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Using topic coding to understand the nature of change language in a motivational intervention to reduce alcohol and sex risk behaviors in emergency department patients

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ABSTRACT

Objective: To elucidate patient language that supports changing a health behavior (change talk) or sustaining the behavior (sustain talk).
Methods: We developed a novel coding system to characterize topics of patient speech in a motivational intervention targeting alcohol and HIV/sexual risk in 90 Emergency Department patients. We further coded patient language as change or sustain talk.
Results: For both alcohol and sex, discussions focusing on benefits of behavior change or change planning were most likely to involve change talk, and these topics comprised a large portion of all change talk. Greater discussion of barriers and facilitators of change also was associated with more change talk. For alcohol use, benefits of drinking behavior was the most common topic of sustain talk. For sex risk, benefits of sexual behavior were rarely discussed, and sustain talk centered more on patterns and contexts, negations of drawbacks, and drawbacks of sexual risk behavior change.
Conclusions: Topic coding provided unique insights into the content of patient change and sustain talk.
Practice implications: Patients are most likely to voice change talk when conversation focuses on behavior change rather than ongoing behavior. Interventions addressing multiple health behaviors should address the unique motivations for maintaining specific risky behaviors.

1. Introduction

Coding patient language during health behavior counseling is an emerging method for understanding mechanisms responsible for behavior change, a necessary step for improving health behavior counseling [1–3]. The most widely employed system for coding patient language in health behavior counseling is the Motivational Interviewing Skill Code [MISC; 4]. The MISC codes patient language as reflecting either support for changing a target behavior (change talk) or for sustaining it (sustain talk) according to the tenets of Motivational Interviewing [MI; 5,6–9]. The MISC has been applied primarily to alcohol-focused interventions [6,10–12], but also to gambling [13], diet and nutrition [14], and sexual risk reduction [15] interventions. A meta-analysis indicated that the number of patient utterances coded as sustain talk and a composite measure of change and sustain talk (e.g., proportion change talk) are significant predictors of behavior change outcomes [16].

Typically, behavior change counseling covers a range of topics including a patient's pattern of behavior, consequences of that behavior and of behavior change, barriers and facilitators of change, and change plans. These topics are not captured in any depth by the MISC or related coding systems. For example, the MISC can code that a patient utterance is a reason to change but does not code the nature of that reason. Reasons to change could include drawbacks of ongoing behavior (e.g., hangovers) or benefits of potential behavior change (e.g., having more energy). They also could involve general appraisals of a behavior as negative

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or outside of peer norms. Although behavior change interventions can focus on a range of topics, it is unknown the extent to which conversations that focus on certain topics are more likely to involve change vs. sustain talk.

The extent to which certain topics arise during behavior change counseling and are likely to involve change vs sustain talk may differ based on the target behavior under discussion. Interventions that focus on multiple health behaviors are becoming increasingly common [17,18]. If topics that predominate in change or sustain talk depend on the target behavior, then counseling content can be altered to anticipate the differential importance of specific topics for each behavior. Pairing MISC coding with topic coding may provide important insights into the nature of motivational content across different targeted behaviors.

1.1. Study aims

This study examined how topics of discussion in a health behavior intervention relate to patient change language across two target behaviors, alcohol use and sex risk. We employed an extension of the Generalized Medical Interaction Analysis System (GMIAS), a conversation coding system that permits detailed investigation of patient-provider interaction across various topics addressed in medical encounters [19–22]. For this project, we expanded the GMIAS topic coding structure to include a new category and subcategories of topics that capture content typically covered in a health behavior intervention; we refer to this adapted system as the Generalized Behavioral Intervention Analysis System (GBIAS). We applied the GBIAS and the MISC to audio recordings of a brief motivational intervention to reduce risky alcohol use and sexual behaviors with Emergency Department (ED) patients who reported concurrent heavy drinking and sexual behavior that increases risk for HIV infection.

