

Six-Month Impact of Diabetes Self-Management Education on Blood Pressure Control and Foot Care Practices in a Nigerian Teaching Hospital



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INTRODUCTION

Diabetes prevalence in Nigeria has risen from 5.77% in 2018 to 7.0% in 2024, underscoring the need for effective education and support programs. Foot care is essential, as diabetes-related nerve damage and poor circulation increase the risk of ulcers, infections, and amputations. Early detection and proper foot care helps prevent complications. High blood pressure is another major concern, as it worsens insulin resistance and raises the risk of heart disease, stroke, and kidney failure. Managing it is vital for overall health. Limited healthcare access and low awareness further worsen outcomes. Hence, diabetes education is key to improving self-care, early detection, and overall disease management.

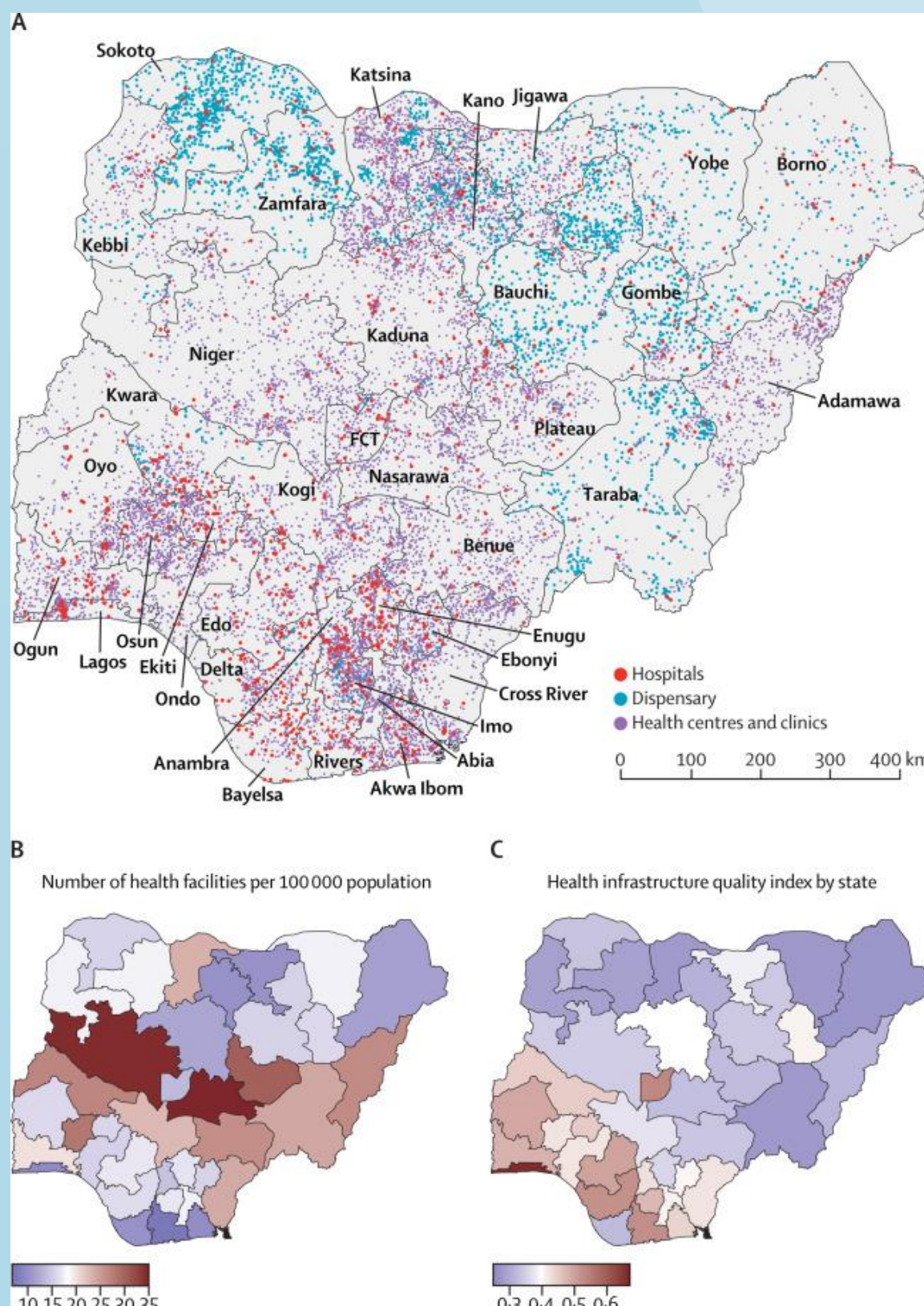


Figure 1: A) Distribution of public hospitals, health center/clinics and dispensaries in Nigeria (2019), (B) Number of health facilities per 100 000 population and (C) Health infrastructure quality index by state, 2012

OBJECTIVES

This study evaluates DSMES’ long-term impact on patients’ health behaviors, focusing on changes in blood pressure and foot care adherence as markers of risk-reducing behaviors.

