Revisiones Narrativas
https://doi.org/10.47990/b9r16366

Motivational Interviewing Protocols for prevention of caries in children: a scoping review

Marcella do Nascimento Nunes[1], *Fabyane Cota Ribeiro Duarte*[2], *Alessandra Camelo Alves Menezes*[3], *Janice Simpson de Paula*[4], *Lívia Guimarães Zina*[5], *Loliza Luiz Figueiredo Houri Chalub*[6].

Abstract: **Introduction:** Childhood caries remains a significant public health challenge in Brazil. Motivational interviewing (MI) has been recognized as an effective approach for promoting behavior change. Therefore, access to a structured MI protocol by oral health professionals may enhance its application in childhood health education actions. **Objective:** To systematically map studies that used any type of structured MI protocol in the prevention of childhood caries and to evaluate the protocols, questionnaires, or interview guides used. **Materials and Methods:** A scoping review was conducted by two independent reviewers, previously trained and calibrated, who carried out the search, selection, and data extraction of studies that used MI protocols in the management of caries in children. MEDLINE, LILACS, BBO, CUMED, BDENF, SciELO and Scopus were searched for studies published between 2019 and 2024. Inter-reviewer agreement was excellent (*kappa* ≥ 0.84). **Results:** Of the 862 references identified, 10 studies used a structured MI protocol with parents or guardians of children. Randomized clinical trials predominated and were conducted mainly among low-income populations and children at high risk for caries. **Conclusion:** The mapping of the scientific production on M I for childhood caries prevention identified a small number of interventions based on a structured protocol, with the Weinstein Protocol and collaborators being the only instrument translated and adapted into other languages.

Key words: Motivational Interviewing, Oral Health, Dental Caries, Child Health.

Protocolos de la Entrevista Motivacional para la prevención de la caries en niños: Revisión de alcance

Resumen: **Introducción:** La caries en la infancia continúa representando un desafío para la salud pública en Brasil. La Entrevista Motivacional (EM) se destaca en la literatura como un enfoque eficaz para promover cambios en el comportamiento. El acceso de los profesionales de la salud bucal a un protocolo estructurado de EM puede favorecer su aplicación en las acciones de educación en salud. **Objetivo:** Mapear sistemáticamente los estudios que emplearon protocolos de la EM en la prevención de la caries en niños, así como evaluarlos. **Materiales y Métodos:** Se realizó una revisión de alcance por dos revisores independientes, previamente entrenados y calibrados, quienes llevaron a cabo la búsqueda sistemática, selección y extracción de datos de estudios que aplicaron protocolos estructurados de EM en el manejo de la caries en niños. Se consultaron las bases de datos MEDLINE, LILACS, BBO, CUMED, BDENF, SciELO y Scopus, el período de recolección de datos abarcó de 2019 a 2024. La concordancia entre los revisores fue excelente (kappa≥0,84). **Resultados:** De las 862 referencias identificadas, se seleccionaron diez estudios por emplear un protocolo estructurado de la EM con padres o cuidadores de niños. Predominaron los ensayos clínicos aleatorizados, realizados en poblaciones de bajos ingresos y en niños con alto riesgo de caries. **Conclusión:** El mapeo de la producción científica sobre la EM en la prevención de la caries en la infancia identificó un número reducido de intervenciones basadas en un protocolo estructurado, siendo el Protocolo de Weinstein y colaboradores el único instrumento traducido y adaptado a otros idiomas.

Palabras clave: Entrevista Motivacional, Salud Bucal, Caries Dental, Salud Infantil.

[1]*Graduação em Odontologia, Universidade Federal de Minas Gerais, Belo Horizonte, Brasil.*
[2]*Mestrado Profissional em Odontologia em Saúde Pública da Universidade Federal de Minas Gerais, Prefeitura Municipal de Betim, Brasil*
[3]*Mestrado Profissional em Odontologia em Saúde Pública da Universidade Federal de Minas Gerais, Prefeitura Municipal de Betim, Brasil*
[4]*Faculdade de Odontologia da Universidade Federal de Minas Gerais, Belo Horizonte, Brasil.*
[5]*Faculdade de Odontologia da Universidade Federal de Minas Gerais, Belo Horizonte, Brasil.*
[6]*Faculdade de Odontologia da Universidade Federal de Minas Gerais, Belo Horizonte, Brasil.*

Protocolos de Entrevista Motivacional para prevenção da cárie em crianças: revisão de escopo

Resumo: **Introdução:** A cárie na infância continua sendo um desafio significativo para a saúde pública no Brasil. A Entrevista Motivacional (EM) tem se destacado como uma abordagem eficiente para promover mudanças de comportamento. Assim, o acesso dos profissionais de saúde bucal a um protocolo estruturado de EM, pode favorecer sua aplicação nas ações de educação em saúde infantil. **Objetivo:** Mapear sistematicamente os estudos que utilizaram algum tipo de protocolo estruturado para aplicação da EM para prevenção da cárie na infância e avaliar os protocolos, questionários ou roteiros utilizados. **Materiais e métodos:** Revisão de escopo conduzida por dois revisores independentes, previamente treinados e calibrados, que realizaram a busca, a seleção e a extração de dados de estudos que aplicaram protocolos estruturados de EM no manejo da cárie em crianças. As bases MEDLINE, LILACS, BBO, CUMED, BDENF, SciELO e Scopus foram consultadas para buscar estudos publicados entre 2019 e 2024. O nível de concordância entre os revisores foi excelente (*kappa* ≥ 0,84). **Resultados:** Das 862 referências identificadas, dez estudos individuais foram selecionados por terem utilizado um protocolo estruturado na condução da EM com pais/responsáveis de crianças. Predominaram ensaios clínicos randomizados, realizados com populações de baixa renda e crianças com alto risco de cárie. **Conclusão:** O mapeamento da produção científica sobre EM na prevenção da cárie na infância identificou uma pequena parcela de intervenções pautadas num protocolo estruturado, sendo o Protocolo de Weinstein e colaboradores o único instrumento traduzido e adaptado em outros idiomas.

