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ORIGINAL RESEARCH

Early childhood caries among Hutterite preschool children in Manitoba, Canada

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ABSTRACT

Introduction: This study investigated the prevalence of early childhood caries (ECC) among Hutterite preschool children from different colonies in southwestern Manitoba, Canada.

Methods: Following informed consent from the child's parent, children under 72 months of age underwent a dental screening examination. Approval was granted by the University of Manitoba's Health Research Ethics Board.

Results: A total of 66 children with a mean age of 40.1 ± 20.1 months participated. The prevalence of ECC was 53%, while the mean decayed, extracted and filled teeth (deft) score was 2.8 ± 4.0 (range 0–20). A total of 42.4% had severe ECC (S-ECC). There was no difference in prevalence among the 6 participating colonies. Only 15 children had already been to the dentist, with the majority of these visits due to decay or dental pain. Of those, the mean age for a first visit was 2.7 ± 0.6 years. Children with ECC were determined to be significantly older than those who were caries-free (p<.0001). Early childhood caries and higher caries rates were associated with lower maternal ratings of their child's dental health. Both ECC and increased deft scores were significantly associated with the number of children in the home.

Conclusions: This is the first study to report the prevalence of primary tooth decay in Hutterite children. Rates were comparable with other Canadian data for rural dwelling children. Effective and culturally appropriate prevention and health promotion activities are warranted, including fluoride varnish and early dental visits.

Key words: Canada, dental caries, early childhood caries, preschool child.

Introduction

Early childhood caries (ECC), defined as dental decay affecting children under 6 years of age[1], is known to affect many different groups of children in North America that include Asian and South Asian immigrants[2,3], economically disadvantaged groups[4], and Aboriginal children[5-7]. However, the prevalence in other cultural minority groups is not well known. This is so for the Hutterite, a communal branch of Anabaptists like the Amish and Mennonites, who trace their roots to the Protestant Reformation of the 16th century[8]. The Hutterite originate from Europe and first settled in North America in the 1870s. In fact, little oral health information exists for this group apart from an established increased incidence of dental agenesis, oral hygiene challenges, and limited dental knowledge[9,10]. Unfortunately, no published data exist that document the oral health status of young children in this cultural and religious group; however, dental professionals caring for Hutterite preschool children may sometimes attest to a perceived higher rate of decay in this population. This may be, in part, a consequence of delayed first visits to the dentist, limited dental attendance, lack of regular oral hygiene practices, lack of fluoridated water, and the attitudes and views about the importance of primary teeth of community elders.

Today, most Hutterite live in the Midwestern USA and in Canada and comprise an approximate total population of 50 000[8]. Their communal way of life is based on the Biblical verse, Acts 2: 44: 'And all who believed were together, and had all things common'[8]. The Hutterite reside in communal settings known as 'colonies'[8]. They practice a near-total community of goods; all property is owned by the colony, and provisions for individual members and their families come from common resources[8]. Each colony consists of approximately 10 to 20 families, with a population of approximately 60 to 150[8]. There are over 100 such colonies in Manitoba, Canada. Hutterites speak three languages: their own German dialect (Hutterisch), and standard German and English, both which they learn in school (Fig1).

To the present day, the Hutterite follow a distinct and recognizable dress code with women wearing ankle-length gathered skirts and kerchiefs on their heads, while men wear black clothes and trouser suspenders[8]. They are primarily an agricultural society, although many colonies have developed additional business enterprises[8]. Unlike the Amish, the Hutterite do use modern technology and equipment in their farming and businesses[8], including the internet. Although individual members do not own property, for the most part, colonies function independently with minimal reliance on 'outsiders'[8]. Since they are primarily an isolated population, there is a naturally higher prevalence of genetic abnormalities. Traditionally, once a colony grows beyond a size that can sustain communal living, a sister colony breaks away to form a new community[8].

Meals are prepared in the communal dining hall kitchen where members gather at scheduled times[8]. Typically, the children eat in an adjacent dining area and are supervised by older children. The diet is, therefore, fairly consistent within each colony. However, each individual family dwelling is equipped with a kitchen so that individual meals can be prepared within the home. As meals are usually eaten together, treats are usually reserved for the home, and it has been suggested that some parents may 'spoil' their children with extra sweets because this is the one aspect of child feeding that they can control.

