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Original Article

Enhancing Oral Health Behaviors in American Indian Families: Early Results of a Community-Led, MI-Adapted, and Culturally Tailored Intervention

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ABSTRACT

American Indian (AI) youth experience the greatest burden of dental decay among all racial groups, with rates of untreated caries four times higher than those of white children. The Great Beginnings for Healthy Native Smiles project (NIDCR U01DE028508), a community-driven oral health initiative, integrated culturally relevant educational tools with adapted motivational interviewing (MI) strategies to encourage at-home oral health practices.mLocal staff members from two collaborating Indigenous Nations delivered the program. Drawing on formative data—semi-structured interviews with caregivers and providers, session transcripts, and post-intervention debrief interviews—the study aimed to assess how culturally adapted oral health education influenced behavior change in each community. Findings indicate that conversations with community health representatives using modified MI methods and tailored educational resources were linked to self-reported improvements in oral health behaviors. The outcomes underscore the critical role of trusted community health personnel in sharing culturally grounded oral health guidance with mothers and young children as part of efforts to lower ECC rates.

Keywords: Oral health behaviors, American Indian families, MI-Adapted, Culturally

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Introduction

AI children have the greatest prevalence of dental decay across ethnic groups, with fourfold the number of untreated caries relative to white peers [1]. The Great Beginnings for Healthy Native Smiles (GBHNS) program was created and carried out over six years in partnership with two Indigenous communities (one Plains, one Southwestern). Using a formative assessment [2], ongoing feedback from Community Advisory Boards, and a preliminary pilot, the GBHNS team developed six oral-health-centered sessions for pregnant individuals and new caregivers, spanning pregnancy through the child's first 3 years (Baldwin *et al*., under review; Kirby *et al*., under review). Each session addressed age-specific developmental points or prenatal oral health for expecting parents. Both communities adapted the scripts—language, visuals, examples, and tone—to align with their cultural context. Principles and methods from Motivational Interviewing (MI) were incorporated throughout [3–5]. Guided by a social determinants of health (SDOH) framework, the team customized all instructional materials [6]. The World Health Organization defines SDOH as "the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life" [7]. By identifying community-specific facilitators and barriers to oral health during the formative phase, GBHNS produced culturally grounded materials designed to address common oral health challenges and to link families with local supports (such as WIC, Head Start, farmers' markets, and access to nutritious foods). Earlier work on Indigenous oral health education has

also used MI and community-tailored materials [8-11], aiming to influence oral hygiene behaviors and reduce ECC. GBHNS expanded on these efforts by integrating SDOH findings, including issues like transportation and dental access, into its design.

Research in public health and behavioral sciences has emphasized the need to better understand interactions between care providers and the families they serve [12]. Evidence shows that trusted nurses and community health workers can deliver interventions that meaningfully shift health behaviors [12, 13]. In medical anthropology and public health, Community Health Workers (CHWs) are often described as intermediaries linking health systems with the communities they support [14]. In the partner Nations, these workers are known as Community Health Representatives (CHRs). The CHRs hired and trained for GBHNS not only guided cultural adaptation of the program but also shared missing or needed oral health information within their communities. Serving as a connection between health services and local families, GBHNS CHRs contributed both to shaping the education materials and to providing evidence-based oral health guidance to mothers and caregivers.

The aim of this study was to examine how a culturally adjusted oral-health education effort, which used a modified MI strategy, influenced two Indigenous communities, and to highlight communication instances that showed "trust" toward CHRs in this setting. Although the project did not formally evaluate "trust," the results provide communication examples relevant to community and dental health contexts. In this article, trust is reflected in mothers' and caregivers' openness when discussing what they know, do, and believe regarding their families' oral health. Using material from formative-assessment interviews, post-session debriefs, and transcripts from the intervention, we emphasize how trust and communication shape oral-health learning environments. First, we return to findings from the formative assessment [2] to show why oral-health education must be culturally specific. Next, we examine transcripts from the adapted sessions guided by CHRs, along with self-reported behavioral shifts, to consider how trusting relationships influence oral-health instruction and home-based practices.

Setting

GBHNS collaborated with two rural Indigenous communities: one representing a Northern Plains Tribe and the other a Southwest Tribe. Despite geographic distance, the tribes share key features—each has fewer than 15,000 enrolled members, each is situated in a rural U.S. region, both experience high levels of ECC, and both face shortages in oral-health services. The Northern Plains Tribe operates an IHS hospital and clinic, a BIA office, and tribal programs. All enrolled members may use IHS dental and medical facilities on their tribal land, but those living off-nation often drive at least one hour to access care. During the intervention, the tribe had an active WIC program supplying nutritious foods, while its Head Start program was defunded and inactive. The dental clinic staff included one head dentist, two general dentists, one pediatric dentist, one endodontist, one hygienist, and seven dental assistants.

