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EFFECTIVENESS OF DIABETES EDUCATION VIA MOBILE APPLICATION (T-MANIS) IN IMPROVING GLYCEMIC CONTROL AMONG PATIENTS WITH TYPE 2 DIABETES

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INTRODUCTION

Current education on diabetes self-management is time-consuming as it is conducted face-to-face. This study aimed to evaluate the effectiveness of diabetes education via mobile application on hemoglobin A1c (HbA1c).

METHODOLOGY

This was a double-blinded randomized controlled study conducted in the Department of Endocrinology, Hospital Pulau Pinang and Hospital Raja Permaisuri Bainun. Participants were stratified randomized according to HbA1c to intervention group (using T-Manis) and control group. The primary objective was to assess the difference in HbA1c between the groups. Secondary objectives were to assess the difference in body weight, hospitalization related to diabetes, diabetes knowledge between groups and usability and satisfaction of T-Manis. Laboratory investigations and questionnaires were conducted at baseline, 4 months and 8 months.

RESULTS

A total of 112 participants were randomized into two groups each with 56 participants. Mean age was 51 years with similar diabetes duration of 16 years in both groups. Participants comprised of 61.6% females with ethnic distribution of 49.1% Malay, 30.4% Chinese, 19.6% Indian and 0.9% Siamese. Baseline HbA1c levels were comparable between intervention and control groups (10.04% versus 9.91%; mean difference 0.13%; 95% CI -0.56 to 0.81; $p = 0.718$). At 4 months, HbA1c of the intervention group demonstrated a significant reduction compared to the control group (8.93% versus 9.80%; mean difference -0.86; 95% CI -1.59 to -0.14; $p = 0.02$). Sustained reduction of HbA1c in the intervention group was observed at 8 months (mean difference -1.01; 95% CI -1.85 to -0.16; $p = 0.02$). Baseline body weight was 77 kg, with no between-group differences in body weight, hospitalization related to diabetes and diabetes knowledge scores, although diabetes knowledge scores improved at 4 months in the intervention group. 89.3% of participants reported satisfaction with T-Manis.

CONCLUSION

The T-Manis mobile application aided in significantly improving glycemic control with high user satisfaction, supporting its feasibility as an adjunct to standard diabetes care.