Palavras-chave: Entrevista Motivacional, Saúde Bucal, Cárie Dentária, Saúde da Criança.

Introduction

Dental caries can occur in early childhood and is defined as the presence of one or more decayed surfaces (non-cavitated or cavitated lesions), missing due to caries, or filled surfaces in any primary tooth of children under six years of age[1]. Its occurrence has a negative impact on the person's health and quality of life[2]. In addition to psychosocial effects, caries can cause pain and problems with speech and eating, being the oral condition with the greatest impact in health-related quality of life[3], and affecting also the parents of children with caries[4]. Caries experience varies greatly among populations with different socioeconomic conditions. It is well known that social inequalities affect human health, including oral health. Caries is highly prevalent in disadvantaged communities, indicating that socioeconomic inequality significantly affects children's oral health[5].

In this context, childhood caries remains a challenge for the Brazilian public health system. According to the latest national oral health survey conducted in 2023, dental caries affects an average of 2.14 teeth among 5-year-old children, with the decayed component (teeth with untreated cavitated lesions) accounting for more than 78% of the dmft index, which assesses decayed, missing teeth indicated for extraction, and filled teeth due to caries. The prevalence of children in this age group with one or more teeth affected by untreated caries was 41%, indicating a high demand for clinical interventions in early childhood[6].

Health education studies highlight the long-standing concern of oral health professionals in promoting behavior change and increasing knowledge to prevent oral diseases[7]. Parents are the most important social force in early child development and those who organize the child environment, endorsing positive

or negative health behaviors[8]. Parental influences on the development of childhood caries have attracted particular interest among researchers.

Behavioral change is a complex phenomenon of multiple determinants that is related to ambivalent processes[9], i.e., the dilemma of deciding between maintaining the current habit or changing the behavior. Ambivalence is very common in health issues, as people are adapted to their routines. After realizing that the use of lectures, arguments, and warnings were not effective with ambivalent people, Miller et al. proposed a different approach in behavioral therapy: the Motivational Interviewing (MI). MI is a person-centered approach aimed at assisting the person in solving dilemmas and in achieving the necessary behavior change towards health through the person's own motivation[10].

MI is an effective tool, especially when the patient's ambivalence and motivation are an obstacle to change. MI emerged from clinical experiences in counseling alcohol addicts, but its use was soon expanded to guidance for reducing harmful behaviors and in promoting healthy habits[10]. Currently, the technique is widely used in interventions carried out in Primary Health Care (PHC)[11, 12], as it is a brief approach with the specific goal of resolving ambivalence to achieve behavior change[13].

Among the psychological and behavioral approaches used in Dentistry, MI has received great support[14-16]. Some reviews have reported the effectiveness of MI in reducing caries and changing oral health behaviors[14, 15, 17-20]. Despite this, MI is not routinely integrated into practice among oral health professionals[21].

Until now, there is a lack of consensus on protocols or standardized structures to guide behavioral interventions in oral health, including for MI[21, 22]. Thus, a standard protocol would contribute to expanding the use of MI by offering specific and easy to follow guidelines to professionals in the dental field. Given the limited number of workshops or specialization courses available on this topic in Brazil, the protocol represents an alternative strategy to raise awareness of this technique for promoting behavior change among patients with MI. Its use, particularly by primary health care professionals, may represent a valuable addition to the skill set of oral health teams. The adoption of a more targeted and systematized approach through standardized protocols may further encourage its implementation.

Herein, a scoping review was conducted with the objectives of systematically map studies on childhood caries management that used an MI protocol and to evaluate the protocols, questionnaires, or interview guides used. The research question was: "Are there published MI protocols/questionnaires/interview guides that were developed/used in parents/guardians for childhood caries management?" The PCC (Population, Concept, Context)[23] framework was used as follows: Population: children; Concept: Motivational Interview and related protocols, questionnaires, or interview guides; Context: oral health care.

Methods

The development of this scope review followed the structure recommended by Arksey and O'Malley's[24] and Joanna Briggs Institute[23], and the PRISMA checklist for Scoping Reviews (PRISMA-ScR - Preferred Reporting Items for Systematic reviews and Meta-Analyses - extension for Scoping Reviews)[25] was used for reporting the results.

Eligibility criteria

This review included studies involving human participants that used MI in Dentistry, targeting parents and guardians of children and/or children, with an established protocol/questionnaire/interview guide, regardless of the publication date and language. All epidemiological study designs were considered, such as cross-sectional, case-control, cohort studies, and clinical trials; reports and case series were also considered, as well as clinical trial protocols. The authors of studies reporting the use of MI protocols but without describing the tool were contacted to obtain the information.

Databases and search strategies

A search for potentially relevant studies was performed in the MEDLINE, LILACS, , Brazilian Bibliography of Dentistry (BBO), Cuban National Science Information Center (CUMED), and Nursing Database (BDENF) databases, via PUBMED and BIREME systems, SciELO and Scopus, without date restriction. In addition, the gray literature was consulted by searching the Open Gray database and the Brazilian Digital Library of Theses and Dissertations (BDTD).

