Improvement in Food Addiction, Patient Satisfaction, and Symptoms Utilizing CGMs in Group Medical Visits

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Background

Continuous glucose monitors (CGMs) allow patients to understand the impacts of lifestyle on their glycemia. Oser et al.[1] have demonstrated that CGMs can empower patients to improve their A1c through lifestyle changes alone. However, the impact of lifestyle changes with CGM feedback on symptoms and food addiction has not been investigated. This study focuses on measuring subjective symptoms and food addiction symptoms while using CGMs and education in a group medical visit (GMV) setting.

Methods

Two 8-subject cohorts were recruited from an academic family medicine practice. Subjects wore CGMs for 14-weeks with bimonthly 120-minute group visits. Subjects' data were utilized to create glycemic graphs as discussion points during each visit. The remainder of each visit focused on methods to improve glycemic control through food choices and lifestyle modification using real-time CGM data. Subjects completed a pre- and post-survey regarding their thoughts about using a CGM to improve their metabolic health, a Yale Food Addiction Survey, and a Subjective Symptom Questionnaire.

Demographics (n=16)	
Age – mean years. (SD)	55.7 (11.3)
Body Mass Index, mean (SD), kg/m2	35.7 (6.8)
Sex	
Male (%)	7 (43.7)
Female (%)	9 (56.3)
Race	
Black (%)	7 (43.7)
White (%)	9 (56.3)
A1c % mean, (SD)	7.1 (0.4)

Symptom Improvement

Symptom	# Improved, n= 13 (%)
Fatigue/ weakness/ tired	12 (92%)
Bloating/ gas	7 (53%)
Anxiety	6 (46%)
Depression	6 (46%)
Irritability/ anger	6 (46%)
Muscle aches	5 (38%)
Concentration	5 (38%)
Insomnia/ trouble sleeping	5 (38%)
Heartburn	4 (30%)
Joint pain/ achiness	4 (30%)
Mood swings	4 (30%)

Quotes from Subjects

"With the CGM it brought about an awareness to be vigilant about food and drink intake"

"It has caused me to mentally consider alternative foods and drink and to observe food labels"

"It put me on a more straight and narrow path. I had never before monitored my blood sugar."

"It was sorta fun. It was like numbers game. When the numbers were high, I liked doing what it took to drive them down."

Do you think a CGM will change what you eat on a daily basis? "Yes– will I be perfect? No – but I have weeded out quite a few of the worst habits and hope to limit times that I fall off the wagon."

Food Addiction Symptoms

Food addiction can be quantified by the Yale Food Addiction Scale (YFAS)[2]. Our subjects completed the YFAS 2.0 before and after our intervention and the results are shown below. No food addiction is defined as 1 or fewer symptoms, mild food addiction is 2 or 3 symptoms, moderate food addiction is 4 or 5 symptoms, and severe food addiction is 6+ symptoms. For the purposes of our study, a diagnosis of T2DM satisfied the criteria of clinical significance, otherwise participants did not report that their eating habits satisfied clinically significant distress. Overall, 7 subjects remained without food addiction, 4 improved from mild to no food addiction, 1 improved from moderate to no food addiction, and 1 improved from severe to no food addiction. The average improvement in symptom score was -1.2.

Subject	Pre (# symptoms)	Post (# symptoms)	Change
1	Mild (2)	None (0)	-2
2	Mild (3)	None (0)	-3
3	Mild (2)	None (0)	-1
4	None (0)	None (0)	0
5	None (1)	None (1)	0
6	None (0)	None (0)	0
7	None (1)	None (1)	0
8	Moderate (4)	None (0)	-4
9	None (1)	None (1)	0
10	None (0)	None (1)	1
11	Severe (8)	None (1)	-7
12	Mild (2)	None (1)	-1
13	None (0)	None (1)	1

Conclusion

Therapeutic carbohydrate restriction, in conjunction with CGMs in a GMV setting, had favorable effects on somatic, mood and food addiction symptoms.

1. Oser TK, et al. An Innovative, Paradigm-Shifting Lifestyle Intervention to Reduce Glucose Excursions With the Use of Continuous Glucose Monitoring to Educate, Motivate, and Activate Adults With Newly Diagnosed Type 2 Diabetes: Pilot Feasibility Study. JMIR Diabetes. 2022 Feb 23;7(1):e34465. doi: 10.2196/34465. PMID: 35050857; PMCID: PMC8908197.
2. Gearhardt AN, Corbin WR, Brownell KD. Development of the Yale Food Addiction Scale Version 2.0. Psychol Addict Behav. 2016 Feb;30(1):113-21. doi: 10.1037/adb0000136. PMID: 26866783.

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