

Motivational Interviewing in Preventing Early Childhood Caries in Primary Healthcare: A Community-based Randomized Cluster Trial

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Objective To assess the effectiveness of motivational interviewing in preventing early childhood caries compared with conventional oral health education.

Study design Twelve health care units in southern Brazil were randomly allocated in 2 groups of 6 and professionals in 1 group were trained in motivational interviewing. The mothers/children and external examiners were blinded to the intervention. The data were collected by calibrated examiners using questionnaires and a clinical examination based on modified International Caries Detection and Assessment System criteria. Of the 674 children born in the catchment area in the year 2013, 469 received the intervention (224 in the conventional oral health education group, 245 in the motivational interviewing group), and 320 were examined by the end of the study (145 in the conventional oral health education group, 175 in the motivational interviewing group), with mean age of 30 months. The final follow-up was 68%, after 3 years.

Results Mean of decayed, missing, and filled surfaces at the end of the study period for the whole sample was 1.34 (95% CI 0.97-1.71). The caries rate per 100 surface-year in the conventional oral health education group was 1.74 (95% CI 1.14-2.34) and in the motivational interviewing group, it was 0.92 (95% CI 0.63-1.20). To correct for clustering effect and unbalanced factors, multilevel Poisson regression was fitted and the effect of motivational interviewing on the incidence rate ratio was 0.40 (95% CI 0.21-0.79).

Conclusions An intervention based on the principles of motivational interviewing style was more effective in reducing the number of surfaces affected by early childhood caries compared with conventional oral health education intervention. (*J Pediatr* 2018;■■■:■■■-■■■).

Trial registration ClinicalTrials.gov NCT02578966, Brazilian Registry of Clinical Trials RBR-8fvwxq.

Motivational interviewing is a strategy aimed at changing behavior based on the premise that the reasons to do so are individual and subjective.¹ In this patient-centered approach, patients are responsible for making the choices among the different alternatives and encouraged to make their own decisions.^{1,2} Motivational interviewing has emerged as an alternative to address a series of undesirable behaviors, such as unhealthy eating habits, lack of physical activity, and smoking.³⁻⁵

Motivational interviewing has shown different degrees of effect in preventing early childhood caries in clinical trials involving pregnant women and mothers of young children. Although some studies indicate that it can prompt behavioral changes,⁶ reduce the severity of carious lesions,⁷ and decrease the number of decayed teeth,^{8,9} others found no clinical effect.⁶ These differences cannot be explained by methodologic differences alone. Although the number of motivational interviewing sessions may provide a partial explanation, contextual factors that affect the incidence of new lesions may also be relevant. Those studies addressed different populations, namely indigenous Canadians, African Americans, and Asian immigrants. The aim of this study was to assess the effectiveness of motivational interviewing compared with conventional oral health education in preventing early childhood caries in a public health service.

Methods

This was a randomized community-based trial with parallel groups, whereby children/mothers and external examiners did not know to which intervention group the children's mothers had been allocated. The project was approved by the GHC Research Ethics Committee (protocol no. 13-063 and CAAE no. 15015013.0.0000.5530). The protocol remained unchanged throughout the study. The trial was registered in the Brazilian Registry of Clinical Trials (ReBEC:

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HCU Healthcare Unit
ICDAS International Caries Detection and Assessment System

