Use of Systems Thinking and Group Model Building Methods to Characterize Lived Experiences and Technology Use Patterns of Older Adults with Type 1 Diabetes

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Abstract

A growing number of older adults (ages 65+ years) live with Type 1 diabetes, yet little is known about the complex dynamics that promote use of diabetes technology, such as continuous glucose monitoring (CGM), in this age group. We used systems thinking and methods from group model building (GMB), a participatory approach to system dynamics modeling, to collect data from older adults with Type 1 diabetes and their caregivers through group workshops and individual validation interviews. Data were integrated into a causal loop diagram of the "system" of factors associated with CGM uptake and use, including the clinical and psychosocial outcomes of use and interactions with caregiver and healthcare system factors. We describe the study design, recruitment, GMB and interview procedures, participant feedback, and lessons learned. The study demonstrates feasibility, acceptability, and the value of GMB to engage older adult stakeholders in sophisticated and rigorous research about key determinants of complex health outcomes over time.