The Southwest Tribe is also highly rural. Many residents travel 30–40 minutes to reach the IHS dental clinic on the reservation, and specialty appointments may require trips of up to 150 miles. At the time of the study, seven dentists worked within the reservation's health center. This tribe also maintained a WIC program supporting families with healthy foods. Unlike the Northern Plains site, its Head Start program remained operational and served 200 children ages 3–5, primarily from low-income households.

Materials and Methods

Project overview

GBHNS began by conducting a formative assessment with the two partnered tribes, recruiting 57 dental professionals, medical personnel, program administrators, and caregivers to identify obstacles and supports linked to children's oral health. Findings highlighted three central areas: oral-health knowledge and values, challenges limiting children's oral health, and resources that aided oral-health practices [2].

Next, data from the assessment guided GBHNS in co-developing culturally specific oral-health flipcharts for each tribe (Kirby *et al*., in review). CABs, CHRs, and a small pilot group refined the session designs and adapted MI scripts.

A feasibility phase followed to evaluate the cultural fit and acceptability of the MI-based approach, as well as short-term shifts in mothers' and caregivers' oral-health knowledge, attitudes, beliefs, self-efficacy, and intended behaviors. Previous research on MI in oral-health contexts shows mixed outcomes [9, 15–23], possibly because MI may function differently across AI communities. By pairing culturally adapted materials with MI, we sought to understand whether pregnant women and mothers were prepared to modify their own and their children's oral-health behaviors. Although the goal was to enroll 5 individuals for each of 6 sessions ($n = 30$), enrollment exceeded expectations, resulting in 41 participants. After each session and debriefing call, we evaluated reactions to the culturally adapted MI approach, including

relevance, clarity, usefulness, and fit. Pre- and post-session changes in knowledge, attitudes, beliefs, confidence, and behavioral intentions were also examined and will be reported in another manuscript (Baldwin *et al*., under review).

The adapted intervention was implemented in 2022–2023, with 41 participants recruited across the two sites. CHRs are recruited locally through community events, maternal/child programs, and word-of-mouth. The intervention involved one culturally tailored oral-health session using adapted MI, a pre- and post-survey, and a follow-up debriefing interview conducted by phone two weeks later.

Formative assessment

The formative assessment drew on information from 57 in-depth, semi-structured interviews conducted across both communities. These included oral-health and medical personnel, as well as program administrators (e.g., WIC, Child Protective Services) (n = 30), along with caregivers of young children (n = 27). A snowball-sampling approach was used to locate providers involved in local oral-health or maternal/child programming, and the same method was applied with caregivers to reach additional participants. The semi-structured format allowed flexible questioning and supported constant-comparative analysis methods [24]. Recruitment continued until thematic saturation occurred, meaning that new interviews no longer introduced additional perspectives or lines of inquiry [24]. Interview transcripts were analyzed using thematic-analysis strategies and constant comparison within Nvivo [25], a qualitative software platform for organizing and analyzing textual data. Further details on the assessment and its findings are available in another project publication [26].

Intervention

Following the use of formative-assessment findings and community guidance to culturally refine the oral-health materials, 6 oral-health education sessions were completed at each site (Kirby *et al*., under review). The sessions addressed: maternal oral health; bringing a child to the dentist; cleaning an infant's mouth/brushing a child's teeth twice daily; reducing sweet foods and drinks; offering only plain water in bottles or sippy cups at bedtime; and limiting the sharing of items that can transfer germs. In addition to culturally shaping the materials, CHRs and Community Advisory Boards adapted MI strategies for each community. A script was prepared for each session outlining session goals and including revised MI prompts and quick-reference MI concepts (e.g., "Reflect participant change plan"). CHRs participated in bi-weekly MI training, consisting of two one-hour meetings per week with MITI evaluations, practice exercises, and at-home recordings with relatives. Two extended in-person workshops were also conducted at Northern Arizona University. The 6-session oral-health intervention was carried out at both sites in 2022–2023 as a feasibility assessment.

Eligibility for mothers and caregivers required: (a) age over 18; (b) current pregnancy—preferably at or beyond month 4 at enrollment—or having a child under age 3. Exclusion criteria included: (a) not being pregnant; (b) not being American Indian or not expecting an American Indian child; (c) being under 18; or (d) inability to understand or sign consent for themselves and their child. These criteria were screened in the REDCap mobile platform [26]. Individuals who met the criteria and agreed to participate completed both a pre- and post-intervention survey in REDCap.

Across both sites, 41 eligible participants enrolled. GBHNS delivered 27 sessions at the Northern Plains site and 14 at the Southwest site. CHRs met participants in locations chosen by the participants to conduct the sessions. Each participant received a $50 gift card after completing the session. A total of 38 recordings were captured and transcribed through Trint.com with staff verification; three recordings were unusable due to audio complications.