The purpose of this study was to investigate the oral health status of Hutterite preschool aged children in southwestern Manitoba and document the prevalence of ECC and severe early childhood caries (S-ECC), a more aggressive and rampant manifestation of decay.

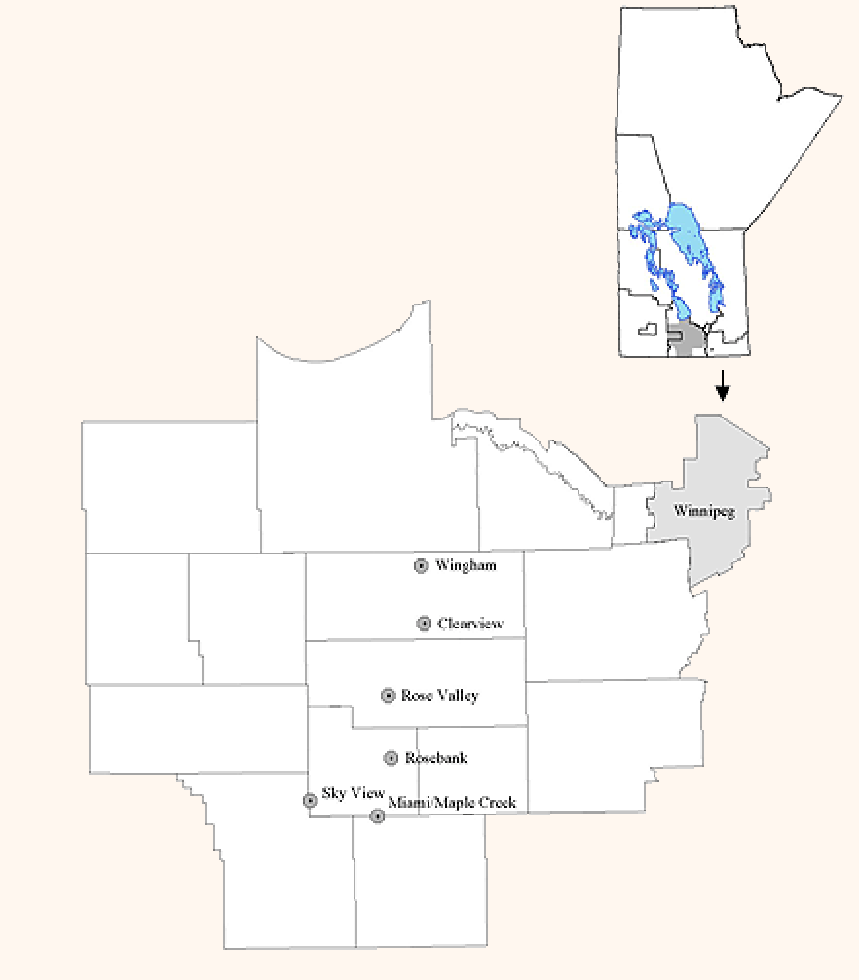

Figure 1: Map of Manitoba, Canada, showing the province region where participating Hutterite Colonies were located (grey area).

Methods

This pilot study was approved by the Health Research Ethics Board at the University of Manitoba. Approval was also sought from the leadership of the various Hutterite Colonies and was facilitated by the local public health nurse in the Regional Health Authority (RHA), Central Manitoba Inc. A total of 6 colonies within 1.5 hours driving distance of Winnipeg, the provincial capital, agreed to participate. All parents with preschool aged children under 72 months were invited to take part by the local public health nurse. Participating communities included the Miami (Maple Creek), Clearview, Rosebank, Rose Valley, Wingham, and Skyview colonies.

All parents provided informed consent before they and their child participated. Mothers completed a short interview for collecting basic family and child characteristics; children were examined by a dentist. The study took place during 2005 and 2006. The brief questionnaire was administered by a member of the research team. The interviewed questionnaire used in this study was similar to a tool used in

a previous pilot study of preschool oral health in Manitoba in a rural community[11].

