



Continuous Glucose Monitoring Smartphone App Use for Adults with Type 2 Diabetes



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Background

- The use of a continuous glucose monitoring (CGM) device improves glycemic values and quality of life for people with diabetes
- Little evidence exists for how individuals can best integrate their CGM data into their everyday diabetes management
- Less is known on how to facilitate effective interpretation of CGM data

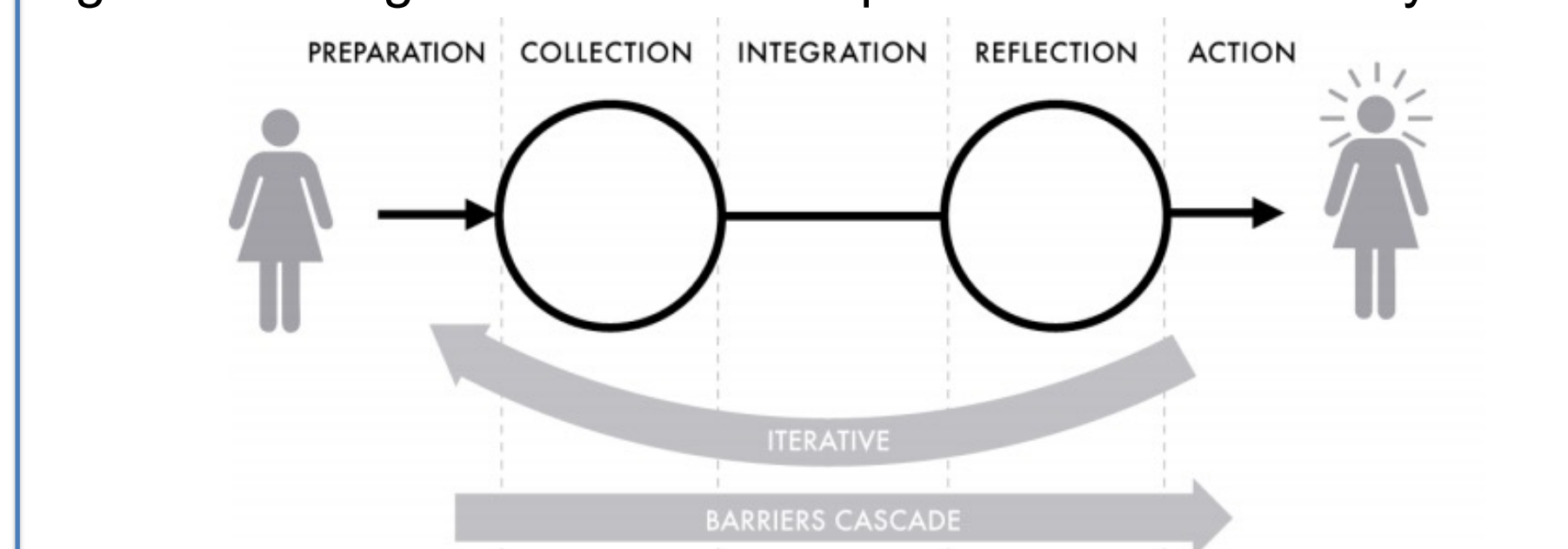
Objective

- To describe how adults with diabetes collected and incorporated data from CGMs into their self-management behaviors in order to provide insights toward developing improved, tailored interventions and visualizations using CGM data

Methods

- Email-based survey sent to adults with type 2 diabetes from an endocrinology clinic in Central Texas
 - Based on Li's Stage-Based Model of Personal Informatics Systems (See Fig.1)
 - Included 45 multiple-choice questions, evaluating participants' preparation, collection, integration, reflection and action related to CGM use, data and behaviors
- Data was analyzed using descriptive statistics

