

Use of a Mobile Diabetes Self-Management Tool is Associated with Increased Tests-in-Range in Users with Type 2 Diabetes and Baseline Hyperglycemia

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Background and Aims

Despite recent advancements in diabetes technology and therapeutics, many patients with type 2 diabetes continue to experience suboptimal glycemic control, placing them at an increased risk of diabetes-related complications and ultimately leading to higher healthcare costs. Previously, use of diabetes-focused mobile health (mHealth) applications has been associated with improved glycemic control. We studied the impact of the mySugr® app on the change in blood glucose tests above range, within range, and below range in people with type 2 diabetes and hyperglycemia prior to use of the app.

Conclusions

In a population of over 900 users with type 2 diabetes and baseline hyperglycemia, enrollment in the mySugr app with a connected blood glucose meter was associated with a significant improvement in the percentage of tests-in-range after 6 months of use.



Figure 1: The mySugr® app

Materials and Methods

We performed a retrospective analysis of 930 mySugr app users with self-reported type 2 diabetes in the United States who enrolled between January 1, 2018 and November 30, 2022 and tested ≥ 2 times/day on ≥ 14 days per 30 day period for 180 days following enrollment in the mySugr app who had $>25\%$ of blood glucose tests above 180 mg/dL in the 30 days prior to use of mySugr. Mean blood glucose and percentage of blood glucose tests below 54 mg/dL, 54 mg/dL to 69 mg/dL, 70 mg/dL to 180 mg/dL, 181 mg/dL to 250 mg/dL, and above 250 mg/dL were calculated at baseline and 180 days following blood glucose meter connectivity to the mySugr app.

Results

Mean blood glucose decreased from 192.8 mg/dL at baseline to 168.7 mg/dL ($\Delta -24.1$ mg/dL) at 180 days following glucometer connection to mySugr. Percentage of tests between 70 mg/dL to 180 mg/dL increased from 47.5% to 64.1% ($\Delta +16.6\%$) while percentage of tests above 250 mg/dL decreased from 17.6% to 10.6% ($\Delta -7.0\%$) and above 180 mg/dL from 33.7% to 23.8% ($\Delta -9.9\%$) baseline and 180 days, respectively ($p < 0.001$ for all comparisons). Overall, the percentage of tests below 70 mg/dL (1.0% at baseline and 1.3% at 180 days) and below 54 mg/dL (0.2% at baseline and 0.3% at 180 days) was low.