Two dentists served as the examiners and reviewed the examination criteria together to ensure that each was recording oral health conditions consistently. Examinations were either performed in the colony school or in the children's dining area of the communal dining hall. No additional light sources were used during the dental screeining examinations. Both dental examiners adhererd to established guidelines for the clinical assessment for dental caries and oral health indicators. Both the prevalence and rates of caries in the primary dentition were determined. Early childhood caries and S-ECC were defined according to the recommended case definitions, where ECC was the presence of any caries in the primary dentition[1,12]. With regard to the rate of decay, the total d score for each child was the sum of all the primary teeth identified with untreated decay. The e score included the sum of primary teeth requiring extraction and those already extracted because of caries, while the total f score was the total number of primary teeth filled because of past caries experience. The simplified oral hygiene index was used to assess the amount of debris on primary teeth[13].

The child's dental screening results were combined with each mother's responses to the brief questionnaire. These data were entered into an MS Excel spreadsheet and analyzed using SAS v9.1 (SAS Institute Inc; Cary, NC, USA) and NCSS (Kaysville, Utah, USA). The mean caries score for the population was calculated with the overall prevalence of ECC and S-ECC, while ANOVA, χ^2, *t*-tests and Poisson regression were used to investigate the associations between questionnaire responses and oral health indicators. Multiple logistic regression was performed for ECC and included variables found to be or closely associated with ECC on bivariate analysis. A p value of ≤ 0.05 was statistically significant.

Results

All eligible children of the desired age were enrolled into the study yielding a total of 66 preschoolers. Therefore, participation from the communities was essentially considered to be a census of all preschool children in these 6 colonies. The mean age of participating children was 40.1 ± 20.1 months (range 6–71 months), while the average age for responding mothers was 32.2 ± 5.6 years (range 21–43 years). Thirty-four children (51.5%) were male. The majority were reported to be in very good or good physical health (92.4%). The average number of children in the home of participants was 3.7 ± 1.6, while the average number of adults in the home was 2.1 ± 0.3. Only seven children were the sole child in the family.

Questionnaire responses revealed that the majority of children ($n = 54$) were having their teeth cleaned daily. Most children (56.4%) were 1 year of age or younger when brushing was first initiated. Thirty-eight mothers (57.6%; 38/66) indicated that they had heard about ECC or other antecedent terms used to describe decay in preschool children.

Only 15 participating children were reported to have already had a first dental visit at a mean age of 2.7 ± 0.6 years, and the main reason for this visit was decay or dental pain (66.7%, 10/15). Unfortunately, only four of these children attended for a check-up examination. When asked, 25.8% of mothers believed that children should have their first dental visit by the eruption of the first tooth or before 12 months of age. Thirty mothers (45.5%) thought the first visit should occur by 2 years of age. Overall, seven children (10.8%) had dental surgery to treat S-ECC under general anesthesia. When asked about their child's oral health, 17 mothers (25.8%) believed their child suffered from decay and 75.8% ($n = 50$) rated their child's dental health as being good or better.

Clinical examinations identified a total of 35 children who had ECC, an overall prevalence of 53%. Of those with ECC, 28 were also identified as meeting the clinical case definition for S-ECC, the more rampant sub-classification form of the disease. The prevalence of ECC among the 6 colonies is reported (Table 1), and there were no significant differences in prevalence among them. Children with ECC were found to be significantly older than children who were caries-free on *t*-test analysis (50.9 ± 17.1 months vs 27.9 ± 16.0, $p<.001$).

The average decayed, extracted and filled teeth (deft) score for the entire study population was 2.8 ± 4.0 (range 0–20; Table 2). The ANOVA revealed no statistically significant differences in mean deft scores among the 6 participating Hutterite colonies ($p>.05$). Therefore, deft scores were reported for the entire cohort. Overall, the largest contributor to the deft score for this population was untreated decay (67.9%). On closer examination, the mean deft score for children with ECC was 5.2 ± 4.1. For those with S-ECC, the mean deft was 6.2 ± 4.1.