All recorded sessions were coded thematically using ATLAS.ti, another qualitative software system for managing and analyzing text [27]. Coding followed a structured approach using predefined MITI 4.0 categories (e.g., cultivating change talk, reducing sustain talk, reflections, questions, affirmations, information-giving, empathy). Deductive themes came from the literature, debrief-interview prompts, and targeted analytic interests. Inductive themes were derived from a grounded-theory process that drew on participants' own words and experiences [24].

Debriefing interviews

Two weeks after each intervention session, NAU Research Staff contacted participants to conduct recorded semi-structured debriefing interviews exploring how the session fit their needs, whether the educational content had any influence on them, and whether any home-based oral-health behaviors had changed. The semi-structured format provided flexibility during phone interviews. Participants received a $25 gift card, either electronically or, if needed, as a physical card delivered by a local CHR. In total, 25 debriefing interviews were completed, recorded, and transcribed; 12 participants did not

complete follow-up, and 2 recordings were unusable due to audio damage. Interviewers asked about participants' familiarity with the CHR before the session, their overall impressions, the appropriateness of the material, perceived impact, desired changes, and whether the session influenced any household oral-health routines.

All available intervention-session recordings and debriefing interviews were analyzed using ATLAS.ti, a qualitative software system designed for organizing, storing, and examining textual data [27]. Coding allowed the research team to convert qualitative material into nominal, ordinal, or interval-ratio categories suitable for further analysis [24]. Debriefing interviews (n = 23) were coded deductively, using themes informed by existing scholarship, guiding questions, and the study's core interests. Additional themes were developed inductively through a grounded-theory process that incorporated participants' own descriptions and experiences [24].

IRB

The Northern Arizona University Institutional Review Board approved the study on December 21, 2022 (IRB #1920796-6) under an expedited review and deemed it low risk. Each Tribe's research review authority also granted approval. Informed consent was obtained from all interviewees, CAB members, and pilot participants at both locations. Any data designated for return will be shared with each site in accordance with the respective Tribal data-use agreements.

Results and Discussion

Identifying a gap in oral health education

During the formative-assessment interviews, issues related to inadequate education and weak communication emerged repeatedly. Caregivers (n = 27) described confusion about available services, reported receiving oral-health guidance mostly from medical rather than dental staff, and recounted negative encounters with dental providers. Taken together, these comments pointed to limited and inconsistent oral-health communication within the communities.

Both caregivers and providers noted that shifting local resources created confusion. Participants referenced the limited availability of specialty care and the intermittent operation of programs such as Head Start. Caregivers often expressed frustration when dental staff failed to explain what services existed or when specialty care was unavailable. One caregiver shared:

My 2-year-old started getting cavities, so I just kept brushing them. It was hard because I took her to the local dentist, but since they don't have a pediatrician anymore, they couldn't do anything. Now her teeth on top are all decayed. The cavities got worse after that visit, and they told me, "We'll put in a referral, but they probably won't see her until she's three." I asked, "What are you going to do for her?" [CH1]

Even in small communities, families may not clearly understand what services their clinic provides. In this case, the facility no longer had a pediatric dentist and was referring families to clinics roughly 2 hours away. Despite the referral, the caregiver still did not know when her child would actually be treated.

Among the 27 caregivers interviewed, only 3 reported learning about oral health directly from a dentist. The remaining 24 said they relied on community programs (e.g., WIC, Community Health Representative programs), relatives, or other parents. Intergenerational or family-based knowledge was found to be a significant oral-health support at both sites [2]. Parallel findings in global public-health research show that, in rural settings, mothers often depend on traditional or informal networks rather than formal medical systems [12]—a pattern reflected among GBHNS caregivers.

Many caregivers described negative childhood dental experiences. Some used fear-based messages with their own children ("You'd better brush or you'll have to see the scary dentist"). Others recounted distressing appointments: "Horrible memories… They didn't really talk to you about anything that was happening" [CC10]. Accounts frequently mentioned procedures done without localized anesthetic, physical restraint of children, or minimal explanation from providers.

As a whole, caregivers did not see dental providers as reliable sources of oral-health information. Because they perceived dental care as inconsistent, unavailable, or poorly communicated, caregivers frequently sought advice from other health-related programs or from family members.

Providers (n = 30), in turn, spoke about their own communication challenges, discontinued programs, and the need for cultural experts to effectively reach families at higher risk. Many oral-health professionals expressed a desire to improve children's oral-health outcomes but felt discouraged. One provider reflected, "After being here 11 years, I'd like to think I made a difference, and after looking back and seeing all the work we do, I don't know if we have, so it's very disappointing [18PH]." Even when following standard protocols—such as fluoride varnish and consistent checkups—providers felt they were not significantly reducing the burden of early childhood caries (ECC) in either community.

