Motivational Interviewing (MI) Compared to Conventional Education (CE) has Potential to Improving Oral Health Behaviors

Selection Criteria
Four databases (PubMed MEDLINE, Web of Science, Cochrane Library, and PsycINFO) were searched by two investigators to identify randomized controlled trials that evaluated the effectiveness of motivational interviewing (MI) compared with conventional education (CE) in changing oral health behaviors and improving oral health. The search of the databases and the bibliographies of papers yielded 221 papers, after excluding duplicate papers retrieved from more than one database. Through the screening by titles and abstracts, 117 papers were excluded (52 not related to oral health; 46 not related to MI; 31 on professional education; 33 observational studies; 9 case reports; 2 study protocols; and 5 commentaries; reasons were not mutually exclusive). The full articles of the remaining 104 reports were assessed. Eighty-four papers were further excluded (18 not related to oral health; 29 not related to MI; 4 on professional education; 2 qualitative studies; 30 observational studies; 2 interventional studies without comparison group; 2 case reports; 3 commentaries; and 1 review). The remaining 20 papers, on 16 studies, involving dental patients or the general public were included in the review.

Key Study Factor
To be included in the review, a paper had to fulfill the following criteria: (1) a report of an interventional study adopting a randomized controlled trial design; (2) MI was explicitly used as an active element in at least one intervention; (3) comparison was made between MI and CE, i.e., information giving and normative advice; (4) the study targeted at least one oral health-related behavior for the purpose of preventing dental diseases or maintaining/improving oral health. Only papers in English published from 1977 to 2012 were included. The methodological quality of the studies was rated by calculating the number of affirmative answers to 21 quality items according to a scoring tool developed for reviewing interventional studies in oral health.

The key findings were qualitatively synthesized. A meta-analysis was not possible for generating an estimate of effect size because of the heterogeneity of the studies on target behaviors and conditions, the timings of outcome assessment, and observed outcomes.

Main Outcome Measure
The diverse outcomes were oral health (status of the teeth, oral cavity, and related tissues) or related behaviors like frequency of brushing or adoption of healthy dietary practices.

Main Results
Twenty papers, concerning 16 studies, involving dental patients or the general public were included in the review; 201 papers were excluded. The quality of the studies ranged from 10 to 18 out of a possible score of 21.
Nine studies had a quality score of 15 or above. In 9 studies, at least one objective outcome measure was adopted rather than relying only on self-reported behaviors and perceptions.

For improving periodontal health through reinforcing oral hygiene measures, MI outperformed CE in 5 out of 7 studies with greater improvement in at least one outcome measure. In the remaining 2 studies, no significant difference was found between groups.

MI was delivered in 4 studies to mothers of infants to change feeding practices, alter oral hygiene measures, and encourage dental visits with the overall aim of controlling early childhood caries. One study demonstrated significantly reduced new caries at the second year. However, the remaining 3 trials performed by other research groups did not show such significant between-group differences, although MI appeared to result in a reduction in the severity of caries in one of these trials (fewer decayed tooth surfaces at or beyond the dentin level). The effect of MI on other behaviors, for example, dental avoidance or smoking behaviors, was mixed.

Conclusions
This systematic review demonstrates the growing interest among dental professionals and oral health research groups in testing MI as an approach to patient counseling to improve oral health. Recent randomized controlled trials revealed variable success with MI as an approach to change oral health-related behaviors and clinical outcomes. However, the potential for MI to encourage positive change in oral health behaviors and oral disease indicators is promising.

COMMENTARY AND ANALYSIS
Dental health professionals are mindful of the relationship between social determinants of health and their patient’s dental status, but still tend to employ approaches to health promotion and patient education that solely involve traditional knowledge-transmission and advice-giving. Developing personal skills is a key component of promoting health, but to encourage long-term adoption of healthy behaviors, clinicians should apply evidence-based approaches to encourage behavior change. Further, behavioral techniques that structure change and assist patients in the process of change are most likely to lead to long-term change.

Motivational interviewing (MI) is a client-centered but directive approach to counseling. It has been effective for eliciting behavior change in patients in a variety of settings, including patients with issues of substance abuse, diabetes, obesity, and HIV. With MI, the motivation for change comes from the client, but the counselor helps create, by questioning and reflection, the expectation of change. Indeed, the practitioner brings the underlying social determinants of health into the consultation. Feedback and advice are offered within the context of acknowledgment of the client’s right to choose. Many possible paths to a solution are provided. Client and counselor agree on a menu of effective behaviors. This strategy is especially appropriate for vulnerable and marginalized populations who are more comfortable if someone suggests ways to think about taking a different approach rather than tells them directly how to act.

This review analyzed the scientific literature since MI was first introduced in 1977; however, only 16 oral health-related studies, with relatively short outcome periods, were of acceptable quality for the analysis. A major challenge to definitively affirm the effectiveness of MI in controlling oral disease is that one of the major oral health problems of interest, dental caries, has a multifactorial etiology and improved disease outcomes are only likely to occur if several behaviors are changed. Thus the “menu” of options offered with an MI approach fits well in managing the caries process. However, determining specifically which self-reported behavior changed (or not) and may have contributed to improved outcomes was difficult to interpret in several studies. The better trials relied on overall objective clinical indicators, i.e., extent and severity of caries, or, in the case of periodontal disease, bleeding on probing.

The authors remind us of the challenges of comparing trial outcomes because of the variety in the 16 studies in the ages of trial subjects (adolescents, new mothers, and older adults), cultural backgrounds, training and background of counselors, and number and length of MI sessions. They also wisely discuss the issue of fidelity of the intervention, that is, how rigorously did the interveners follow the framework of MI. A coding system is available to measure how well the intervention follows MI principles, but only two studies included this fidelity scale.

The authors sensibly proclaim MI to be an approach with potential and suggest further study. However, a pragmatic rather than an explanatory design for further trials may be what is needed to provide the evidence for applicability of MI in clinical practice and health policy.

Certainly, clinicians are encouraged to adopt the spirit of MI in their one-on-one patient counseling. Engaging patients in conversation to better understand their frame of reference and presenting a menu of options rather than a prescribed checklist are positive first steps in any counseling encounter.

REFERENCES

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