The χ^2 analysis revealed no difference in the prevalence of ECC between males and females (61.8% vs 43.8%, $p=.14$). The same was true for S-ECC (47.1% vs 37.5%, $p=.43$). Similarly, *t*-test analysis indicated there was no significant difference in deft scores between males and females (3.0 ± 4.2 vs 2.6 ± 3.7, $p=.68$).

Children who were rated by their mother to be in fair or poor dental health were significantly more likely to have ECC than those who were rated to be in very good or good dental health (87.5% vs 42.0%, $p=.001$). The ANOVA revealed that caries rates were also significantly associated with maternal reports of childhood oral health ($p=.0009$). Those reported to be in poor dental health had a mean deft of 7.5 ± 8.7 and those in fair oral health had a rate of 5.1 ± 3.5, compared with 2.9 ± 3.7 and 1.1 ± 2.3 in the good and very good groupings, respectively. Tukey's comparison revealed that children rated to be in very good oral health had significantly lower rates of decay than those in the fair ($p=.010$) and poor groupings ($p=.007$).

There was no association between the presence of ECC or deft and the maternal ratings of their child's general health ($p=.27$ and $p=.29$, respectively). Further, there was no difference in mean birth weights between children with and without ECC ($p=.47$). There was also no significant association between prematurity and caries prevalence or caries rates. Although the two children who were born prematurely had a higher mean deft score, it did not statistically differ from the 64 children who were born at term (6.0 ± 1.4 vs 2.7 ± 4.0, $p=.13$).

According to the simplified oral hygiene index, the average debris score for children in this study was 0.67 ± 0.37 and ranged from 0 to 1.33. In other words, most children had less than one-third of specific tooth surfaces covered with debris or plaque. A *t*-test analysis was performed to determine whether children with ECC and S-ECC had higher debris scores. Children identified as having ECC did not have significantly higher mean debris scores than caries-free children (0.75 ± 0.32 vs 0.58 ± 0.39, $p=.074$). However, those with S-ECC did have significantly higher debris scores than all other children (0.78 ± 0.32 vs 0.59 ± 0.38, $p=.035$).

Considering that most children who had visited the dentist did so primarily because of caries, it was no surprise that the mean deft of those who already had visited the dentist was significantly higher than those who had not (6.9 ± 5.2 vs 1.6 ± 2.5, $p=.002$). Likewise, significantly more children who had already visited the dentist had ECC than those who had not visited a dental professional (93.3% vs 42.0%, $p<.000$). Naturally, those who underwent dental surgery under general anesthesia had significantly higher deft scores ($p=.012$).

The χ^2 analysis revealed that snacking habits were not significantly associated with ECC ($p=.75$). Those who snacked more frequently did not have a higher prevalence of ECC than those who snacked less frequently. Similarly, ANOVA also revealed that there was no difference in snacking frequency and mean deft scores (2.9 ≤ once/day, 2.4 twice/day, and 3.2 > twice/day, $p=.75$).

The majority of children in this study were breastfed (61/66). There was no difference in caries rates between children who were and were not breastfed (2.6 ± 3.9 vs 4.8 ± 4.6, $p=.24$). While children who were not breastfed appeared to be more likely to have ECC (80% vs 50.8%), the relationship was not statistically significant ($p=.36$, Fisher's exact test). Likewise, while those who were breastfed appeared to have lower mean deft scores than those who were not, although *t*-test analysis revealed the difference was not statistically significant (2.6 ± 3.9 vs 4.8 ± 4.6, $p=.24$). The χ^2 analysis indicated that the prevalence of ECC was not associated with ever having been bottle fed ($p=.71$). The *t*-test analysis revealed that deft rates did not significantly differ between children who were and were not bottle fed ($p=.22$).

