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DIALOGUE ANALYSIS DURING A COGNITIVE REHABILITATION INTERVENTION FOR PEOPLE WITH DIABETES: ARE WE REALLY PATIENT-CENTERED?

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Background: The importance of discourse in patient learning in health education is uncontroversial, but the positive effects of discourse in online interventions are understudied and can only be expected if the instruction meets certain quality requirements. The purpose of this project was to analyze the online classes of a cognitive rehabilitation intervention for people with type 2 diabetes to determine to what extent the classes had characteristics of productive discourse.

Methods: Ten adults with T2DM and two interventionists participated in an 8-week intervention that combined classes held via webinar with online home-based computer training. The Generalized Medical Interaction Analysis System, based in Speech Act Theory, was used to analyze the discourse. Transcripts of the classes (n=8) were coded using a coding manual, two trained coders, and atlas.ti software. The unit of analysis was a completed speech action or "utterance." Two main codes were assigned: a speech act code (questions, representations, logistics, socializing) and a topic code. The codes were subcoded to describe the utterances further (e.g. comprehension, emotions, checking understanding).

Results: The number of statements varied between classes and percentages were calculated for the individual categories. Most interventionist statements and questions were representative (55%) (e.g. "Insomnia can cause cognitive problems"); checking for understanding (30%) (e.g. "is that clear?"); and expressing empathy (15%) ("That must have been hard"). Interventionist feedback on participant statements consisted of explanation or observation (52%); evaluation of the participant response (21%); and problem-solving (14%) ("Let's see what else we can do"). Most feedback was short restatements of the participants' statements and evaluations (e.g. "correct") or comments for further reflection (e.g. "have you thought about this?"). Problem solving dialogue included questions that elicited participants' values/preferences (48%).

Discussion: The discussions overall were characterized by a high percentage of open-ended questions, short participant responses, and interventionist feedback that was participant-centered. The pattern of interventionists' behavior was consistent with motivating positive behavioral change. Future interventions should include components of discourse evaluation and examinations of relationships to adherence and clinical outcomes.

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EVALUATING A BEHAVIORAL COMMITMENT PROGRAM TO SUSTAIN ENGAGEMENT IN A DIGITAL DIABETES MANAGEMENT PLATFORM

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Objective: Sustaining participant engagement in digital lifestyle change programs is both crucial and difficult. A "5-day Challenges" behavior change program was implemented to an existing diabetes (DM) management platform (Livongo) with the hypothesis that an intention to change health behaviors will improve the frequency of blood glucose (BG) checks via a cellularly connected meter and associated mean BG values over three consecutive 30-day periods ("Post1", "Post2", "Post3") relative to a 30-day "Pre" period.

Methods: 136,626 individuals enrolled in Livongo for at least 30 days were given the opportunity to participate. Of those, 8,258 expressed interest, and were presented with a sequence of five 5-day activities (eating vegetables, drinking water, walking more, sleeping well, and reducing stress). 3,982 completed at least one of the 25 Challenge steps (Participants), and 4,276 completed 0 Challenge steps (Initiators). All other individuals were classified as Controls. For evaluation, Initiators and Controls were matched to Participants based on key demographic traits, frequency of BG checking, and other program activity during the Pre-period using a 1-to-1 exact matching method. The Pre-period was defined as the 30 days prior to the date of the fist Challenge step for Initiators and Participants, or prior to 2019-05-15 for Controls.

Results: After matching, each cohort had 3,308 individuals. At Post1 and Post3 relative to Pre, the percentage of each cohort achieving ≥ 5 checks was +10.9 points (i.e., 90.2% at Post1 vs 79.3% at Pre; McNemar's test p-value < 0.001) and –1.3 points (p = 0.080) for Participants; +3.4 points and –7.1 points for Initiators (both p < 0.001); and –4.9 points and –12.3 points for Controls (both p < 0.001). Similar trends were observed for achieving ≥ 10 checks or performing any program activity, revealing initial improvement and sustained engagement over time among Participants vs. Initiators and Initiators vs. Controls. A significant decrease in mean BG from Pre to Post3 was larger among Participants (mean: –5.1 mg/dl, 95% CI: [–6.5, –3.7]) than Initiators (–4.1 mg/dl [–5.5, –2.7]); Controls saw a non-significant change (–0.7 mg/dl [–1.9, +0.6]).

Conclusions: The "5-day Challenges" mobile-based behavior change protocol significantly and positively impacted blood glucose checking frequency—a key index of program engagement—and was associated with significant reductions in mean blood glucose relative to baseline.

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