Providers described repeated failures in communicating with patients, often illustrated through

unsuccessful educational efforts. Although community initiatives such as Head Start were considered beneficial, local oral health professionals felt that substantially more education was needed within the region. One dentist referenced a former radio segment where the lead dentist hosted an oral health program. The current provider explained why it stopped:

I don't believe he wants to return to the [radio station], since he did it for several months. But it eventually became too demanding—balancing work, traveling to the station, and running the show. Still, people really need more information about dental care. It's pretty basic. And no one else seems to be offering it. [19PH]

Even though caregivers in the formative assessment mentioned other ways to find oral health information, both sites lacked consistent education efforts, and unstable or discontinued programs left families unsure of what resources existed or how to access them.

Adding to the challenges in oral health education, providers often noted that some parents appeared disengaged or absent during visits. This may be partially related to limited cultural understanding, though communication was so strained that it was hard to separate the causes [28]. When a provider was asked whether parents seemed worried about new decay in their child's teeth, they answered:

I don't think they're particularly upset. Maybe a little concerned, but that disappears as soon as they leave. And if they do care, it's not obvious… It's also difficult because our clinic no longer has a pediatric dentist. We've been without one for a year and a half. [19PH]

At both locations, providers consistently reported uncertainty around how to approach conversations with parents. One site also faced confusion due to limited services for children. Without training to communicate effectively with families, non-specialist providers had to manage as best they could, leaving both sides unclear about how information was being understood.

Providers frequently inferred what parents meant or communicated in ways they assumed would demonstrate comprehension. One provider described his approach with local families:

I make sure they look at me and listen. They must look at me and listen. I'm not sure they're used to that, but it's the only way I can tell they're paying attention. [18PH]

Some providers recognized these communication gaps and expressed a desire for specific programs to support oral health education:

What I hope is that if we have someone culturally attuned working in this area, patients might take away something different than what they get from me. Because when I explain things, I truly try to stay at their level and avoid medical jargon… But then they go to the front desk, and it's as if the whole conversation never happened. [20PH]

Another provider hoped for involvement from a local Indigenous person who could help families at home and encourage behavior change:

What I'd like is when I treat a family with high caries risk, that someone… I'm not great at getting people to change their habits. So it would help to have a [Native] person follow up at home or check in with these high-risk patients. [20PC]

One provider at a partner site, who is a registered member of the local Tribe, described interactions with patients very differently from others:

…at the same time, I'm extremely close to my patients. They trust me completely. We've built a strong relationship that I don't see between patients and non-Native dentists. You know what I mean? [18PC]

As a Tribal member, this provider described a natural, unspoken connection with Indigenous patients and recognized how distinct this is from the experiences of non-Indigenous clinicians.

Across the formative assessment interviews, several themes surfaced: limited oral health education, ineffective communication, and patient mistrust of providers. These findings guided GBHNS staff to carefully adapt educational materials, train local CHRs in motivational interviewing, and identify supportive community networks. By embedding rapport-building into the intervention through tailored MI strategies, GBHNS was intentionally shaped to address the needs expressed by both providers and caregivers.

Intervention participants

Our intent was to assess the short-term influence of the culturally adapted oral health sessions on caregivers' and new mothers' knowledge, perspectives, confidence, beliefs, and intended behaviors. Details on the paired pre/post survey data will be presented in the forthcoming Baldwin *et al.* 2025 article. After informed consent, sociodemographic information for all participants was collected in REDCap and is summarized in **Table 1.**

Table 1. Caregiver sociodemographic and health characteristics (N = 41).

Participant Characteristic	**n (out of N = 41)**
Age in years, mean (SD)	27.4
Female gender	41
Relationship to the child	
Mother	41
Hispanic/Latino ethnicity	

No	40
Yes	1
Race	
American Indian / Alaska Native	40
Black / African American	1
White	1
Other	2
Highest education level completed	
Less than high school	6
High school diploma / GED	18
Some college / associate degree	13
College graduate or higher	4
Marital / partnership status	
Married or cohabiting	5
Divorced	2
Separated	2
Never married	11
Member of an unmarried couple	16
Other	5
Current work/occupation status	
Employed (for wages or self-employed)	19
Unemployed	9
Homemaker	3
Student	7
Other	3
Importance of maintaining tribal identity	
Not at all important	0
A little important	1
Somewhat important	9
Very important	31
Fluency in tribal language	
I do not speak my tribal language	10
I speak it a little, but not very well	26
I speak it moderately well	4
I speak my tribal language very well	1
Perceived income adequacy	
Not enough to get by	4
Barely enough to get by	16
Sufficient to meet needs	20
More than enough to meet needs	1

[a]Participants could select multiple responses.
[b]One individual did not self-identify as American Indian but reported enrollment in an eligible Tribe.