The main search terms were identified in the Mesh (Medical Subject Headings) and its Brazilian equivalent, DeCS (Health Sciences Descriptors databases) databases. Two groups of synonyms were used: Motivational Interview and Dentistry. The search strategy used for MEDLINE and SciELO was: (motivational interviewing [Title/Abstract]) AND ("Dentistry"[Mesh] OR dentistry OR "Dental Care"[Mesh] OR "Dental Care for Children"[Mesh] OR oral health OR Odontology). The same search strategy was adapted for LILACS/BBO/CUMED/BDENF databases: (tw:(Motivational Interviewing)) AND ((tw:(Dentistry)) OR (tw:(Dental Care)) OR (tw:(Dental Care for Children)) OR (tw:(oral health)) OR (tw:(Odontology))). For Scopus the search strategy was: TITLE-ABS-KEY (motivational AND interviewing) AND (TITLE-ABS-KEY (dentistry) OR TITLE-ABS-KEY (dental AND care) OR TITLE-ABS-KEY (dental AND care AND for AND children) OR TITLE-ABS-KEY (oral AND health) OR TITLE-ABS-KEY (odontology)).

The term "Motivational Interviewing" [Mesh] was not used because some references were published before the term was indexed in Mesh; instead the descriptor "motivational interviewing [Title/Abstract]" was applied. The terms "protocol" and "questionnaire" were also not used as they are often not indicated in the titles and abstracts of the references. To search the gray literature, the descriptors "motivational interviewing", "protocol", "dentistry", and "dental caries" were used, combined in pairs.

The final search results were imported into the EndNote©[26] reference manager software, and duplicate references were removed both automatically and manually. Finally, the reference list obtained in the search and the references included in this scope review

were analyzed. The search was carried out on February 19, 2019 and was updated three times: May 1, 2020; December 3, 2023; and December 22, 2024.

Study Selection

Two reviewers selected the references for inclusion in the study. The reviewers were trained and calibrated, obtaining an agreement level of 80% and *kappa* ≥ 0,84. During this process, the eligibility criteria were discussed and refined, with the support of two other reviewers considered "gold standard" specialists. Thereafter, each reviewer screened half of the total references retrieved from the search.

References were first selected based on titles and abstracts and the selected ones had their full text evaluated to be included in the review. Of the 52 references evaluated to assess inter-reviewer agreement and agreement with the gold standard, 15 presented disagreements or uncertainties. These were resolved through discussion and consensus regarding study selection and data extraction.

Data extraction process

A standard Excel® form was used to enter relevant information from the references and detailed data on the MI protocols/questionnaire/interview guide. When the information was not available, incomplete, or unclear, the authors of the study were contacted by email.

At this stage, the reviewers went through a new training process. Two examiners independently extracted data, discussed results, and continually updated the form in an interactive process. The extracted data were checked by the two gold standard reviewers.

The following information was extracted from full texts: author; year of publication; publication language; geographic region; study objective and design; year of data collection; sample size; inclusion and exclusion criteria; application of intervention in single or multiple groups; number of participants in experimental and control groups; type of intervention in the experimental and in the control groups; MI duration time; person who received the intervention; prior training of the professional that applied the MI; person who applied the MI protocol; data collection monitoring; outcomes; fidelity evaluation of the MI intervention; use of protocol/questionnaire/interview guide; validation and publication of the protocol; protocol country of origin; protocol language; partial or entire protocol/questionnaire/interview guide availability; number and type of questions in the protocol/questionnaire/interview guide; difficulties and conveniences in using the protocol/questionnaire/interview guide; results of the intervention group; presence of a positive result in oral health.

Summary of results

The studies were grouped and compared according to study designs, characteristics of the study population, purpose of using MI, and detailed description of protocol/questionnaire/interview guide. The data are presented in the text and in tables.

Results

Study selection

A total of 862 references were identified (493 in the initial search, 55 in the first

update, 284 in the second update, and 30 in the third update). Their titles and abstracts were screened, and 72 studies were selected for full-text review. The full text of two of these studies could not be obtained, despite attempts to contact the authors, who did not answer. At the end, 16 references remained. Of these, six references were from the same study, and the one that had the most complete and current data was selected, resulting in 10 studies included in the review. The search in the gray literature and manual search did not return any reference (Figure 1). The classification of the full texts is available in the Supplementary Table 1.

