

Effects of Social-Behavioural Engagement on Perception of Adults with Type 2 Diabetes on Self-Care Management in Southwestern Nigeria

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Abstract

Introduction: Effective self-care is essential for managing type 2 diabetes mellitus (T2DM), yet adherence is low in Nigeria. We evaluated a theory-guided social-behavioural engagement intervention (social support, role-play, educational sessions) on perceived self-care among adults with T2DM in two teaching hospitals in Ogun State.

Methods: In a quasi-experimental design, 60 adults (30–70 years) were systematically sampled—intervention site: Olabisi Onabanjo University Teaching Hospital; control: Babcock University Teaching Hospital. A validated questionnaire (Cronbach's $\alpha = 0.70–0.82$) assessed perceived self-care at baseline, immediately post-intervention, and at 10-week follow-up. The intervention group received two 90-minute group sessions weekly for 10 weeks (20 sessions); controls received standard clinic education. Data were analysed with independent-sample and paired-sample t-tests using IBM SPSS v23 at $\alpha = 0.05$. Ethical approval was granted by BUHREC and OOUHREC.

Results: Mean change in perception scores was 4.07 ± 1.28 (experimental) versus 0.11 ± 0.85 (control); the between-group difference was significant ($t(54) = 12.13$, $p < 0.001$, 95% CI 3.34–4.80, Cohen's $d = 1.46$), indicating a large positive effect.

Conclusion: Integrating similar social-behavioural interventions into diabetes care could enhance patient empowerment and sustained glycaemic control.

Keywords: Adults, Self-care management, Social-behavioural, Type 2 Diabetes Mellitus, Precede-Proceed

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Introduction

Self-care management is a vital part of diabetes care and includes activities such as blood glucose monitoring, healthy eating, physical activity, and medication adherence. Globally, only 50-60% of people with diabetes regularly check their blood glucose, and medication adherence ranges from 36% to 93%, influenced by geographic and socioeconomic factors (□1). In Sub-Saharan Africa, including Nigeria, these rates are even lower due to systemic barriers and limited education about diabetes self-management (□2). Diabetes mellitus (DM) is a growing global public health concern, posing significant socioeconomic challenges worldwide. The disease imposes a heavy financial burden through increased healthcare costs, reduced productivity, and income loss among affected

individuals (□3, □4). According to the International Diabetes Federation (□4), approximately 537 million adults (20–79 years) are currently living with diabetes, representing a global prevalence of 10.5%. This figure is projected to rise to 783 million by 2045 if effective interventions are not implemented. The economic burden is equally alarming, with global health expenditures on diabetes estimated at USD 966 billion in 2021, reflecting a 316% increase over the past 15 years (□4). Globally, the burden of diabetes continues to rise. According to Mogre et al, diabetes affects at least 285 million people and is responsible for approximately 3.2 million deaths annually (□5).

In Africa, diabetes prevalence is rising rapidly due to urbanisation, lifestyle changes, and limited healthcare infrastructure. The World Health Organisation estimates that



24 million people in sub-Saharan Africa currently live with diabetes, with projections reaching 55 million by 2045 (□6). Nigeria, the most populous country in Africa, faces a particularly severe challenge. Recent evidence suggests a national diabetes prevalence of 5.7% among adults, representing more than 12 million Nigerians (□4, □7). This rising trend places significant pressure on the country’s fragile healthcare system. This study determined the effects of social behavioural engagement on the perception of adults with Type 2 Diabetes towards self-care management.

Methods

A quasi-experimental design was adopted, comprising one intervention and one control group. The population consisted of adults aged 30–70 years with T2DM attending outpatient diabetes clinics. Sixty consenting participants were selected using systematic sampling techniques from the clinic registers of Olabisi Onabanjo University Teaching Hospital (intervention site) and Babcock University Teaching Hospital (control site). A theory-based validated questionnaire (with Cronbach’s alpha internal consistency coefficient of 0.70–0.82) was used to collect data from participants, which assessed perception of self-care management in T2DM treatment. The intervention group received a 10-week structured educational and social-behavioural programme, delivered as two 90-minute group

sessions per week (total of 20 sessions), while the control group received only standard health education offered by the clinic. Of the 60 enrolled participants (30 per group), four participants in the control group withdrew before post-intervention data collection due to scheduling conflicts. No attrition occurred in the intervention group. A follow-up at 10 weeks was conducted only for participants in the intervention group. Data analysis was based on complete cases. Data were collected at three points: baseline, immediate post-intervention, and at 10-week follow-up. Paired-sample t-tests assessed within-group changes. Independent-sample t-tests compared between-group differences in mean change scores (post–baseline). Statistical significance was set at $p < 0.05$. For completeness, effect size (Cohen’s d) and 95% confidence intervals were reported. The IBM SPSS version 23.0 was used for the analysis at a 5% significance level.