Increasing education: participant satisfaction and self-reported oral health behavior change

Debriefing interviews indicated that participants were generally pleased with the sessions. Ten individuals mentioned they already knew the CHR who conducted their visit. Sixteen people also noted that the flexibility of the CHR allowed the meetings to be scheduled at convenient times and locations. Only 2 participants encountered scheduling difficulties, both due to infants who were upset at the time of the meeting. When asked if the session needed improvement, 13 said it was "fine the way it was," offering no complaints.

Some participants did suggest enhancements. Six individuals proposed five ideas: adding more demonstration tools, holding sessions in a dedicated room, shortening the length of the visit, offering additional sessions, and including education for the whole household rather than focusing solely on mothers. Excerpts highlighting overall satisfaction appear in **Table 2.**

Table 2. Participant excerpt from debriefing interview.

Participant ID	Participant response to "Could the session have been better for you in any way?"
136-3	It was really good. The presentation had a lot of information, but it was delivered in a way that was easy for me to understand.
137-2	I think it was done very well. She explained everything clearly and articulately—I really can't think of anything that needed improvement.
138-9	The way she conducted it was thorough; she covered every point she intended to. She referred back to the flipchart, flipped ahead or back when needed, reminded herself with "Oh yeah," showed me the pictures, added a few extra pieces of information, and checked whether I already knew them or not.
135-9	I felt it was very well organized and highly informative. She shared a lot of new information that I had never heard before.
137-5	I believe the session was about as good as it possibly could have been.

Participants were also asked whether the session had any effect afterward. Many described learning things they had not known prior to their GBHNS visit. When asked whether the information encouraged them to modify their home routines, participants identified specific changes. Across the 23 audio-recorded and transcribed interviews, caregivers reported 10 distinct categories of at-home adjustments, totaling 27 specific behavior changes **(Table 3).**

Table 3. Debriefing interview: self-reported oral health behavior changes.

Self-reported behavioral changes from debriefing interviews	Total references (n = 27)
Brushing teeth twice daily	15

Reduced consumption of soda and/or sweets	8
Improved overall diet/nutrition	5
Scheduling or attending dental appointments	3
Supervising children while brushing	3
Increased flossing	2
Modeling good oral health behaviors for children	2
Being more mindful of germs/sharing utensils or kissing	1
No changes reported	1
Discontinuing use of sippy cup	1
Rinsing mouth with water after consuming sweets	1

When we compared the goals set during the sessions with the CHRs to the behavior changes described in interviews, 15 of 20 matched. Out of the 27 debriefing interviews, only one participant reported no change at all. That participant had initially set a goal to schedule a dental appointment:

NAU Research Staff [00:02:44] After participating, is there anything you might do differently for your oral health or your child's?

137-4 [00:02:52] Not really. It's nearly impossible to catch up on missed dental appointments. You either show up or you don't.

NAU Research Staff [00:03:06] Has anything the CHR shared shifted your daily habits?

137-4 [00:03:19] No, not really. Our routine is the same.

This participant noted that missing a dental visit essentially closes the opportunity—an issue repeatedly raised in the formative assessment (n = 13). Because of these well-known access barriers, setting a goal like "make a dental appointment" may have been unrealistic in the two-week follow-up window. In contrast, 22 participants did describe at least one meaningful at-home change two weeks after completing a single culturally adapted oral health session delivered by a local CHR using adapted MI.

Building trust and increasing education with an adapted MI intervention

All 6 culturally adapted oral health sessions followed a similar sequence that incorporated core MI principles: establishing rapport, letting participants choose the topic they wished to start with, delivering the culturally grounded MI-style education, setting a specific goal, and closing the meeting. Allowing participants to decide how to move through the material reinforced the patient-driven nature of MI. Spending time building rapport and responding directly to participants' questions laid the groundwork for more productive goal-setting at the end.

The goal-setting portion provided an opportunity to observe how the adapted education, MI approach, and trust in the CHR interacted. Because this part of the session involved talking through daily routines, CHRs and participants often exchanged more personal information.

Table 4. outlines the structure of the goal-setting component, which CABs modified to improve communication about oral health plans.

Section of the Change Plan Worksheet	Original Prompt (paraphrased wording)
1	We covered many ways to help your baby's oral health today. Of everything we discussed, is there one small, realistic change you feel ready to start with right now?
2	What made you choose that particular change?
3	Why does this change feel important to you personally?
4	Can you think of any additional benefits that might come from making this change?
5	Let's add specific details to your goal (who, what, when, where, how often) if it's not already clear.
6	On a scale from 0 to 10, how confident are you that you can make this change? (Follow with standard confidence ruler prompts)
7	What obstacles or challenges might get in the way, and how could you handle them?
8	Summary and final written Change Plan (review goal, reasons, steps, confidence, and support strategies)

CHRs guided participants through selecting and shaping an oral health behavior goal during each session. By helping participants consider how their own support networks could assist them when challenges arose, CHRs created space for caregivers to reflect on what changes felt realistic in their home routines.