Table 1: Prevalence of early childhood caries according to Hutterite colony

Hutterite Colony	ECC* *n* (%)	
	Yes	No
Clearview	6 (35.3)	11 (64.7)
Miami (Maple Creek)	6 (54.5)	5 (45.5)
Rose Bank	8 (50)	8 (50)
Rose Valley	10 (76.9)	3 (23.1)
Skyview	0	2 (100)
Wingham	5 (71.4)	2 (28.6)

ECC, Early childhood caries.
*$P = 0.14$

Table 2: Mean decayed, extracted, filled, and deft score

Variable	Mean ± SD	Range
d	1.9 ± 2.9	0 – 12
e	0.3 ± 1.2	0 – 7
f	0.6 ± 1.7	0 – 8
deft	2.8 ± 4.0	0 – 20

d, sum of all the primary teeth identified with untreated decay; e, sum of primary teeth requiring extraction and those already extracted because of caries; f, total number of primary teeth filled because of past caries experience; deft, decayed, extracted and filled teeth score for whole population.

The majority of children were having their teeth cleaned on regular basis. However, those who had their teeth cleaned did not have significantly lower deft rates than those who did not have their mouths cleaned (p=.79). Likewise, there was no significant relationship between the frequency of tooth-brushing and the presence of ECC. Children who had their teeth brushed less than once per day did not have a higher prevalence of ECC than those whose teeth were brushed one or more times daily (52.6% vs 47.4%, p=.25). Similarly, ANOVA revealed these same children did not have higher deft scores than those whose teeth were brushed more frequently (p=.41). However, children who brushed independently had significantly higher caries rates than those who did not (4.8 ± 4.3 vs 1.9 ± 3.5, p=.005). There was no significant difference in deft rates between children whose teeth were brushed by their parent and those whose teeth were not brushed by a parent (p=.57). While children who brushed independently were found to have a higher prevalence of ECC (70% vs 45.7%). this relationship failed to reach the threshold of significance (p=.069).

No relationship was found between average debris scores and whether children's teeth were being brushed. However, a higher mean debris score for children who brushed their own teeth approached the threshold of statistical significance when compared with children who did not brush their own teeth (0.79 ± 0.30 vs 0.61 ± 0.38, p=.052).

Only four of 66 mothers had completed high school, and the children of mothers who completed high school had significantly lower deft scores than those whose mothers did not complete high school (0.5 ± 1.0 vs 2.9 ± 4.0, p=.006). However, while fewer children of mothers who completed high school had ECC compared with those whose mothers did not, this relationship was not statistically significant (25.0% vs 54.8%, p=.34).

Finally, this study also explored the relationship between the number of children in the home and caries experience. Children with ECC were significantly more likely to come from a household with more children than children who were caries-free (4.3 ± 1.3 vs 2.9 ± 1.6, p=<.001). Similarly, children with ECC were more likely to have siblings than caries-free children (p=.004). Poisson regression was performed to examine the relationship between deft and the number of children in a home, revealing a significant relationship: as the number of children in the family increased, the mean deft score significantly increased (p<.001). Results from the Poisson regression allowed us to predict mean deft scores based on different numbers of children in the home. The predicted deft scores for zero, two and four children in the household were 1.1, 1.7, and 2.8, respectively.

Multivariate logistic regression analyses for ECC were performed that included those variables found to be significantly associated with ECC on bivariate analyses or at least approximated the threshold of significance. Childhood age (in months) appeared to be the strongest independent predictor of ECC status (p=.0079) (Table 3). However, when age was excluded from the first model, low maternal ratings of childhood oral health (ie, fair/poor/very poor; p=.021) and the number of children in the family (p=.0057) remained significantly associated with ECC after for controlling for the other variables (Table 4). Those with lower ratings and those with more siblings were significantly more likely to have ECC.

Discussion

To the present authors' knowledge, this small study is the first to report on the caries status of young Hutterite children in North America. The results revealed that many preschool children were affected by decay because just over half of this preschool cohort (53%) had ECC. Further, 42.4% were diagnosed as having S-ECC, a more aggressive form, and some had already undergone pediatric dental surgery under general anesthesia. Despite these findings, the majority of mothers indicated that they believed their child's dental health was either good or very good, and only 25.8% actually thought their child had caries. Fortunately, most of the children participating in this cross-sectional study were rated to be in very good or good physical health. Considering that ECC is known to sometimes affect childhood health and well-being[14], it is encouraging to see reports of healthy children. However, it is also possible that some parents may not be aware of the potential influence of caries on health status because dental discomfort displayed by very young children can be difficult to recognize.