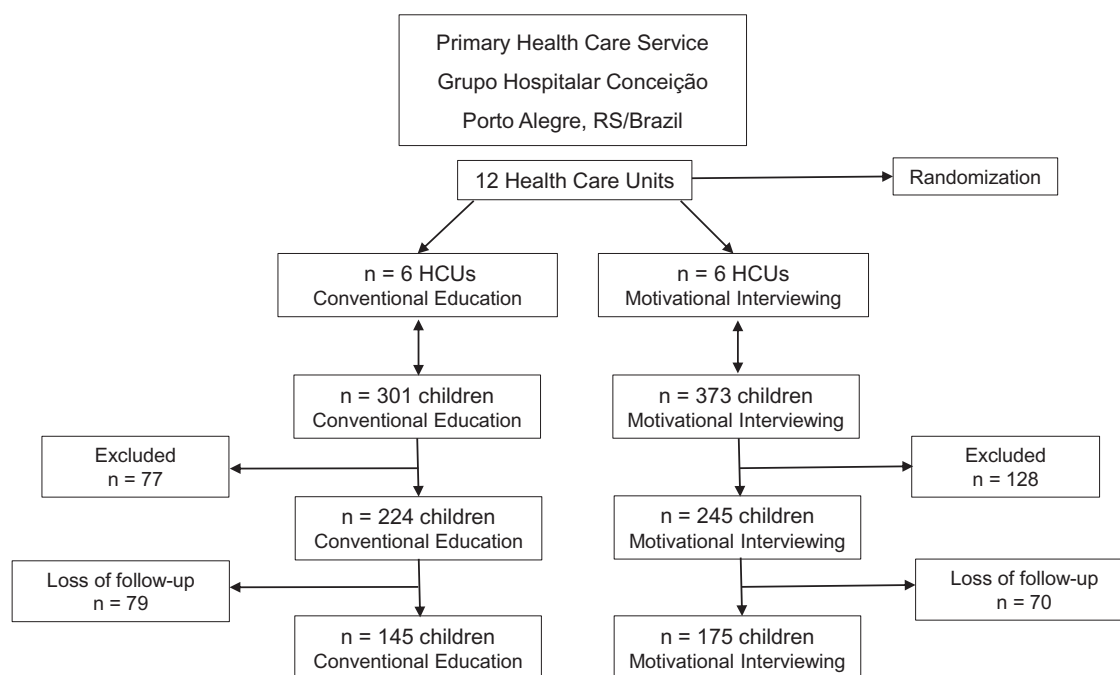


Figure. Flowchart of the randomization, allocation, and analyses of the study participants.

RBR-8fvwxq) and in [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02578966) (NCT02578966). The population consisted of children born in 2013 and their mothers ($N = 674$) who resided in the area covered by the Community Health Service of Grupo Hospitalar Conceição. This is a primary health care service composed of 12 health care units (HCUs) that attend part of the population of Porto Alegre, southern municipality of Brazil. Of the 674 children born in 2013, 469 who had at least 1 dental visit in their first year of life were included, 224 in the conventional oral health education group and 245 in the motivational interviewing group. The dental visit was performed by the oral health team, comprising dental surgeons and dental hygienists. In the follow-up, 145 children from the conventional oral health education and 175 from the motivational interviewing group were evaluated for a total of 320 children, that is, 68% of the sample (Figure).

The sample was calculated considering an early childhood caries incidence of 42.7% among controls and 29.1% in the motivational group over 2 years.¹⁰ Assuming an approximate intraclass correlation of 5%¹¹ and losses of 30%, a minimum of 599 children (299 in each group) would be needed to obtain 5% significance (α) with statistical power of 80% (β). The final sample size was smaller but consisted of a census of all children born in the Community Health Service of Grupo Hospitalar Conceição catchment area.

Randomization

The unit of randomization was the HCU, characterizing a randomization by cluster. The randomization was performed by one of the study authors using a computer-generated table of random numbers. Of the 12 HCUs, 6 were randomized to the

motivational interviewing group and 6 were randomized to the conventional oral health education group. As a result of this, the oral health team and mothers/children registered at each HCU were assigned to the groups of their local service. This randomization strategy prevented contamination among professionals working in the same service. Patients could only seek treatment at the HCU to which they were registered.

Motivational Interviewing and Conventional Education

The Community Health Service of Grupo Hospitalar Conceição's oral health protocol stipulates that children should undergo at least 1 dental visit in the first year of life to provide parents or caregivers with information on preventing early childhood caries.^{12,13} This is considered a conventional oral health education approach. In the motivational interviewing group, the same recommendations were given based on the spirit and techniques learned in motivational interviewing training. The dental visits of both groups lasted from 20 to 40 minutes.

In addition to the conventional protocol of the service, oral health team from the 6 HCUs drawn for the motivational interviewing group received intensive training to ensure active learning of the basic principles of motivational interviewing in two 4-hour sessions in 2012. The training was carried out by a qualified professional experienced in motivational interviewing.^{14,15} The principles of motivation, methods, and strategies of motivational interviewing have been developed through a combination of dialogue, case studies, video, dramatization, and exercises in pairs and small groups. Before and after the training, 3 instruments were used to evaluate the train-

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