As they worked on these goals, CHRs demonstrated an ability to connect with participants and acknowledge the difficulties they described. Because the discussion was tailored to what each individual shared, the

interaction reached a depth of engagement that is rarely possible in a clinic setting, creating an environment where trust in oral health conversations could grow.

In contrast to dental providers—who often described unsuccessful teaching efforts, communication barriers, and confusion about how to reach families—CHRs' interactions with participants looked markedly different. During the goal-setting section of the intervention, conversations were open, personal, and emotionally honest. In the excerpts presented next **(Transcript 1 and 2)**, the adapted MI approach supported the flow of dialogue. Frequent questions, reflective listening, affirmations, recognition of participants' own knowledge, consistent reinforcement of autonomy, and confidence-building allowed CHRs to cultivate trust while helping families envision how they might use the oral health information in their daily routines. As community members themselves, CHRs were able to "step into" participants' lives and work collaboratively toward a customized change plan **(Figure 1).**

CHR: Out of all that we discussed today, is there one small change that feels doable right now to get started?
135-4 [00:25:10] Yeah, I think, like you just really want them to get off the bottle, [?] their teeth because they learned about oral health and also working with kids too. And like how their teeth can like form into like a nipple shape if they keep drinking out of the bottle and stuff like that. I don't know. I just don't want them to have like silver teeth, like how my oldest son was. Like kids all make fun of them and stuff like that to make sure their teeth is okay.
CHR [00:25:46] Yeah, but that's, you know, so I hear you saying that from experience that, you know, working with kids, you've seen some kids and then experience even with your older son having those caps on his teeth and, you know, other children bullying him up... then you don't you don't want to the younger ones to go through that. So you're trying to take care of their teeth as much as the best way you can that you know how now you know. So, it sounds like you've done, you know, a lot of education already. But yeah... so you want to make this change, keeping the bottle away from them and using the sippy cup more? Okay. So how do you think you will go about making that change? And what other ideas do you do you have for how it could work?
135-4 [00:26:59] Sometimes I just try to hide their bottle and stuff and. But when they see the baby's, then they try to take it away from her. Or I just try to give them like not a sippy cup, but just a regular cup, but then they like think it has a lid, so they put it up too much and stuff and spill it all over themselves. And I think they're kind of learning and stuff. The only way that they always want their bottle is if they're tired and stuff. And but I don't really let them get laid down and drink it too, because I don't want them to choke too and stuff like that because like a little bit. Like if they go like in the wrong tube or something, they can just drown with them. Yeah. So, I don't want that to happen. So, I just like once they sleep, I just take it away and then put it on the side and stuff.
CHR [00:27:55] Wow. Yeah. It sounds like you have a lot of good, you know, good ideas and good education, probably from working with children in the past, your experience of working with children and you know, so you have a good idea for what you want, what you want for your babies and how you're going to work to try to make it work for you. Okay. So how often how often would you try to not give them the bottle?
135-4 [00:28:40] Well, I just try to give it to them, like, before they go to sleep. Like, just so they'll sleep longer before. But it's kind of like my partner, too. And you don't want to hear them cry or, like, whine and stuff. Then he'll just give it to them real fast and stuff. And then I tell him not to do that, and we need to get them off the bottle and stuff like that too. And so, he tries to, but it's like when he's around, they know that they can get his- their way and stuff, but when he's not there, then they're like, they understand. And when I talk to them and stuff, they'll not act up to me. But when he comes back from going on and working them, they already know that they can get it from him real quick and stuff so they just act up to him. But once he's not there and listen to me and stuff like that too.
CHR [00:29:37] Okay. So, it sounds like your partner gives in to them, you know, a lot more than you do. [135-4 Mm hmm.] Is there any way that you can work with your partner to maybe teach him, you know, like, what kind of effects the bottle can have in your baby's mouth? And, you know, maybe he can understand and start to support you.
135-4 [00:30:13] I do. I show him like those pamphlets I get from work and stuff and I just tell him, like, this is what will happen if we keep doing it and stuff. Then he understands too.

Figure 1. Transcript.

In this excerpt, the participant expresses concerns about getting her children off bottles (lines 3–8). The CHR responds by validating the participant's experiences and treating them as meaningful expertise (lines 29–33). The participant also talks about family interactions at home (lines 36–42), which can be sensitive topics, but the conversation reflects the trusting relationship that has been built. This trust is also evident when the participant begins thinking ahead to possible next steps (lines 45–49). Using strategies

that treat participants as the experts in their own lives and encouraging them to choose goals that feel achievable allows them to adapt the educational content to their own realities. Compared with the formative assessment descriptions of provider–patient interactions, this exchange shows much deeper involvement and openness **(Figure 2).**