Although a considerable proportion of children had ECC, the severity of caries in this rural population was not as severe as rates reported for other groups of Canadian children from remote or disadvantaged communities, including First Nations[4,5,15] or distinct ethnic groups. Nonetheless, the caries rates and prevalence reported in this study closely mirrors what has been reported for other rural-dwelling children residing in the same region of Manitoba[11]. The mean deft for this population was 2.8 ± 4.0 teeth and this is only slightly greater compared with 2.0 ± 3.3 for a cohort of rural Manitoba children of a similar age (45.7 ± 3.3 months).

Children who were identified as having ECC were significantly older than children who were cavity-free. In fact, this was the strongest predictor of ECC in the initial multiple logistic regression analysis. Naturally, this is a common finding in many epidemiological surveys. Age is a recognized predictor of ECC, with older infants and preschool children at increased risk for developing caries[4,16-18]. They have more erupted teeth, which have been exposed to oral environment challenges for longer periods. This, combined with limited dental attendance, increases overall caries-risk.

What is apparent is that many of these Hutterite children are not having their current dental needs met, as was demonstrated by a larger d score when compared with the overall deft rate (ie, 1.9/2.8). These children are in need of early access to both preventive care and treatment. The number of dental providers is often limited in rural and remote communities, and many dental providers prefer not to see young children in their practices.

Table 3: Multiple logistic regression for early childhood caries

Variable	Regression coefficient (b)	Standard error b	Odds ratio	± 95% Confidence interval	*P* value
Age	0.062	0.023	3.49	(1.39, 8.78)	.0079*
Child brushes independently	-0.53	0.85	0.59	(0.11, 3.13)	.54
Debris score	1.39	1.01	4.03	(0.56, 28.98)	.17
Maternal rating of child's teeth	1.40	0.89	4.06	(0.071, 23.15)	.11
No. children in household	0.43	0.26	1.54	(0.92, 2.59)	.10

b, Regression coefficient.
*Significant.

Table 4: Multiple logistic regression for early childhood caries (excluding age)

Variable	Regression Coefficient (b)	Standard Error b	Odds Ratio	± 95% Confidence Interval	P value
Child brushes independently	0.45	0.70	1.57	(0.40, 6.21)	.52
Debris score	1.34	0.86	3.80	(0.71, 20.46)	.12
Maternal rating of child's teeth	2.01	0.87	7.49	(1.35, 41.42)	.021*
No. children in household	0.66	0.24	1.94	(1.21, 3.11)	.0057*

*Significant.

Unfortunately, for most children in this sample who had already been examined by a dental professional, their first dental visit was due to caries, rather than being a preventive practice. Hutterite parents need to be better informed about the benefits of early preventive dental visits before caries develops. Only 25.8% of mothers in our study believed that a child's first visit should correspond with the eruption of the first tooth or before 12 months of age. For early dental visits to become common practice in these rural areas, awareness needs to be raised with parents, dental professionals, and medical providers. Changing the practice patterns of dentists to begin seeing children for their first dental visit by 12 months of age is a challenge[19]. This fact, combined with fewer dental providers in rural locales, present access to care challenges for society. It is important to identify dental practices in rural Manitoba willing to see young children for their first dental visit. Fortunately, the Manitoba Dental Association introduced a program throughout Manitoba in 2010 that encourages dentists to begin providing dental visits for very young children, even as young as 12 months of age. Family physicians and pediatricians are also well positioned to take an active role in ECC prevention and promoting infant and preschool oral health. These primary care providers are more likely to see young children at early ages than dentists, and they have a great opportunity to provide initial oral health assessments, anticipatory guidance to parents, and facilitate subsequent referrals to local dental professionals.

Several factors were found to be associated with ECC and increased caries rates in this study. Children whose mothers rated their oral health as being fair or worse were

significantly more likely to have ECC. Likewise, deft scores significantly increased as ratings decreased. Therefore, it appears that mothers are reliable in assessing their child's oral health status. These findings are consistent with a previous report on ECC involving a group of rural-dwelling Manitobans[11]. This relationship withstood multiple logistic regression analysis, in that children who were considered to be in substandard oral health were significantly more likely to have ECC (Table 4). This may be a practical question to include in a caries-risk assessment instrument for clinical use and screening purposes.

