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Effect of CDCES-Led Structured Coaching and Education on Glycemic and Patient-Reported Outcomes Among Adults Initiating Continuous Glucose Monitoring: A Randomized Study

Consuela (Coni) Dennis, DNP, RN[1]; Jason Allaire, PhD[2,3]

[1]CCS Medical; [2]North Carolina State University, Department of Psychology; [3]Generativity Health Economics and Outcomes Research

INTRODUCTION

- Continuous glucose monitoring (CGM) is increasingly used in diabetes management by providing frequent glucose readings and trend information that can support day-to-day decision-making.[1-3]
- Evidence from clinical trials and real-world studies has shown that CGM use is associated with improved glycemic outcomes and reductions in acute diabetes-related events.[2-5]
- Many individuals new to CGM report difficulty interpreting glucose data or knowing how to respond to glucose trends in ways that support sustained self-management.[6]
- Emerging evidence suggests that pairing CGM initiation with structured coaching and education by a Certified Diabetes Care and Education Specialist (CDCES) improves both clinical and patient-reported outcomes, including reductions in hemoglobin A1c, glucose management indicator (GMI) increased time in range (TIR), and greater confidence in diabetes self-management[5,7-9]. Despite increasing adoption, many individuals initiating CGM lack the support needed to interpret and act on glucose data, limiting the clinical benefit of CGM.

OBJECTIVE

- To evaluate the impact of CDCES-led structured coaching and education delivered at the time of CGM initiation on glycemic control and diabetes self-efficacy compared with CGM alone.

METHODS

Study Design	• Prospective, randomized, two-arm study evaluating CGM plus a structured support model vs CGM alone
Study Period	• January 2024 – October 2025
Inclusion/ Exclusion Criteria	• Eligible participants were adults aged 18 years or older who had not used a CGM or flash glucose monitoring system within the previous six months, and who were willing to use CGM continuously for the duration of the study, had access to an internet-enabled device, and received a Dexcom G7 CGM device. • Participants were excluded if they were non-English speaking, had significant visual impairment that would limit CGM use, or were enrolled in another structured diabetes education program or clinical trial.
Patient Cohorts	• Patients were randomized in a 1:1 ratio to either the CGM plus structured support intervention group (CGM-LC) or the CGM-only group (CGM-O) • **CGM-LC Group:** Received standard CGM initiation and use plus a structured coaching and education program delivered over the nine-month study period. Participants were enrolled in LivingConnected®, a DEAP-accredited diabetes education program delivering CDCES-led structured coaching and education. Coaching was initiated at the time of device acquisition and delivered via telephone and digital modalities, supporting interpretation of CGM data, adherence, glycemic stability, and self-management behaviors. • **CGM-O Group:** Received standard CGM initiation, including device onboarding, technical support, and troubleshooting consistent with usual CGM initiation practices. Support was limited to device-related assistance, with no additional structured coaching or education.
Outcome Measures	• **Primary Outcomes:** Glycemic Management Indicator (GMI), Time in Range (TIR), Mean Glucose Level • **Secondary Outcomes:** Diabetes Management Self-Efficacy Scale (DMSES) *DMSES is a validated instrument that measures individuals' confidence in diabetes self-management, including glucose monitoring, dietary choices, medication use, physical activity, and problem-solving in response to glucose fluctuations *All primary and secondary outcomes were assessed at baseline, with follow-up assessments conducted at three, six, and nine months after CGM initiation
Statistical Analysis	• One-way analysis of variance (ANOVA) was used to evaluate between-group differences in change from baseline to the nine-month follow-up for primary and secondary outcomes. • All statistical tests were two-sided, with an alpha level of 0.05 used to determine statistical significance.

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RESULTS

Study Cohorts

- A total of 424 participants were randomized.
- Baseline demographic and clinical characteristics were similar between groups, with no statistically significant differences observed in age, gender, race, baseline glycemic metrics, or other key variables. (**Table 1**)
- Of the participants who completed baseline assessments, 212 did not complete the nine-month follow-up.
- Analyses were conducted using complete-case data from participants with available baseline and nine-month outcome measures.

Table 1. Participants Demographics and Clinical Characteristics

	CGM-O (n=222)	CGM-LC (n=202)	*P* =
Age, mean (SD) range	66.93 (11.04) 26-89	67.64 (9.94) 27-91	0.49
Gender, n (%)			
Male	119 (53.6)	108 (53.5)	0.58
Female	103 (46.4)	94 (46.5)	
Education, n (%)			
Some High School	9 (4.1)	4 (1.9)	0.84
High School Degree	57 (25.7)	49 (24.3)	
Some College	43 (19.4)	44 (21.8)	
College Degree/Associate Degree	83 (37.4)	72 (35.6)	
Advanced Degree	30 (13.5)	33 (16.3)	
Race, n (%)			
White	186 (83.8)	175 (86.6)	0.22
Black	19 (8.6)	20 (9.9)	
Hispanic/Latino	10 (4.5)	6 (3.0)	
Asian	3 (1.4)	--	
Missing	4 (1.8)	1 (.5)	
Baseline Glucose, mean [SD]	166.62 [39.41]	166.97 [41.36]	0.50
Baseline GMI, mean [SD]	7.41 [1.03]	7.30 [0.99]	0.29
Baseline TIR, mean [SD]	64.92 [23.03]	65.56 [24.59]	0.78