138-7 [00:29:49] Yeah. Yeah, I don't want it to have a bunch of silver teeth. So we're going to... that's a battle I'm willing to fight.
CHR [00:29:57] That's a yes. That's a good way to put it. I really like that. "I'm battling for your teeth baby." Okay, well, that kind of concludes the information I was going to share with you. I have another step, too. And that's if you are going to make a change right now after listening to the lesson in how you are going to clean baby's teeth or would you like to set as a goal? There's a lot of, you know, things we've talked about and what kind of change might you be willing to make to improve things.
138-7 [00:30:37] For a baby or for me?
CHR [00:30:38] For both of you.
138-7 [00:30:39] Okay. I guess for baby, I'm going to start rubbing her gums in circles at least twice a day. And then I'm really going to shoot for I'm going to attempt to clean. And after every feeding both of us. But we'll just see. But we can guarantee the two times a day. But we'll see through the night because I might be half out of it at 330 in the morning. So I'm going to try and then just for myself, I think I'm going to start letting her see us brush our teeth.
CHR [00:31:10] Okay. Wow. You've set several goals, so let's just kind of review that. Oh, you're going to rub their baby's gums more often and use kind of a circular motion to happen. Once the teeth come out. You're going to brush twice a day.
138-7 [00:31:26] Yeah.
CHR [00:31:27] And again, using that circular motion and you're going to try to do it twice a day.
138-7 [00:31:34] Yep.
CHR [00:31:35] So, your confidence level. So how do you feel about... how strongly do you feel you can do that with 0 to 2 being 'not very sure'. 3, 4 and 5, 'kind of sure.' 6, 7 and 8 'more sure' and 9 to 10 'very sure I can do it.'
138-7 [00:31:59] 9 to 10.
CHR [00:32:02] Okay. You said it was going to be a battle you're willing to fight. Yeah?
138-7 [00:32:06] Yeah.
CHR [00:32:06] So what makes you so confident that you can make this change?
138-7 [00:32:13] I mean, I think I'm strong willed, and I just know the importance of teeth. And my mom took such good care of my teeth and my whole life, and. I don't know. I know the cost of dental care, and it's better to be proactive than reactive because the reactive way is so expensive. Surgeries, everything. And me and my husband, we don't have Medicaid, and we have IHS, but we have private insurance. So everything for us is going to be out of pocket. So the costs and the health concerns is what's really driving me.

Figure 2. Transcript 2.

In another case, a participant works with the CHR on a goal of brushing or wiping the baby's mouth two times per day. The participant had been highly engaged throughout the session, and the CHR builds on this momentum by reinforcing her confidence in making future changes.

The CHR helps the participant think through what she wants her goal to be, whether it feels manageable, and what benefits she hopes to see over time. Throughout the conversation, the CHR boosts the participant's confidence by affirming the value of the goal. In lines 3–4, for example, the CHR echoes the participant's statement about it being "a battle she's willing to fight." Then, in lines 11–16, the participant identifies several objectives: brushing/wiping twice a day, possibly after each feeding when feasible, and modeling brushing behavior for her baby. She also realistically notes that wiping the baby's mouth at 3:30 am may not always be possible. In lines 17–19, the CHR reviews the goal and comments on the participant's motivation. The CHR summarizes the plan in lines 21–22, and in line 23, the participant confirms her choice to use a circular motion. In lines 24–26, as part of the change-plan worksheet, the CHR asks about confidence. Reporting

high confidence in line 27, the participant is then asked to explain why. The CHR revisits her earlier phrase ("a battle she's willing to fight") in line 28, confirmed again in line 29. Finally, in lines 32–37, the participant reflects on personal qualities, family knowledge, and the financial consequences of poor oral health, all of which motivate her.

Two weeks later, the same participant reported:

NAU Research Team [00:05:00] You just listed a lot of things you learned. Did any of that make a real difference for you?

138-7 [00:05:22] Yeah. I didn't know I could brush her gums before she had teeth. Her teeth were just starting to come in when we met with [CHR]. I had already bought the little baby toothbrushes. As soon as she told me, we started right away. I began brushing her gums and the teeth coming in once a day, and now we're doing it twice. It got us going immediately.

The goal-setting conversation with the CHR ultimately led to a new routine for participant 138-7. By addressing her concerns, reinforcing her ability to succeed, and providing clear guidance on wiping and brushing, the CHR helped her establish a sustainable behavior change at home.

This project showed that employing local Community Health Representatives (CHRs) who already had established trust within their communities—combined with adapted motivational interviewing (MI) and culturally grounded oral health education—effectively addressed a longstanding gap in patient communication and education. Early formative work made it clear that many dental patients were not receiving information in ways they could understand or relate to. By positioning CHRs as the primary educators, the GBHNS initiative facilitated conversational, culturally aligned sessions that participants described as engaging and satisfying, as seen in **Transcripts 1 and 2** and **Table 2**.