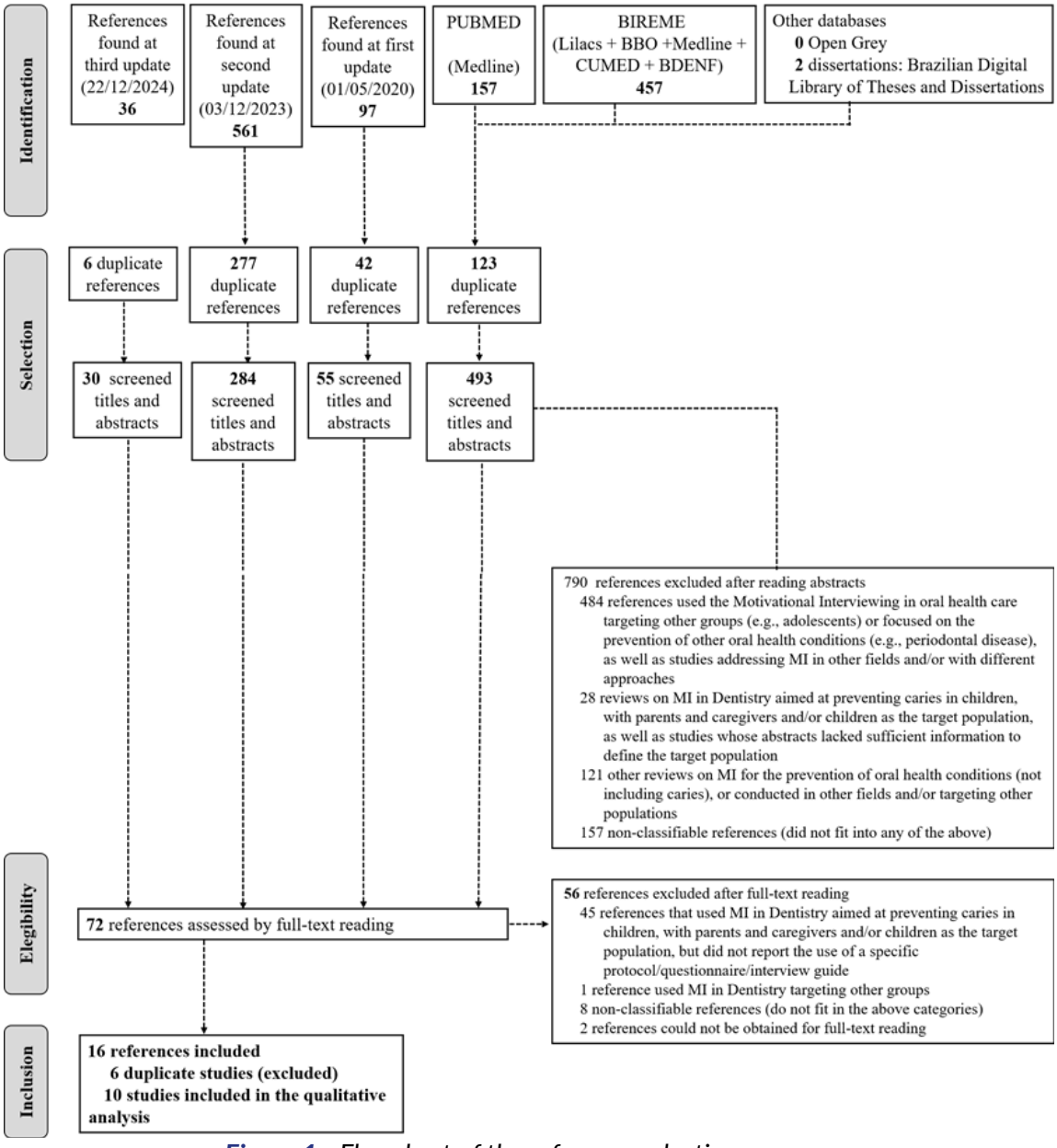

Figure 1 *- Flowchart of the reference selection process*

Study characteristics

All included studies were published in English and evaluated the effect of the MI intervention on oral health. Of the reviewed articles, seven were randomized clinical trials[27-33], two were research protocols of randomized clinical trials[34,35], and one was a community trial[36]. Most studies were published within the last decade (2012–2019), except for the Weinstein et al. protocol study[29], which was published in 2004, and a more recent article published in 2023 that used this protocol[33]. The studies were carried out in Canada[29,30], Australia[33,34], United States of America (USA)[31,35], Mexico[27], Iran[36], Trinidad and Tobago[28], and India[32] and included low-income populations, children at high risk of developing dental caries, immigrant communities, rural communities, and indigenous populations. Study samples ranged from 25 to 750 participants in each group.

The experimental group of all studies received the MI intervention, which varied in duration (17 to 50 minutes) and was directed to mothers, fathers, or guardians of the child. Other interventions in the experimental groups included follow-up visits (8 of 10 studies), followed by educational videos and pamphlet (4 of 10 studies). All studies included a control group that received the conventional educational intervention: either an educational pamphlet (5 of 10 studies) or an educational video (4 of 10 studies).

One study assessed fidelity of the MI intervention[31] and two others intended to assess it[34, 35]. Fidelity of MI is used to estimate how well the health professional adheres to the protocol when applying the MI, in relation to its theory and principles. Some instruments are available to measure the competence in the use of MI and provide feedback on its use, such as the Motivational Interviewing Treatment Integrity[34].

Results of individual studies

The main characteristics of the studies are shown in Table 1, and data on the protocols, questionnaires, and interview guides are provided in Table 2.

Summary of results

The Weinstein et al. Protocol[29] stood out in this scoping review. Of the ten studies analyzed, six (other than the original) used this protocol [28,30,32-34,36], either in its entirety or an adapted version. The study that presents the Weinstein et al. Protocol was published in 2004[29] and conducted in Canada, with 240 pairs of children aged 6 to 18 months and their South Asian immigrant mothers. MI was conducted as a 45-minute face-to-face counseling session, with two additional follow-ups over the phone during the period called 'preparing for change'. The protocol, available by request to the author, has 15 pages divided into five sections (1 - establishing connection and identifying needs; 2 - recognizing and dealing with resistance; 3 - examining baby teeth; 4 - summarizing and encouraging dialogue, 5 - presenting and discussing the menu) with several items and tips to be used as guidelines on how the professional should conduct the interview, in addition to possible responses from patients. The protocol also provides an introduction