METHODS

A four-week DSMES program was delivered by the 10 healthcare professionals at UPTH, who had completed a DSMES training program. Adults (≥18 years) with type 2 diabetes were enrolled in the study and attended group and one-on-one sessions. De-identified counseling forms assessed changes in blood pressure (n=39) and foot check practices (n=58) at baseline and six months. Statistical analysis was conducted in R: proportions were analyzed using the two-sided Mid-P McNemar Test (exact2x2 [Fay, 2010]), and BP changes with paired t-tests (car [Fox & Weisberg, 2019]), using one-sided tests for directional effects.

RESULTS

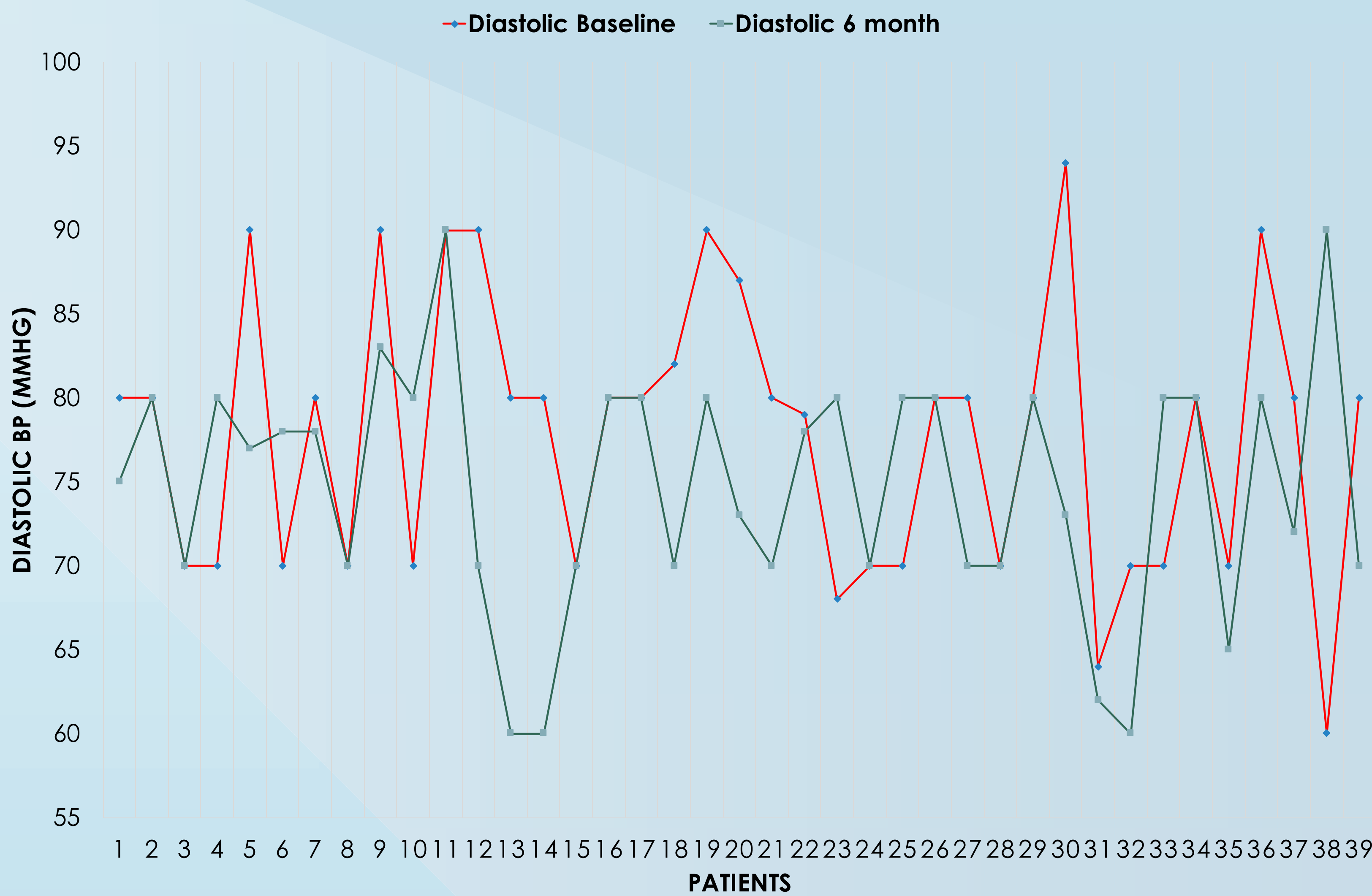


Figure 2: Comparison of Baseline and 6-Month Diastolic Blood Pressure Trends. The line graph illustrates the variation and overall reduction in diastolic blood pressure readings over a 6-month period, highlighting improvement in blood pressure control.

Proportion of Patients Achieving Target BP (≤130/80 mmHg): No statistically significant change between baseline and six months post-intervention (p > 0.05, two-sided Mid-P McNemar Test).

Mean Systolic BP: Average reduction of 3.67 mmHg. Not statistically significant (t(38) = -1.6796, p = 0.05062). One-sided 95% CI: [-∞, 0.01383].

