Communication study

# Comparing thin slices of verbal communication behavior of varying number and duration

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ABSTRACT

*Objective:* The aim of this study was to assess the accuracy of thin slices to characterize the verbal communication behavior of counselors and patients engaged in Motivational Interviewing sessions relative to fully coded sessions.
*Methods:* Four thin slice samples that varied in number (four versus six slices) and duration (one- versus two-minutes) were extracted from a previously coded dataset. In the parent study, an observational code scheme was used to characterize specific counselor and patient verbal communication behaviors. For the current study, we compared the frequency of communication codes and the correlations among the full dataset and each thin slice sample.
*Results:* Both the proportion of communication codes and strength of the correlation demonstrated the highest degree of accuracy when a greater number (i.e., six versus four) and duration (i.e., two- versus one-minute) of slices were extracted.
*Conclusion:* These results suggest that thin slice sampling may be a useful and accurate strategy to reduce coding burden when coding specific verbal communication behaviors within clinical encounters.
*Practice implications:* We suggest researchers interested in using thin slice sampling in their own work conduct preliminary research to determine the number and duration of thin slices required to accurately characterize the behaviors of interest.

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## 1. Introduction

Understanding the mechanisms by which counselors evoke intrinsic motivation and behavior change in their patients is an important focus of Motivational Interviewing (MI) research [1]. A body of literature supports the link between client communication behavior and treatment outcomes, but the specific counselor communication behavior that elicit specific client behavior is less well understood [1]. Understanding the intricacies of the interactions that occur between a MI counselor and a patient requires a careful, objective examination of the specific communication behaviors exhibited during a clinical encounter and accurate

classification of these behaviors [2,3]. Ideally, this type of research occurs through the systematic analysis of video- or audio-recordings, a resource-intensive endeavor. To illustrate, Moyers and Martin [3] coded 63 MI sessions using the SCOPE code system. Training coders to an acceptable level of reliability required 60 h of training over six weeks. The authors did not provide details about the duration of time required for coding the 63 sessions, but do note that the analysis required two coding passes and six coders. Thus, the resource intensity of this type of research is inherently limiting progress in this important scientific area. Thus, a major goal for MI research, and, more generally, any research intensively examining clinical interactions, is to identify strategies that reduce the resources needed to conduct high quality research.

Thin slice sampling of recorded interactions might be a useful strategy to reduce coder burden [4], but only if the thin slices sampled accurately represent the characteristics of the entire interaction the researcher is trying to understand. The literature suggests a high degree of accuracy when using thin slices to

make global assessments (e.g., [5–14]), but only three studies have examined the accuracy of thin slices to identify and characterize specific behaviors (i.e., [4,15,16]). The purpose of the present study is to examine the extent to which thin slices accurately represent verbal communication behaviors between adolescent patients and MI counselors engaged in weight loss counseling.

## 1.1. Thin slices

A thin slice is "a brief excerpt of expressive behavior sampled from the behavioral stream" [17]; in other words, it is a small segment, either randomly or strategically, extracted from an interaction. Thin slices have been used successfully in a number of research studies where raters are asked to make judgments about a person or the quality of an interaction. To illustrate, Place and colleagues extracted 10-s slices from 3-min speed dating interactions [5]. Three discrete groups of raters (a total of 193 raters) viewed the thin slices and assessed each participant's romantic interest in the other participant. All three groups demonstrated a high degree of accuracy ($r = .65–.88$) in predicting romantic interest when compared to actual dating offers made after speed-dating.

Thin slice methods have been used to detect psychopathological personality characteristics [6–9], assess affective style [10,11], recognize emotions [12], deduce sexual orientation [13], and estimate socioeconomic status [14]. Assessments based on thin slices have been linked to outcomes including physical, cognitive, and psychological functioning [18], surgical malpractice claims [11], student evaluations of teaching [17,19], and sales performance and customer satisfaction [20]. Finally, thin slices have been used in a variety of contexts including naturalistic observations, including speed dating [5], classroom teaching observations [19], laboratory-based experiments [6,9,10,13, 14,17], and observations of clinical interactions, such as physical therapy sessions [18], office [11] and clinic visits [21], psychological diagnostic interviews [7,8], and medical student interactions with standardized patients [22]. This literature on thin slices suggests a high degree of accuracy when using thin slices to make subjective judgments (i.e., global ratings), but offers less guidance regarding the utility of thin slices with observational coding schemes designed to identify and characterize specific behaviors, such as specific patient-provider verbalizations during clinical interactions.