Table 1 *– General characteristics of the included studies*

Authors, year, country	Study design and objective	Sample	Intervention in test group	Intervention in control group	Main outcome	Positive result of MI
Weinstein et al., 2004, Canada	RCT Assess the effect of MI on oral health	6-to-18-months-old children and their South Asian immigrant mothers 120/120	MI session + follow-up (phone call and postcard) + video + pamphlet	Video + pamphlet	Caries	Yes
Harrison et al., 2012, Canada	RCT Assess the effect of MI on oral health	Newborns and their Aboriginal mothers when pregnant 131/141	MI session + pamphlet	Pamphlet	Caries, knowledge and behavior towards oral health	Yes
Arrow et al., 2013, Australia	RP Assess the effect of MI on oral health	Newborns and their caregivers 750/750	MI session + + follow-up	Participation in the program offered by the health service	Caries, knowledge and behavior towards oral health, dental fatalism, self-efficacy, use of dental services	Not applicable
Batliner et al., 2014, EUA	RP Assess the effect of MI on oral health	Newborns and their Native American mothers / caregivers 300/300	MI session + + oral hygiene kit + community service improvements	Oral hygiene kit + community service improvements	Caries, knowledge and behavior towards oral health, self-efficacy, use of dental services	Not applicable
González-Del-Castillo-Mc-Grath et al., 2014, Mexico	RCT Assess the effect of MI on oral health	Children aged 6 to 10 years and their mothers 50/50	MI session + follow-up + video + restorative treatment	Follow-up + video + restorative treatment	Caries, plaque index	Yes
Mohammadi et al., 2015, Iran	CS Assess the effect of an MI protocol on oral health	Preschoolers and their parents 111/111	MI session + follow-up (phone call and postcard) + lecture + pamphlet + oral hygiene kit + video	Lecture + pamphlet + oral hygiene kit + video	Caries, plaque index, gingival bleeding	Yes
Naidu et al., 2015, Trinidad and Tobago	RCT Assess the effect of MI on oral health	Preschoolers and their parents / caregivers 25/54	MI session + + follow-up + pamphlet + lecture + oral hygiene kit	Pamphlet + lecture + oral hygiene kit	Knowledge and behavior on oral health, dental fatalism, self-efficacy	No
Riedy et al, 2015, EUA	RCT Assess the effect of MI on oral health	18-month-old children and their mothers when pregnant 350/50	MI session + follow-up	Video + pamphlet + follow-up	Knowledge and behavior on oral health, dental fatalism, self-efficacy, use of dental services	No
Kapoor et al., 2019, India	RCT Assess the effect of an MI protocol on oral health	6-to-10-year-old children and their parents 50/50	MI session + follow-up (phone call) + fluorine varnish + video + restorative treatment	Follow-up (phone call) + lecture + fluoride varnish + restorative treatment	Caries, oral health behavior	Yes
Arrow et al., 2023, Australia	RCT Assess the effect of MI on oral health	Parent/child dyads (6–12 weeks old baseline, 18 months, 3 years and 5 years of age follow-up) 456/461	Three counselling MI sessions + Antecipatory guidance + follow-up	Standard care + Antecipato- ry guidance + referral to a dental practitioner for care	Caries, presence of plaque, Knowledge and behavior on oral health, dental fatalism, self-efficacy	No

Summary of the studies included in the review.
MI: Motivational interviewing; RCT: Randomized clinical trial; RP: Research protocol; USA - United States of America; CS - Community study.

and explanations on the topics addressed in the MI, and around 55 open- and closed-ended questions to be answered by patients. Finally, the study does not inform whether the protocol was validated in English, its original language[29]. The other articles in which an original protocol was cited[27,35] did not present the full protocol, and the authors did not respond to our request to access to the full document. Thus, the Weinstein et al. Protocol was the only one available in the literature, in its complete version.

Table 2 *– Characteristics of the motivational interviewing protocols used in the included studies.*

Author, year, country	Time (min)α	Person who received MI intervention	Person who applied the intervention / Previous training	Origen	Valid / published protocol	Presents part of the protocol	Items (type/ number)
Weinstein et al., 2004, Canada	45	Mothers	Community worker/yes	Weinstein et al.original protocol	NI/ Yes	Yes	Open- and closed-ended/ NI
Harrison et al., 2012, Canada	NI	Mothers	Community worker/yes	Adaptation/ translation of the Weinstein et al. protocol	NI/NI	No	NI/ NI
Arrow et al., 2013, Australia	30	Mothers /fathers or guardians	OHT, OHA/ yes	Adaptation/ translation of the Weinstein et al. protocol	NI/NI	No	NI / NI
Batliner et al., 2014, EUA	40-50	Mothers or guardians	Community worker /yes	Own protocol	NI/NI	No	NI/ NI
González-Del-Castillo-Mc-Grath et al., 2014, Mexico	45	Mothers	Researchers/ yes	Own protocol	NI/NI	Yes	Open-ended/ NI
Mohammadi et al., 2015, Iran	45	Mothers /fathers	Researchers/ yes	Adaptation/ translation of the Weinstein et al. protocol	NINI	No	NI/ NI
Naidu et al., 2015, Trinidad and Tobago	30	Mothers /fathers or guardians	Dentist and OHT/ yes	Adaptation/ translation of the Weinstein et al. protocol	NI/NI	Sim	Open- and closed-ended/ NI
Riedy et al,2015, EUA	22-34 (prenatal) 17-29 (post-partum)	Mothers	Community worker/yes	NI	NI/NI	No	Open- and closed-ended / NI
Kapoor et al., 2019, India	30	Mothers /fathers	NI/ NI	Adaptation/ translation of the Weinstein et al. protocol	NI/NI	No	NI/ NI
Arrow et al., 2023, Australia	NI	Mothers /fathers	Oral health counselors / yes	Citation of the Weinstein et al. protocol	NI / NI	No	NI / NI

αTime in minutes to perform the MI; MI: Motivational Interview; NI - Not informed; OHT - Oral Health Technician; OHA - Oral Health Assistant; USA - United States of America.