Dental providers who participated in the formative assessment described strained or ineffective clinical encounters. They often perceived patients as unconcerned about dental decay and felt unsure how to communicate risk or motivate behavior change. Providers expressed an interest in collaborating with individuals they viewed as "cultural experts" to support high-risk patients. The CHR-led sessions responded directly to this need: CHRs met participants in relaxed, familiar environments and guided them through oral health discussions that encouraged personal reflection and practical application. The active participant engagement observed in the transcripts reflects the rapport CHRs were able to build—rapport that providers had struggled to establish.

The intervention was intentionally layered with community-specific elements. Local community advisory boards contributed to program design; educational materials incorporated regionally relevant images and art (Kirby *et al*., in review); and CHRs—who were themselves tribal community members—delivered the sessions. These components collectively created an intervention that felt rooted in the community rather than imposed upon it. Rapport-building is a well-established approach in qualitative inquiry, but the effectiveness here was amplified by the CHRs' shared identity and history with participants. Their training in research methods and adapted MI enabled them to draw out information and facilitate change in ways that outsiders often cannot, which contrasts sharply with the earlier findings depicting miscommunication between dental providers and patients.

Extensive literature highlights the value of community health workers (CHWs/CHRs) across many fields, emphasizing their ability to foster engagement, support reciprocal learning, and contribute to sustainable programs [29]. Smith and Blumenthal (2012) note that such efforts succeed only when there is deep community commitment and when CHWs are motivated and appropriately trained. In this project, community commitment has been documented previously (Camplain *et al*.; Baldwin *et al*., in review). This commitment not only helped recruit women into the study, but also led many participants to request additional sessions. CHRs, motivated by the communication barriers identified in the formative work, developed educational content that resonated with local needs. Their ability to discuss at-home oral health behaviors in trusted conversations allowed them to create personalized change plans, with all but one participant reporting behavior improvements after the intervention.

Study Limitations, Strengths, and Directions for Future Research

A key limitation of the present work lies in its reliance on self-reported outcomes. Although caregivers described positive shifts in home-based oral health practices during debriefing interviews, no objective measures were employed to confirm these changes. Furthermore, despite the inherent trust associated with Community Health Representatives (CHRs) being local community members, some participants in tight-knit settings may have harbored concerns about privacy and confidentiality.

The study nonetheless possessed several notable strengths. Beyond the favorable short-term effects observed during the intervention, the project generated

durable educational resources with ongoing value for both participating communities. More than 15 flip charts have already been disseminated across the two sites. One tribe's CHR program has formally integrated the Great Beginnings for Healthy Native Smiles (GBHNS) oral health curriculum into its 2025 programming in partnership with the tribal dental clinic. Following the intervention phase, the GBHNS team reconvened with providers who had contributed to the formative assessment. Findings were shared in dedicated presentations to dental staff, which were received enthusiastically. At each clinical site, complete sets of the newly developed educational materials were left for provider use or placement in waiting areas for patient access.

For future directions, it is noteworthy that 7 of the 27 debriefing interviews indicated caregivers had brought children, partners, or grandparents to the sessions. Participant feedback prompted revisions to the materials to better accommodate multi-generational family involvement in subsequent iterations. Caregivers frequently described extended-family living arrangements and shared child-rearing responsibilities. Incorporating these intergenerational dynamics into educational content represents an additional strategy for strengthening community rapport and broadening the reach of oral health messaging.

Conclusion

This investigation underscores the urgent demand for culturally responsive oral health education and communication strategies in Indigenous settings. Formative data highlighted systemic barriers, including inconsistent messaging, eroded trust in dental professionals, and recurrent interruptions in clinical services. Caregivers commonly turned to non-clinical sources—community initiatives and ancestral knowledge—for guidance, while providers voiced frustration over the limited impact of conventional outreach.

The deployment of a culturally adapted intervention, facilitated by trusted CHRs employing modified motivational interviewing techniques, directly targeted many of the deficiencies identified in the formative phase. Participants expressed strong satisfaction with the sessions and reported early adoption of improved practices, such as twice-daily brushing, decreased intake of sugary items, and greater supervision of children's routines. The collaborative goal-setting component promoted shared decision-making and reinforced participant agency.

By capitalizing on preexisting community relationships and offering flexible, individualized sessions, the CHR-led model fostered a level of interpersonal trust seldom achieved in traditional dental encounters—a contrast starkly evident when compared with formative findings on communication failures. This approach illustrates how relationally grounded, culturally congruent dialogue can effectively drive behavioral change. Whereas prior community health worker literature has called for concrete demonstrations of trust-building mechanisms, the current project supplies two tangible examples within an Indigenous oral health framework.

Subsequent efforts should prioritize long-term sustainability and scalability. Expanding CHR training in adapted motivational interviewing and securing ongoing support for localized programming hold substantial promise for advancing oral health equity among Native children and families. The model presented here offers a transferable framework that harnesses community trust and culturally informed interaction to close persistent gaps in oral health education and service delivery.Data availability statement

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