

ABSTRACT TITLE

An AI-driven personalised coaching model demonstrated significant improvements in Time in range (TIR) and Time above range (TAR) in 100 days

AUTHORS

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BACKGROUND AND AIM

In recent times, the incorporation of artificial intelligence into the healthcare sector has brought about substantial progress. One such innovative model, the Sugarfit Diabetes Reversal and Management Program (SDRMP), represents a comprehensive platform designed to effectively manage type 2 diabetes. This study aims to assess the improvements in glycemic control during the continuous glucose monitoring (CGM) period following participation in the SDRMP.

METHODS

This study undertakes a retrospective analysis of individuals enrolled in the SDRMP who used CGM on at least two occasions during the program with a gap of a minimum of 90 days and maximum of 120 days. The analysis encompasses a cohort of 403 participants, including 319 males and 84 females, with an average age of 50.30 ± 11.48 years. SDRMP harnesses the power of artificial intelligence to guide individuals with diabetes toward making healthier lifestyle choices. This personalised, precise, yet comprehensive platform was developed by diabetes experts who offer guidance on diet, exercise, and mindfulness techniques, supplemented with physician advice on medication management.

RESULTS

Participants exhibited a significant improvement of 4.7% in TIR with a p-value < 0.0001 and a 4.9% reduction in TAR with a p-value < 0.0001 . However, there was a marginal increase in TBR by 0.28%. Among the 403 participants, 90 individuals displayed Glycemic Variability (GV) exceeding 25% in the first CGM, and they experienced a substantial improvement of $4.6\% \pm 5.75\%$ in the second CGM. During this period, these users demonstrated improvements in HbA1c levels from 8.82 ± 1.72 to 7.62 ± 1.32 , fasting blood sugar levels from 167.57 ± 58.66 to 147.84 ± 53.17 mg/dl, and weight from 78.57 ± 14.96 to 76.12 ± 14.59 kg. The average interval between CGM 1 and CGM 2 was 103 ± 8.7 days.

CONCLUSION

The findings emphasise the significant potential of the SDRMP in achieving substantial improvements in both Time in Range (TIR) and Time Above Range (TAR) within a relatively short time frame. According to expert consensus, optimal TIR is recommended to exceed 70%, with TAR below 25%, and TBR below 3%. Encouragingly, the SDRMP has effectively increased TIR to 77%, reduced TAR to 21%, and maintained TBR at $< 2\%$. These results highlight the promise of AI-driven interventions like SDRMP in enhancing glycemic control among individuals with type 2 diabetes, ultimately improving their overall health and quality of life.