Overall, the articles included in this review did not provide clear information on the MI protocols used in their research. None of the ten studies reported whether the protocol had been validated, and only three provided excerpts of the protocol within the article[27-29].

All studies except the one by Kapoor et al.[32] reported training the professionals who applied the MI intervention. The interviews were conducted by community workers[29-31,35], dental assistants[28,34], researchers[27,36], oral health counselors[33] and a dentist[28]. No study reported the number of questions in the protocol and some did not provide information regarding the type of questions used (open- or closed-ended)[30,32-36]. Finally, no study reported difficulties or conveniences in the MI protocol application.

Discussion

Summary of evidence

This literature mapping revealed a limited number of studies reporting the use of MI protocols for preventing dental caries in children. This may reflect the original conceptualization of MI in psychology, where the approach was grounded in spirit and basic principles rather than a predefined interview guide. Given that dental

professionals are predominantly trained in technical and clinical competencies, the development of skills for applying MI may benefit from the use of a structured guiding protocol to support and facilitate the process.

Only one protocol is available in its entirety through author request[29]. Most studies have adapted or translated the Weinstein et al. Protocol[28,30,32- 34,36], which is understandable, given that Weinstein and collaborators were the first to use MI to promote preventive behaviors in childhood caries management. Since this protocol was originally proposed as a guide for scientific research, adaptation may be required for its application in clinical caries management, particularly considering cultural aspects and the comprehensibility of its questions.

Clinical trials that used MI in oral health care differed in the number of sessions, duration of sessions, the professional applying the MI, and the performance of previous training; how these differences interfered with MI outcomes is not clear[14-16,22,37]. No consensus exists regarding the most appropriate health professional to conduct the MI in dental contexts: dentist, dental assistant, or psychologist[21,22]. Kopp and collaborators[16] stated that dentists must be trained to achieve high proficiency of the technique and ensure the effective use of MI strategies. This recommendation is especially pertinent given that MI should preferably be delivered by oral health team professionals (dentists and dental assistants/technicians), considering the therapeutic relationship they develop with patients and their families within the context of longitudinal care. This relationship builds trust, which is fundamental to ensuring active, empathetic listening and strengthening dialogue—basic principles of MI.

Ensuring fidelity to MI principles requires that training be delivered by professionals with specific expertise and experience in this approach, incorporating practical and experiential methods rather than solely theoretical content. Although nine of the 10 studies reported prior training of professionals conducting the MI intervention[27-31,33-36], how training was conduct was not described in detail, which is essential to allow interpretation and reproduction of the method, as the interviewer style and experience can substantially influence the behavior change results of the patient[10,14,38-40]. Thus, the establishment of a standard MI manual would control MI elements used and guide oral health instructions[16].

A small number of studies evaluated fidelity of the interviewer to MI principles using a clearly defined measurement method, with the results indicating low fidelity[31,35]. A greater fidelity to the established protocols and criteria of MI is needed to improve both the internal and external validity of studies, as highlighted by some authors[16, 19, 35]. Some reviews highlight the need for greater attention to fidelity to established MI protocols and/or predefined MI criteria in order to improve both the internal and external validity of studies[15,21,38]. Due to the low fidelity, it is difficult to assure that MI was actually implemented in the studies analyzed, as it is not known if the MI components were appropriately used but not reported in the articles or if they were simply not applied making it difficult to draw conclusions about the effect of

MI and hindering the reproduction of the intervention.

As study strengths, this scoping review was conducted with a rigorous systematization of stages, and a wide literature search was performed followed by a thorough evaluation of the identified studies. Additionally, the included studies were published recently (between 2012 and 2023), showing the growing interest of the oral health community in using a more structured protocol in MI intervention. The limitations, which we could not control for, were the absence of detailed information about the protocols used in the studies and the unsuccessful attempt to contact some authors to clarify methodology issues. In addition, the main protocol used in the studies was developed for research purposes and has not gone through a validation process.

Conclusion

This literature mapping of the MI method identified few studies that were based on an established protocol, with the Weinstein et al. Protocol being the only instrument translated and adapted into other languages. Studies should provide detailed descriptions of the methodology to help the selection of MI protocols/ questionnaires/interview guides that are appropriate to each context and encourage the use of MI by oral health teams, for which most have little experience in this type of preventive intervention. The use of approaches that are shown to have a positive impact on health behaviors could improve oral health care offered by PHC.

Conflicts of Interest

The authors declare no conflicts of interest. This study received no funding from any public or private organization.

Authors' contributions:

MNN: search, classification, extraction, analysis and interpretation of data, writing of the manuscript, and approval of the version to be published.

FCRD: search, classification, extraction, analysis and interpretation of data, writing of the manuscript, and approval of the version to be published.

ACAM: study conception and design, search, classification, extraction, analysis and interpretation of data, writing and critical review of the manuscript, and approval of the version to be published.

JSP: contributed to the analysis and interpretation of data, writing and review of the manuscript, and approval of the version to be published.

LGZ: study conception and design coordination, search, classification, extraction, analysis and interpretation of data, writing and review of the manuscript, and approval of the version to be published.

LLFHC: study conception and design coordination, search, classification, extraction, analysis and interpretation of data, writing and review of the manuscript, and approval of the version to be published.