Fig. 1: The stage-based model of personal informatics systems



Results

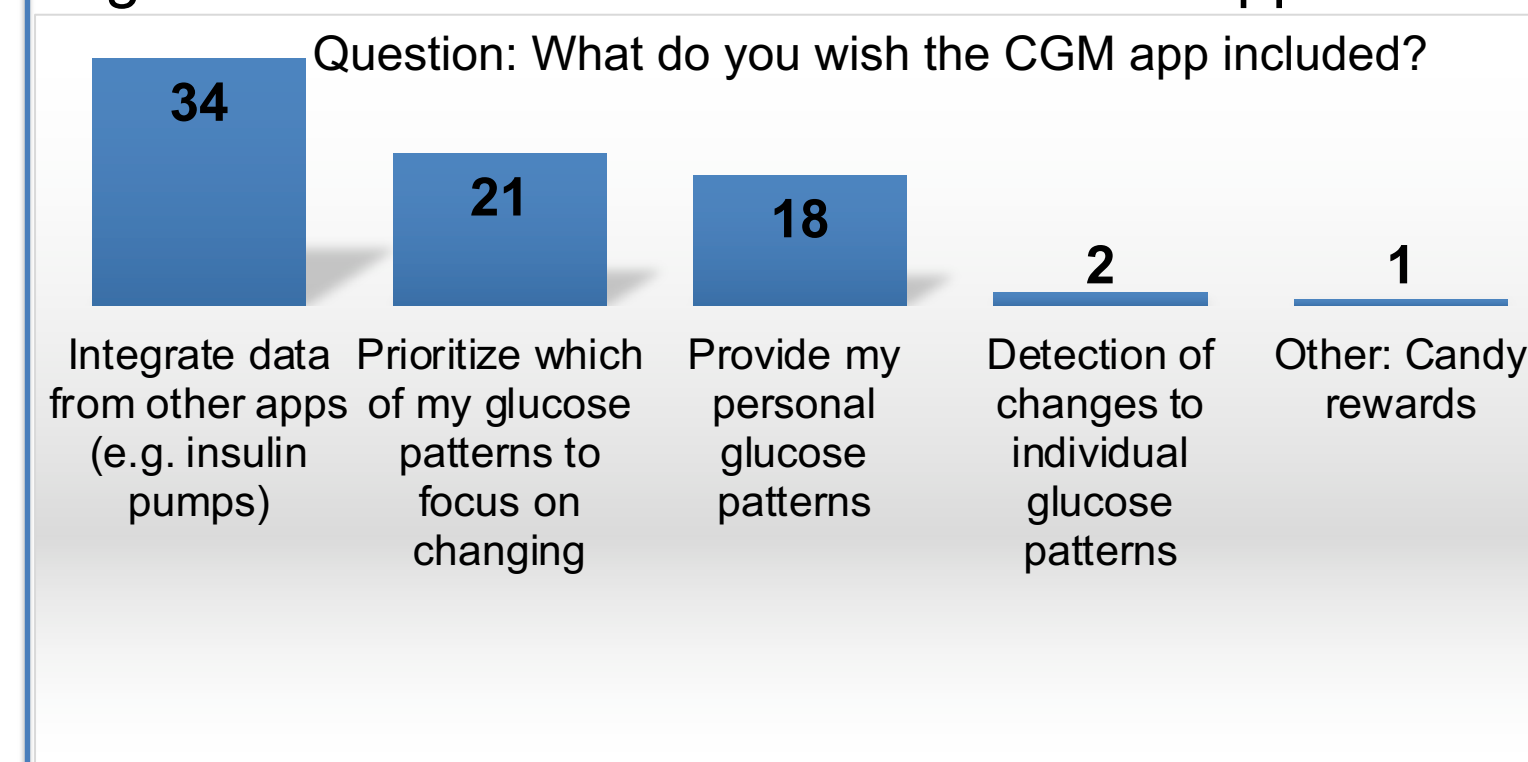
Table 1: Survey results by model stage

Stage in model	CGM use and application	N (%)
Preparation:	I used CGM...	
	to avoid finger sticks	19 (37)
Collection:	because a healthcare provider suggested it	9 (24)
	to download my CGM data	47 (93)
	to track non-glucose data	15 (30)
Reflection:	I have...	
	reviewed my CGM data multiple times per day	35 (69)
	a good understanding of the graphs of my data	26 (51)
	reflected on glucometer readings alone	44 (86)
Action:	reviewed my data with healthcare provider	46 (91)
	I used my CGM data to help with...	
	daily nutrition decisions	43 (84)
	planning future medication alerts	36 (77)
	daily exercise decisions	23 (46)

Results cont.

- Participant characteristics, $N = 51$
 - Age = 55.7, Standard deviation 11.0
 - Female = 28 (55%), Male = 23 (45%)
 - Non-Hispanic White = 29 (57%)
 - Latino/Hispanic = 14 (28%)
 - Black = 8 (16%)

Fig. 2: Desired functions for future CGM apps



Discussion/Conclusions

- CGM systems should collect (or integrate) other self-care data to provide a holistic picture that enables full reflection and action
- Future interventions should identify and prioritize individuals' unique data patterns (e.g., relationship between self-care behaviors and glucose values) and provide tailored insights and actionable suggestions for behavioral changes to positively impact their patterns and overall glycemic stability