Mean Diastolic BP: Average reduction of 3.08 mmHg. Statistically significant (t(38) = -1.8588, p = 0.03541). One-sided 95% CI: [-∞, -0.2861].

Proportion of Patients Performing Regular Foot Checks (≥Once Weekly): Increased significantly from 26% at baseline to 76% six months post-intervention. Statistically significant (p < 0.001, two-sided Mid-P McNemar Test)

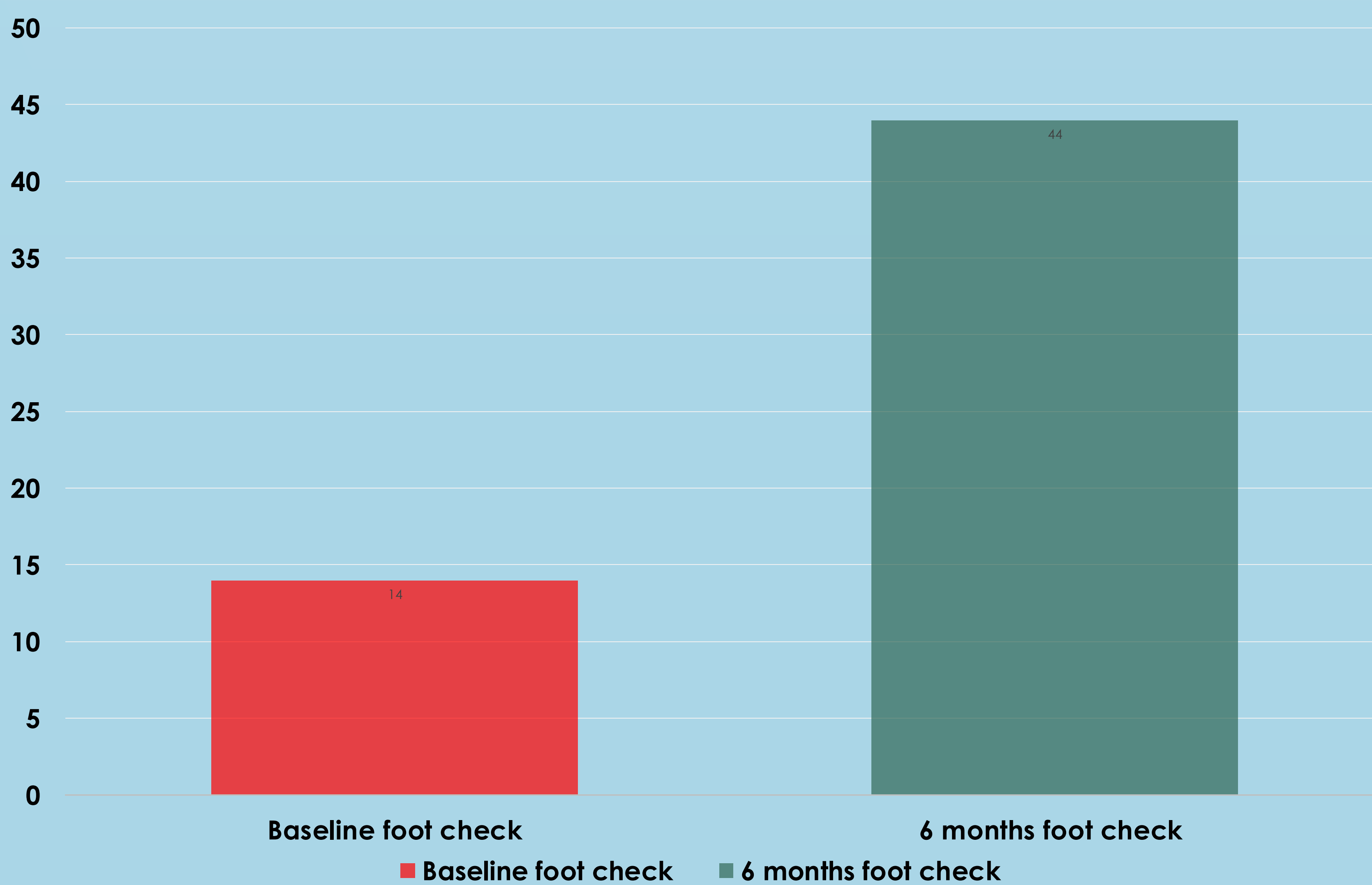


Figure 3: Improvement in Weekly Foot Checks: Comparison of Baseline and 6-Month Follow-Up. The bar chart highlights the significant increase in adherence to weekly foot checks over the 6-month period.

CONCLUSIONS

The DSMES program at UPTH significantly improved key diabetes management outcomes over six months. It resulted in a 50% increase in foot check adherence and a statistically significant reduction of 3.08 mmHg in diastolic blood pressure. These results demonstrate the effectiveness of structured diabetes education in reducing diabetes-related complications. The findings highlight the importance of structured education and support in managing chronic diseases. The program’s success suggests its potential for scalability in similar healthcare settings and its capacity to influence global health policies by showcasing the impact of targeted educational interventions in resource-limited environments. Future studies should explore the program’s long-term sustainability and its effects on glycemic control.

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