Use of the Artificial Intelligence (AI) tools

Following the Policy for the Use of Artificial Intelligence in Academic Research defined by the Journal of Latin American Pediatric Dentistry, the authors report that AI tools were used to assist in the translation process. ChatGPT was used to translate the manuscript into English, and the text was thoroughly reviewed and revised by a PhD in Dentistry with proficiency in English. DeepL was used to assist with the translation into Spanish, and the text was thoroughly reviewed and revised by a Master's student in Dentistry who is a native Spanish speaker from Colombia.

Supplementary material 1
Study classification

Study ID	Full-text classification	Study ID	Full-text classification
25	A	505	B
35	A	518	B
36	B	519	B
37	B	521	B
63	B	522	B
73	B	524	A
84	F	530	F
90	B	539	B
129	F	550	B
147	B	562	B
151	B	570	A
154	B	595	B
167	A	596	B
193	A	604	F
194	A	640	B
195	A	648	B
198	B	658	B
201	F	680	B
213	B	681	B
285	B	683	B
287	A	688	B
297	A	697	B
309	A	702	B
338	B	715	C
366	A	716	not available
374	B	723	F
404	B	732	not available
437	A	774	B
455	B	819	B
460	F	834	B
464	A	841	B
465	A	843	B
466	A	844	B
478	F	848	B
498	B	852	B
503	B	861	B

Supplementary material 2
Codes and criteria for classification

Code	Criteria
A	Included: reference (completed study or description of RCT protocols) that employed a defined protocol/questionnaire/interview guide to implement Motivational Interviewing in Dentistry for the prevention of dental caries in children (including assessment of caries experience and associated factors, such as oral hygiene), targeting parents and caregivers and/or children. The MI protocol/questionnaire/interview guide may or may not have been available in the full text of the article.
B	Excluded: reference (completed study or description of RCT protocols) that applied Motivational Interviewing in Dentistry—considering the assessment of caries experience and associated factors, such as oral hygiene—targeting parents and caregivers and/or children, but without using or citing a defined protocol/questionnaire/interview guide for MI delivery.
C	Excluded: reference (excluding review articles) addressing Motivational Interviewing in oral health care that targeted other population groups (such as adolescents, adults, or older adults) or focused on the prevention of other oral health conditions (e.g., periodontal disease); or a study addressing MI in other health fields (e.g., systemic approaches in Nursing, diabetes, alcoholism, smoking) and/or other perspectives (e.g., education, training, cost-effectiveness studies, health economics).
D	Excluded: any type of review addressing Motivational Interviewing in Dentistry for the prevention of dental caries in children (including assessment of caries experience and associated factors, such as oral hygiene), targeting parents and caregivers and/or children, as well as studies whose abstracts did not provide sufficient information to clearly define the target population.
E	Excluded: other reviews on MI for the prevention of oral conditions other than dental caries, or conducted in other health areas and/or targeting different populations.
F	Excluded: Non-classifiable references (i.e., those that did not fit into any of the categories described above).

References

1. Early Childhood Caries: IAPD Bangkok Declaration. Int J Paediatr Dent. 2019 May;29(3):384-386. doi: 10.1111/ipd.12490.
2. de Silva AM, Hegde S, Akudo Nwagbara B, Calache H, Gussy MG, Nasser M, et al. Community-based population-level interventions for promoting child oral health. The Cochrane database of systematic reviews. 2016;9:Cd009837.
3. Antunes LAA, Ornellas G, Fraga RS, Antunes LS. Oral health outcomes: the association of clinical and socio-dental indicators to evaluate dental caries in preschool children. Cien Saude Colet. 2018;23(2):491-500.
4. Nobrega AVD, Moura L, Andrade NS, Lima CCB, Dourado DG, Lima MDM. Impact of dental caries on the quality of life of preschoolers measured by PedsQL questionnaire. Cien Saude Colet. 2019;24(11):4031-42.
5. Do LG. Distribution of caries in children: variations between and within populations. Journal of dental research. 2012;91(6):536-43.
6. Brasil. Ministério da Saúde. Secretaria de Atenção Primária à Saúde. Departamento de Estratégias e Políticas de Saúde Comunitária. SB Brasil 2023 : Pesquisa Nacional de Saúde Bucal: relatório final [recurso eletrônico] / Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Estratégias e Políticas de Saúde Comunitária. – Brasília : Ministério da Saúde, 2024. p. 537.
7. Kay EJ, Locker D. Is dental health education effective? A systematic review of current evidence. Community dentistry and oral epidemiology. 1996;24(4):231-5.
8. Hooley M, Skouteris H, Boganin C, Satur J, Kilpatrick N. Parental influence and the development of dental caries in children aged 0-6 years: a systematic review of the literature. J Dent. 2012;40(11):873-85.
9. Santos O. Entrevista motivacional na prevenção e tratamento da obesidade. Endocrinologia, Diabetes e Obesidade. 2009;3(3):109-15.
10. Miller WR, Rose GS. Toward a theory of motivational interviewing. Am Psychol. 2009;64(6):527-37.
11. Boveda Fontan J, Perula de Torres LA, Campinez Navarro M, Bosch Fontcuberta JM, Barragan Brun N, Prados Castillejo JA, et al. [Current evidence on the motivational interview in the approach to health care problems in primary care]. Aten Primaria. 2013;45(9):486-95.
12. Faustino-Silva DD, Colvara BC, Meyer E, Hugo FN, Celeste RK, Hilgert JB. Motivational interviewing effects on caries prevention in children differ by income: A randomized cluster trial. Community dentistry and oral epidemiology. 2019;47(6):477-484.
13. Figlie NB, Guimarães LP. A Entrevista Motivacional: conversas sobre mudança. Boletim - Academia Paulista de Psicologia. 2014;34(87):472-89.
14. Gao X, Lo EC, Kot SC, Chan KC. Motivational interviewing in improving oral health: a systematic review of randomized controlled trials. Journal of periodontology. 2014;85(3):426-37.
15. Cascaes AM, Bielemann RM, Clark VL, Barros AJ. Effectiveness of motivational interviewing at improving oral health: a systematic review. Revista de saude publica. 2014;48(1):142-53.
16. Kopp SL, Ramseier CA, Ratka-Kruger P, Woelber JP. Motivational Interviewing As an Adjunct to Periodontal Therapy-A Systematic Review. Frontiers in psychology. 2017;8:279.
17. Albino J, Tiwari T. Preventing Childhood Caries: A Review of Recent Behavioral Research. Journal of dental research. 2016;95(1):35-42.
18. Abirami, Sivasubramanian et al. Effect of Sustained Interventions from Infancy to Toddlerhood in Children with Cleft Lip and Palate for Preventing Early Childhood Caries. Caries research. 2021; 55(5):554-562.
19. Cartes-Velásquez R, Luengo-Machuca L. Motivational interviewing at home: A community trial to improve oral health literacy and reduce morbidity in disadvantaged Chilean families. J Am Dent Assoc. 2024 Dec;155(12):1060-1069
20. Duarte, F. C. R. Pré-teste de protocolo de entrevista motivacional para prevenção da cárie dentária na primeira infância. (Dissertação de Mestrado). Belo Horizonte: Universidade Federal de Minas Gerais, Faculdade de Odontologia. 2024.
21. Werner H, Hakeberg M, Dahlstrom L, Eriksson M, Sjogren P, Strandell A, et al. Psychological Interventions for Poor Oral Health: A Systematic Review. Journal of dental research. 2016;95(5):506-14.
22. Carra MC, Detzen L, Kitzmann J, Woelber JP, Ramseier CA, Bouchard P. Promoting behavioural changes to improve oral hygiene in patients with periodontal diseases: a systematic review. Journal of clinical periodontology. 2020; 47(S22):72–89.
23. Peters MDJ GC, McInerney P, Munn Z, Tricco AC, Khalil, H. Scoping Reviews (2020 version). 2020. In: Joanna Briggs Institute Reviewer's Manual [Internet]. JBI. Available from: https://reviewersmanual.joannabriggs.org/

24. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International Journal of Social Research Methodology. 2005;8(1):19-32.
25. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169(7):467-73.
26. Team TE. EndNote. EndNote X9 ed. Philadelphia, PA: Clarivate Analytics; 2013.
27. González-Del-Castillo-McGrath M, Guizar-Mendoza J-M, Madrigal-Orozco C, Anguiano- Flores L, Amador-Licona N. A parent motivational interviewing program for dental care in children of a rural population. J Clin Exp Dent. 2014;6(5):e524-9.
28. Naidu R, Nunn J, Irwin JD. The effect of motivational interviewing on oral healthcare knowledge, attitudes and behaviour of parents and caregivers of preschool children: an exploratory cluster randomised controlled study. BMC oral health. 2015;15:101.
29. Weinstein P, Harrison R, Benton T. Motivating parents to prevent caries in their young children: one-year findings. Journal of the American Dental Association. 2004;135(6):731-8.
30. Harrison RL, Veronneau J, Leroux B. Effectiveness of maternal counseling in reducing caries in Cree children. Journal of dental research. 2012;91(11):1032-7.
31. Riedy CA, Weinstein P, Mancl L, Garson G, Huebner CE, Milgrom P, et al. Dental attendance among low-income women and their children following a brief motivational counseling intervention: A community randomized trial. Social science & medicine. 2015;144:9-18.
32. Kapoor V, Gupta A, Arya V. Behavioral changes after motivational interviewing versus traditional dental health education in parents of children with high caries risk: Results of a 1- year study. Journal of Indian Society of Pedodontics and Preventive Dentistry. 2019;37(2):192.
33. Arrow, Peter et al. Motivational Interviewing and Childhood Caries: A Randomised Controlled Trial. International journal of environmental research and public health. 2023;20(5):4239.
34. Arrow P, Raheb J, Miller M. Brief oral health promotion intervention among parents of young children to reduce early childhood dental decay. BMC public health. 2013;13:245.
35. Batliner T, Fehringer KA, Tiwari T, Henderson WG, Wilson A, Brega AG, et al. Motivational interviewing with American Indian mothers to prevent early childhood caries: study design and methodology of a randomized control trial. Trials. 2014;15:125.
36. Mohammadi TM, Hajizamani A, Bozorgmehr E. Improving oral health status of preschool children using motivational interviewing method. Dental research journal. 2015;12(5):476-81.
37. Jarvinen M, Stolt M, Honkala E, Leino-Kilpi H, Pollanen M. Behavioural interventions that have the potential to improve self-care in adults with periodontitis: a systematic review. Acta odontologica Scandinavica. 2018;76(8):612-20.
38. Borrelli B, Tooley EM, Scott-Sheldon LA. Motivational Interviewing for Parent-child Health Interventions: A Systematic Review and Meta-Analysis. Pediatric dentistry. 2015;37(3):254-65.
39. Madson M, Loignon A, Lane C. Training in motivational interviewing: A systematic review. Journal of substance abuse treatment. 2009; 36(1):101-9
40. Menegaz AM, Silva AER, Cascaes AM. Educational interventions in health services and oral health: systematic review. Revista de saude publica. 2018;52:52.

Recibido 10/03/25
Aceptado 08/01/26
Correspondencia: Loliza Luiz Figueiredo Houri Chalub, correo: lolischalub@gmai.com