The findings from this study also suggest that family size may have an influence on a young child's oral health. Those with ECC belonged to families with significantly more children in the home than those who were cavity-free. Likewise, more children in the home was associated with increased deft scores. When age was removed from final regression model in the current study, the number of children in the household was found to be significantly associated with ECC (p=.0057). This finding mirrors the results of an earlier study of ECC in Manitoba[11], and has also been reported in other epidemiological investigations of ECC[20,21]. There are several possible explanations for the present findings. Parents with large families may have difficulty in meeting the health needs of their children, including oral health. Family finances may play a role as parents may have difficulty in affording dental care for the entire family. Further, it could also be due to the reality that performing and supervising routine, essential oral hygiene for each child in the home may be challenging; having more children may limit the time parents can spend with each child on these lifestyle tasks[11]. Another explanation concerns the transmissibility of cariogenic microorganisms[22]. It appears that initial transmission of *Streptococcus mutans* is not always from mothers but may also be by horizontal transmission among siblings[23]. Having more children in the home may mean increased transmission between siblings.

Other factors identified as contributing to the caries burden in these Hutterite children included children brushing their teeth by themselves (ie, unsupervised brushing) and the overall debris index score. Those brushing unsupervised were found to have significantly greater caries rates and debris in their primary dentitions; however, this had little influence on ECC prevalence. Results from the multiple logistic regression analyses indicated that brushing independently was not predictive of ECC. However, bivariate analysis did suggest that children with S-ECC had significantly higher debris index scores.

Young Hutterite children usually learn to speak German before English, which can sometimes make communication difficult for the very young and may affect their interaction with healthcare providers. While this is not usually a great barrier to care, it may mean that oral health promotion resources need to be translated into the German language. Acting on requests from some rural communities, the 'Healthy Smile Happy Child project' translated several oral health promotion teaching tools into the German language to assist in work with Hutterite colonies and recent German immigrants to southern Manitoba. Summary reports of key findings from this survey were shared with parents and leaders in the various Hutterite colonies. They were also shared with the community facilitator working with the early childhood oral health promotion project in that region of the province.

While Hutterite society is typically male dominated, with women assuming domestic roles, women play a key role in medical decision-making and are highly involved in the life of the children of the colony[8]. Therefore, any attempt to engage the Hutterite in early childhood dental prevention must include the mothers. Qualitative research may be a useful means to understand whether cultural views and practices have an influence on early childhood oral health. Considering that early childhood oral health status is a strong predictor of future dental health, it is important to work with community leaders to understand the importance of early and preventive dental visits. This will not only improve childhood quality of life and well-being, but may also lead to decreases in future dental treatment expenditures and dental emergencies.

Naturally, this study is not without limitations. The questions posed to the mother were retrospective in nature, which might have resulted in recall bias. In addition, the sample size was relatively small. However, considering that all eligible children from the 6 colonies participated, it dose provide an accurate assessment of the oral health of preschool children from these communities. Although the findings are not generalizable to all Hutterite preschool children in Manitoba, this project provides a baseline for future assessments and comparisons. While this is not an overwhelming representation of the preschool population of the region, it provides healthcare providers and the RHA of Central Manitoba with key information regarding the oral health status of Hutterite infants and preschoolers in the region.

Conclusions

This is the first study to report the prevalence of primary tooth decay in Hutterite children and has produced the following specific conclusions:

1. Over half of the children were identified as having ECC, with 42.4% having the more severe subtype, S-ECC.
2. Few Hutterite children had visited the dentist and of those who did, visits were generally due to caries or emergency based.
3. Factors associated with ECC in this population included childhood age, maternal ratings of childhood oral health, and the number of children in the home.

Decay rates were comparable with other Canadian data for rural dwelling children. Effective and culturally appropriate prevention and health promotion activities are warranted including fluoride varnish and early dental visits.

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