Three studies examined the degree to which thin slices accurately represented specific behaviors previously identified using the usual labor intensive, but empirically validated, method of coding. Murphy [4] examined how well one, two, or three randomly selected 1-min slices extracted from a 15-min interaction captured nonverbal behaviors (gestures, nods, self-touches, smiles, gaze) when compared to the fully coded interaction. Her results indicated moderate to high correlations between the three thin slice samples and the full interaction, with correlations increasing with the number of slices extracted. Findings from this study, however, suggested that three slices were only marginally better than one or two slices (e.g., $r_{1 \text{ slice}} = .62$ versus $r_{2 \text{ slices}} = .68$ versus $r_{3 \text{ slices}} = .76$), with the exception of lower frequency behaviors which demonstrated much stronger correlations when more slices were extracted (e.g., $r_{1 \text{ slice}} = .41$ versus $r_{2 \text{ slices}} = .76$ versus $r_{3 \text{ slices}} = .83$).

Roter and colleagues [16] sampled three 1-min thin slices (extracted at minutes one, five, and nine) from medical student-standard patient interactions lasting around 12 min in duration. The slices and the entire encounter were coded using the author's coding system for classifying verbal patient-physician communication, Roter Interaction Analysis System (RIAS). Each of the three 1-min slices and a three-slice sum were compared to the fully coded encounter. The results indicated that the correlation between verbalizations coded in the entire encounter and each 1-min slice

were very variable, ranging from very small ($-.02$) to strong (.66); however, the correlations between the entire encounter and the three-slice sum were more consistent and of a larger magnitude (ranging from .27 to .82).

James and colleagues [15] tested the utility of thin slices to code interactions between mothers and infants (gaze and verbalizations). Each 18-min encounter was divided into six 3-min segments, three 6-min segments and two 9-min segments. They found 3- and 6-min slices did not accurately represent the behaviors present in the full 18-min observation, but the 9-min slices did. James and colleagues also observed that lower frequency behaviors demonstrated wider variability in the behaviors coded in "thinner" (i.e., shorter) slices as compared to "thicker" slices. These results suggest thin slices might be a promising strategy to reduce coder burden when analyzing behavior within clinical interactions. However, with only three studies using dissimilar methods, there is very little guidance available to researchers interested in implementing thin slice sampling when coding specific behaviors in clinical settings.

This study builds upon this research by examining the accuracy of thin slices to identify and code the verbal communication behavior of counselors and adolescent patients engaged in a Motivational Interview (MI) counseling session targeting weight loss. The aim of this research study was to assess the extent to which thin slice samples of MI sessions accurately characterize the overall pattern of verbal communication behavior of counselors and patients relative to fully coded sessions. Specifically, we investigated both how many thin slices are needed and how thin can slices be to accurately characterize key communication behaviors relative to fully coded sessions? Based on the work of Murphy [4], Roter [16], and James et al. [15], we expected to find greater accuracy when a greater proportion of the encounter was extracted. In other words, we expected greater accuracy when a greater number of thin slices were extracted (six versus four slices) and when "thicker" slices were extracted (2-min versus 1-min slices). This study is the first to examine the utility of thin slice sampling for coding MI sessions.

## 2. Method

This research is a secondary analysis of data collected as part of a study examining patient-counselor communication during Motivational Interviewing (MI) weight loss sessions with African American adolescents [23]. The goals of the parent study were to (1) develop an observational code scheme to characterize verbal communication behaviors and (2) identify specific counselor verbalizations effective at eliciting patient expressions of intrinsic motivation (i.e., change talk and commitment language) [1]. We provide a brief description of the parent study below; a detailed description, including methods, the development of the code scheme (Minority Youth-Sequential Coding for Observing Process Exchanges (MY-SCOPE)), and findings, has been reported elsewhere [23].

## 2.1. Participants

Adolescent patients and their caregivers were recruited from the adolescent medicine, pediatric medicine, and endocrinology clinics at a large urban teaching hospital with a small number (<20%) recruited from community-based sites, e.g., local health fairs and schools. Adolescent eligibility included age 12.0 to 17.0, self-identifying as Black with BMIs (kg/m²) ≥95th percentile. We excluded adolescents with obesity secondary to medication use (e.g., steroids), comorbid medical conditions preventing normal exercise, pregnancy or another medical condition where weight loss is contraindicated, comorbid thought disorders (i.e., schizophrenia), moderate/severe mental retardation, psychosis or current suicidality. All caregivers provided informed consent