2. Method

Data were drawn from a randomized clinical trial of an MI intervention targeting both alcohol and sex-risk behaviors, which demonstrated efficacy for reducing both behaviors relative to a brief advice control [23]. The project was approved by hospital and university institutional review boards. Patients aged 18–65 were recruited from two community hospital EDs. Eligibility criteria included: 1) total score of ≥8 (males) or ≥6 (females) on the Alcohol Use Disorders Identification Test [24] or endorsing at least one episode of binge drinking (≥5 drinks for males; ≥4 drinks for females) in the past three months; and 2) engaging in at least one sex-risk behavior in the past three months including consuming alcohol or other drugs prior to or during sex or having condomless sex with a non-steady partner or with a steady partner whose infidelity is questioned or known.

Patients completed screening, informed consent, and baseline assessment while in the ED, and those eligible were randomized to either MI or control. The current study includes only MI patients. One hundred eighty-four patients were randomized to receive MI, of which 168 (91.3%) completed the MI session. For this study, 90 audio recorded sessions were randomly selected for coding. The sample comprised slightly more females (59%) than males. The average age was 28.6 years (SD = 9.2). Most had a high school diploma/GED or higher (87%); 81.1% identified as White, 11.1% as Black, 3.3% as American Indian/Alaskan, and 4.4% as multiracial; 12.2% identified as Hispanic/Latino. Participants reported an average of 7.6 drinking days in the last month (SD = 7.0), consuming an average of 7.2 (SD = 5.9) drinks per drinking day, and having engaged in condomless sex 7.5 times (SD = 8.1) in the past month.

2.1. Motivational interviewing (MI) intervention

MI sessions were conducted at the hospital by 6 masters- and doctoral-level counselors. Counselors received 20 h of training including didactic presentations, video and live demonstration, and role-play exercises. Group supervision was provided weekly via review of audiotapes with detailed feedback.

The manualized, one-session MI incorporated open-ended discussion of drinking patterns and sexual behaviors, exploration of pros and cons of drinking and of condom use, and personalized feedback on alcohol use and sexual risk behavior including normative comparisons. For patients interested in change, the objective was to establish goals for (a) reduced drinking or abstinence and (b) increased condom use, knowing the HIV status of partners, and/or being in mutually monogamous relationships, and then to discuss barriers and facilitators of these changes. Sessions were audio recorded.

2.2. Coding procedures

Data collection on de-identified and transcribed MI sessions proceeded in three passes, each conducted by a separate rater. During the first pass, transcripts were segmented into utterances defined as completed speech acts (or failed speech acts which received missing value codes); a speech act is an utterance that performs a specific function in communication such as representing a fact, expressing a feeling, or asking for information [25,26]. Next, speech act and topic codes were assigned to each utterance. A third rater assigned MISC codes. Raters did not have access to participant baseline or outcome data. Coders had access to the full session in which the utterances occurred. They used their knowledge of the conversation preceding and immediately following each utterance to code the utterance's topic and its motivational significance.

2.2.1. Rater training

Raters received approximately 60 h of training on each of the GBIAS and MISC systems. Training involved (a) didactic overview, including treatment- and coding-related readings, (b) group coding practice with corrective feedback, and (c) individual coding practice with group corrective feedback. Rater proficiency and ongoing project agreement for GBIAS coding was defined as a Cohen's kappa [27] of 0.80 or above at the integer level of both the speech act and topic coding taxonomies and 0.65 at the third decimal. Proficiency in the MISC was defined as two-way mixed-effects intraclass correlation coefficients [ICC] [28] of 0.75 or above.

2.2.2. Coding reliability procedures

Inter-rater reliability and agreement was assessed throughout data collection. After every fifth session was coded, one segment of at least 300 utterances was randomly chosen from the pool of completed interviews and assigned randomly to a second rater for reliability coding. Reliability and agreement statistics were computed, and disagreements were discussed in weekly meetings to achieve consensus.

2.3. GBIAS coding

The GBIAS assigned each patient and counselor utterance a speech act code and a topic code. We focus here only on the topic coding system. The GBIAS built off of the hierarchical topic coding system in the GMIAS and included integer-level topic codes (e.g., 1.0, 9.0) for the broad categories of *Biomedical, Logistics, Socializing, and Psychosocial topics* with decimal-level codes providing additional specificity (e.g., 9.1 for *Psychosocial—recovery of others*