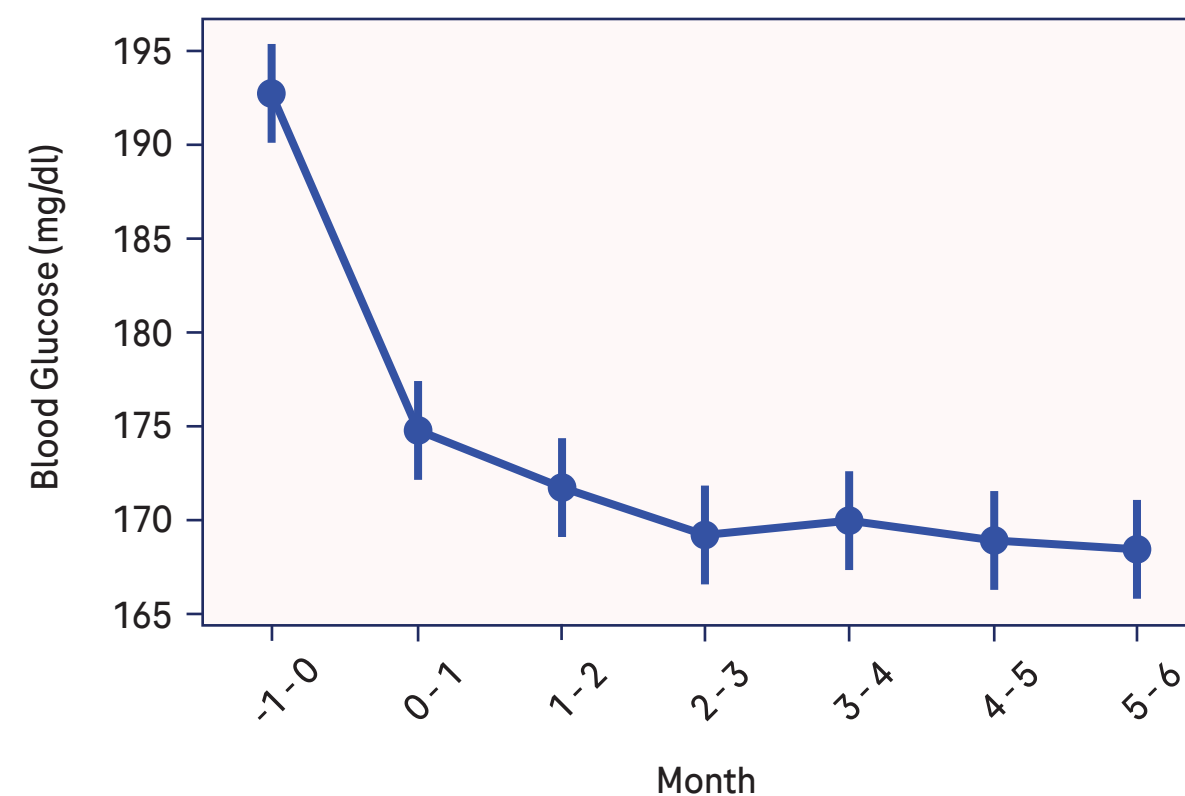


Figure 2: Mean blood glucose at baseline and 6 months following connectivity to mySugr

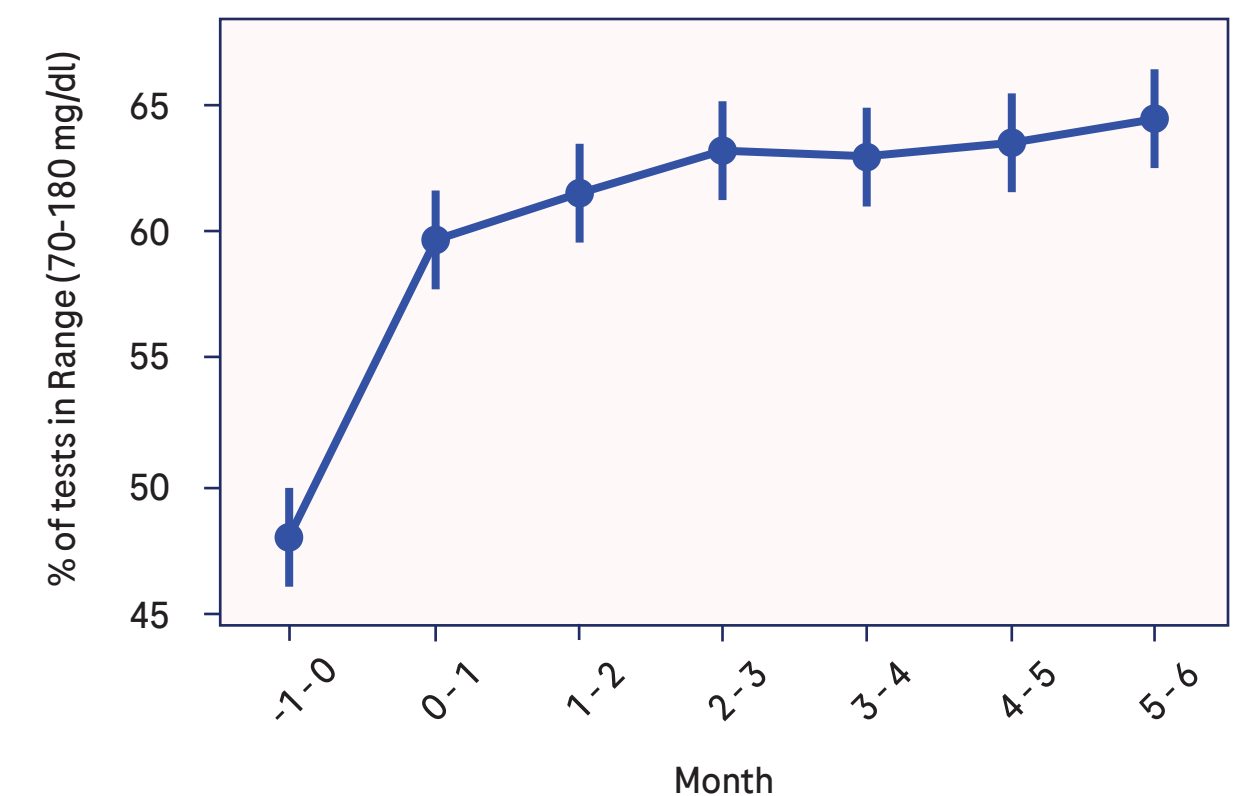


Figure 3: Percentage of tests in range (70–180 mg/dL) at baseline and 6 months following connectivity to mySugr