CGM-LC, continuous glucose monitoring plus structured support intervention; CGM-O, continuous glucose monitoring-only; GMI, glycemic management indicator; SD, standard deviation; TIR, time in range

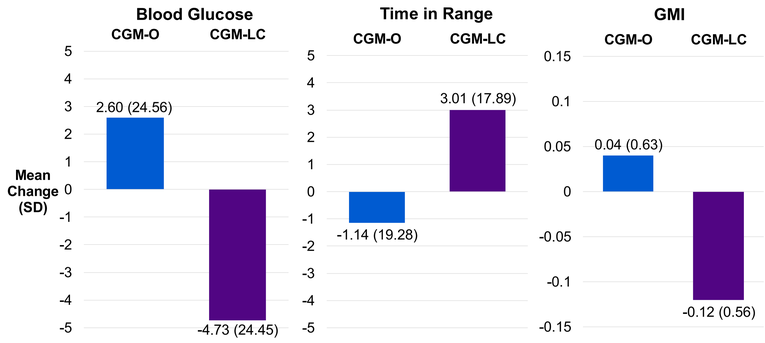
Change in Primary Outcomes

- Changes in CGM-derived glycemic outcomes from baseline to the nine-month follow-up are shown in **Figure 1**.
- Mean change in glucose differed significantly between groups ($F[1, 178] = 4.01$, $\eta^2_p = 0.02$, $P = 0.047$), with participants in the CGM-LC group experiencing a reduction in mean glucose and participants in the CGM-O group experiencing an increase in mean glucose.
- Directional improvements in TIR and GMI favored the CGM-LC group, although between-group differences did not reach statistical significance at the nine-month follow-up. (TIR: $F[1, 178] = 3.25$, $\eta^2_p = 0.02$, $P = 0.07$; GMI: $F[1, 178] = 2.21$, $\eta^2_p = 0.01$, $P = 0.14$)
- Reductions in mean glucose and directional improvements in TIR and GMI suggest improved glycemic stability.

Change in Secondary Outcomes

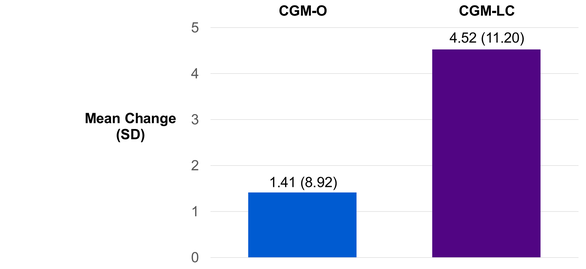
- Change in diabetes self-efficacy, as assessed by the DMSES, differed significantly between groups over the nine-month study period. ($F[1, 176] = 4.25$, $\eta^2_p = 0.02$, $P < 0.05$)
- Participants in the CGM-LC group demonstrated greater improvements in DMSES scores compared with those in the CGM-O group. (**Figure 2**)
- Improvements in self-efficacy may represent a key mechanism through which coaching influences glycemic outcomes.

Figure 1. Change from Baseline in Clinical Outcomes



CGM-LC, continuous glucose monitoring plus structured support intervention; CGM-O, continuous glucose monitoring-only; GMI, glycemic management indicator; SD, standard deviation. Improvements in eAG, TIR, and GMI are associated with reduced risk of diabetes-related complications.

Figure 2. Change from Baseline in DMSES Total Score



CGM-LC, continuous glucose monitoring plus structured support intervention; CGM-O, continuous glucose monitoring-only; DMSES, Diabetes Management Self-Efficacy Scale; SD, standard deviation

CONCLUSIONS

- Integrating CDCES-led structured coaching and education at the time of CGM initiation improved glycemic outcomes and diabetes self-efficacy over nine months.
- Access to CGM alone does not ensure improved glycemic control, particularly without support to interpret data, sustain engagement, and maintain self-management behaviors over time.
- As CGM adoption accelerates across diverse care settings, approaches that combine device onboarding with structured, human-led support may help bridge the gap between access to continuous data and the ability to use that data effectively.
- These findings underscore the opportunity to strengthen early CGM engagement and support sustained glycemic stability through accessible, patient-centered strategies.
- Future research should explore how varying levels of support intensity, modality, and timing influence long-term outcomes, as well as how such programs can be tailored to meet the needs of younger adults, individuals with limited digital literacy, or populations experiencing social or structural barriers to diabetes self-management.

REFERENCES

1. Kwon SY, et al. Endocrinol Metab (Seoul). 2025;40(2):161–173.
2. Gavin JR, et al. Diabetes Technol Ther. 2021;23(S3):S19–S27.
3. Gavin JR, et al. Diabetes Technol Ther. 2023;25(S3):S5–S13.
4. Maiorino MI, et al. Diabetes Care. 2020;43(5):1146–1156.
5. Richardson KM, et al. Int J Behav Nutr Phys Act. 2024;21(1):145.
6. Barchiesi MA, et al. Int J Qual Health Care. 2025;37(3).
7. Kumbara AB, et al. JMIR Diabetes. 2023;8:e47638.
8. Dixon RF, et al. J Diabetes Sci Technol. 2020;14(5):908–911.
9. Jafar N, et al. J Public Health Res. 2023;12(3):1–8.

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