found that children born by cesarean section were colonized with *S. mutans* at a younger age than those born through vaginal delivery. Another set of studies found that children born through vaginal delivery experienced higher ECC prevalence compared to children delivered by C-section and were more likely to have higher MS scores when adjusting for the mother's MS score, feeding practice, and toothbrush habits. Furthermore, other studies found no conclusive association of caries development when comparing the two modes of childbirth delivery. Many of these studies were found to have limitations regarding information on the child's oral hygiene and diet habits.

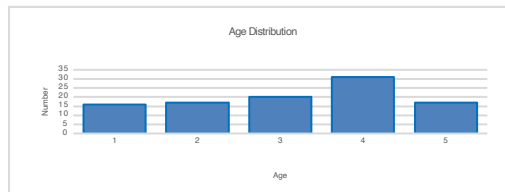
Objectives

Primary Objective: To evaluate if mode of delivery (vaginal versus cesarean section) results in a statistically significant difference among groups with relation to DMF (decayed, missing, or filled) teeth

Secondary Objective: To identify risk factors among our patient population that may predispose patients to DMF (decayed, missing, or filled) teeth.

Methods

Mothers of children five years and younger who are patients at the dental clinic were asked to participate by filling out a 12 question survey. The survey consisted of questions about the mode of childbirth delivery, feeding habits after birth, daily brushing habits, evaluating when the child's first dental visit was, and evaluating if mom has caries. After the questionnaire was completed, the child's dental records were evaluated to calculate the decayed, missing, filled teeth score (DMFT) to determine a relationship between mode of childbirth delivery and caries risk. Statistical Analysis completed: Continuous student t-test, Categorical – χ^2 , Primary outcome – Fisher's exact, STATA statistical software, version 17.0



Demographic Factors	Vaginal Delivery (n= 62)	Cesarean Delivery (n= 38)	p value
Mean Age (years)	3.0	3.4	0.133
Sex (n, %)	Male (17, 59.7%) Female (25, 40.3%)	Male (23, 59.0%) Female (15, 41.0%)	0.964
Gestational Age at Delivery	Term (53, 85.5%) Preterm (9, 14.5%)	Term (30, 76.9%) Preterm (9, 23.1%)	0.2737

Dental Factors	Vaginal Delivery (n= 62)	Cesarean Delivery (n= 38)	p value
Average age at first dental visit (years)	2.34	2.44	0.511
Average number of Times Brushing per Day	1.50	1.59	0.438
Average number of Maternal Cavities	1.23	1.18	0.581
Type of Feeding (Breast vs Formula, %)	n = 61 (one non respondent) Breast (20, 32.8%) Formula (14, 23.0%) Both (27, 44.2%)	n = 38 (one non respondent) Breast (7, 18.4%) Formula (9, 23.7%) Both (22, 57.9%)	0.378

Demographic Factors	No DMF (n= 46)	DMF (n= 55)	p value
Mean Age (years)	2.43	3.76	0.00
Sex (n, %)	Male (33, 71.7%) Female (13, 28.3%)	Male (27, 49.1%) Female (28, 50.9%)	0.021
Gestational Age at Delivery	Term (40, 87.0%) Preterm (6, 13.0%)	Term (43, 78.2%) Preterm (12, 21.8%)	0.251

Dental Factors	No DMF (n= 46)	DMF (n= 55)	p value
Average age at first dental visit (years)	2.17	2.55	0.009
Average number of Times Brushing per Day	1.65	1.44	0.047
Average number of Maternal Cavities	1.22	1.20	0.832
Type of Feeding (Breast vs Formula, %)	n = 46 Breast (13, 28.3%) Formula (13, 28.3%) Both (23, 50.0%)	n = 53 (two non-respondents) Breast (14, 26.4%) Formula (13, 24.5%) Both (26, 49.1%)	0.923

Results

- Between the two groups (vaginal delivery and cesarean delivery), there is not a statistically significant difference in the primary outcome of presence of DMFT.
- There is no statistically significant difference between the two groups with respect to demographic or dental factors (all p values > 0.05). Dental factors include age of first dental visit, average number of times brushing per day, average number of maternal cavities, and type of feeding habit.
- Between the two groups (those with DMF and those without DMF), there are statistically significant differences with respect to mean age, sex, average age at first dental visit, and average number of times brushing per day.
- Older children and females presenting to the office are statistically more likely to have DMFT than younger children and males, respectively.
- Children who present at a later age for their first dental visit are more likely to have DMF than children who present at an earlier age.
- Children who brush less frequently are more likely to have DMF than children who brush more frequently.

Conclusions

- No statistically significant data found between mode of childbirth delivery and caries rate/ DMFT.
- There was a statistically significant relationship between age of first dental visit and DMFT as well as average number of times brushing per day and DMFT.

Limitations:

- Small population size
- Limited data to one population (single site)
- Possible bias on subject recall
- Possible bias on person bringing the patient in for recall. Child may not live with their mother. The mother may not be the primary caretaker.

Future:

- More data and expanded studies needed on mode of childbirth delivery and caries rate including the bacterial colonization following childbirth. Long term follow up studies needed to analyze DMFT score.
- Expanded patient population needed on current study to involve increased subject sample size and different locations in the metro Detroit area.

Acknowledgements

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