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Weekly Home Weight Monitoring and BMI Trajectories in Children and Adolescents with Type 2 Diabetes Mellitus

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Background

Pediatric patients with type 2 diabetes mellitus (T2DM) may experience progressive increases in body mass index (BMI) between routine clinic visits. Standard follow-up at approximately three-month intervals may provide limited opportunities for continuous weight monitoring. This quality improvement (QI) project evaluated whether implementation of a weekly home weight-monitoring strategy was associated with more favorable BMI trajectories in children and adolescents with T2DM.

Objective

To evaluate whether weekly home weight monitoring is associated with more favorable BMI trajectories in children and adolescents with T2DM.

Methods

Study Population

- Age 8–18 years with T2DM
- Stable medication regimen
- Excluded: medication changes or GLP-1 RA therapy

Recruitment & Data Collection

- Education during routine clinic visits
- Weekly home weight monitoring (same day/time)
- Data entry via Qualtrics (QR code handout)
- Email reminders; text/phone calls as needed
- Follow-up over 14 months

Study Population (N = 14)

Weekly Checkers	Non-Checkers
n = 5 (35.7%)	n = 9 (64.3%)

Results

1. Enrollment & Follow-Up

N = 14 stable medication regimen

Follow-up **14 months**

Weekly checkers **n = 5** (35.7%)

Non-checkers **n = 9** (64.3%)

2. BMI Outcomes

BMI Trajectory at Follow-Up



Weekly home weight monitoring **adherence** was **significantly** associated with more favorable BMI trajectories ($p < 0.05$).

BMI Trajectory by Group

Group	Worsened n (%)	Stable/Improved n (%)	Total
Weekly Checkers	0 (0%)	5 (100%)	5
Non-Checkers	5 (55.6%)	4 (44.4%)	9
Total	5 (35.7%)	9 (64.3%)	14

Original Recruitment N = 34 patients | **Excluded: 20 patients**

- 12 with no more follow up
- 8 with increased dose of original medication or added a new medication (e.g., GLP-1, insulin, or other)

Barriers to Adherence

- Difficulty reaching patients for weekly reminders
- Insufficient parental involvement
- Absence of financial incentives
- Lack of a home scale

Conclusions

Weekly home weight monitoring is a feasible, low-cost, patient-centered strategy that was associated with more favorable short-term BMI trajectories in this small cohort of children and adolescents with T2DM.

Future Plans

- Automated text-message reminders to improve engagement
- Evaluate additional metabolic outcomes (HbA1c and liver enzymes)

Better Monitoring • Healthier Trajectories • Brighter Futures