Results

Participants’ mean age in the experimental group was 50.4 ± 11.3 years, and 45.3 ± 9.8 years in the control group ($t(58) = 1.78, p = 0.08$). Females comprised 73.3% of the experimental and 66.7% of the control group ($p = 0.53$). Most participants were Yoruba (81.7%), and over half had at least secondary education.

Table 1: Socio-demographic characteristics of participants

Variable	Category	Experimental (n=30) n (%)	Control (n=30) n (%)	χ^2	p-value
Age (Mean \pm SD)	—	50.4 ± 11.3	45.3 ± 9.8	—	0.08 ^a
Gender	Male	8 (26.7%)	10 (33.3%)	0.39	0.53
	Female	22 (73.3%)	20 (66.7%)		
Ethnicity	Yoruba	24 (80.0%)	25 (83.3%)	0.23	0.89
	Igbo	4 (13.3%)	3 (10.0%)		
	Hausa	2 (6.7%)	2 (6.7%)		
Education	Non-formal	2 (6.7%)	3 (10.0%)	1.06	0.79
	Primary	2 (6.7%)	3 (10.0%)		
	Secondary	20 (66.7%)	14 (46.7%)		
	Tertiary	6 (20.0%)	10 (33.3%)		
Family History of Diabetes	Yes	25 (83.3%)	19 (63.3%)	2.98	0.084
	No	5 (16.7%)	11 (36.7%)		

Values are expressed as mean \pm standard deviation (SD) or frequency (%). Independent-samples t -test ($t = 1.78$) was used for continuous variables (age). Pearson’s χ^2 test was used for categorical variables (gender, ethnicity, education, and family history). Significance level set at $p < 0.05$.

Participants’ level of perception at baseline, at immediate post-intervention and at 10th week follow-up

Table 2 shows that at baseline, perception scores were higher in the experimental group (11.00 ± 0.79) than in the control group (8.54 ± 1.21). Post-intervention, the experimental group’s mean score increased significantly to 15.07 ± 1.41 ($p < 0.001$), while the control group remained unchanged (8.65 ± 1.20). The mean change in perception was 4.07 ± 1.28 (experimental) and 0.11 ± 0.85 (control). An independent-sample t -test showed a statistically significant between-

group difference ($t(54) = 12.13, p < 0.001, 95\% \text{ CI} = 3.34\text{--}4.80, \text{Cohen’s } d = 1.46$). At 10-week follow-up, perception in the intervention group slightly declined but remained higher than baseline (13.87 ± 2.45). The mean difference between baseline and follow-up was 2.87 (95% CI = 2.05–3.69), confirming retention of effect. These results indicate that the social-behavioural engagement programme substantially improved participants’ perception of self-care management and sustained the improvement beyond the intervention period.

Table 2: Changes in perception scores between experimental and control groups

Measurement Time	Experimental Group (n = 30)	Control Group (n = 26)	Between-group Difference	Test Statistic	p-value	95% CI	Effect Size (Cohen's d)
Baseline	11.00 ± 0.79	8.54 ± 1.21	—	—	—	—	—
Post-intervention	15.07 ± 1.41	8.65 ± 1.20	6.42	t(54) = 12.13	<0.001	3.34 – 4.80	1.46
Mean change (Post–Baseline)	4.07 ± 1.28	0.11 ± 0.85	—	—	—	—	—
10-week follow-up	13.87 ± 2.45	—	—	—	—	2.05 – 3.69 (within-group)	—

Values are presented as mean ± standard deviation (SD). Paired-sample *t*-tests were used for within-group comparisons; independent-sample *t*-tests for between-group comparisons. Significance level set at $p < 0.05$. Cohen's *d* indicates a large effect size

Discussion

From the socio-demographic result, the age difference observed between the two groups aligns with evidence that older individuals are more likely to engage with health interventions due to increased exposure to chronic health issues and greater health-seeking behaviours. For example, Adebisi et al observed that older adults with diabetes in Southwest Nigeria were more likely to adopt and sustain self-care behaviours following structured education, potentially due to heightened disease awareness and motivation to prevent complications (□8). The predominance of female participants in both groups may also reflect broader gender trends in health program participation, where women are typically more proactive in seeking healthcare and participating in health-related research. This is consistent with findings by Oyetunde et al, who noted that female participants were more likely to attend diabetes education sessions and adhere to recommended lifestyle modifications (□9).

The substantial improvements observed in the experimental group demonstrate that structured, targeted education can effectively reshape misinformed beliefs, reinforce accurate health messages, and build the psychological readiness needed for sustained behaviour change. This study's results are consistent with existing evidence from Nigeria, where perception has been repeatedly identified as a powerful determinant of diabetes self-care practices. For instance, Aina and Agbede found that patients' perceptions were significantly associated with core self-care behaviours such as physical activity, medication adherence, blood glucose monitoring, and healthy eating (□10). In their study, individuals with more positive perceptions were more likely to engage in diabetes self-management actively.

Strengths and limitations

Strengths of the study include its quasi-experimental design, ethical rigour, and use of validated tools. However, limitations include the small sample size (n=60), short follow-up period, single-state scope, and reliance on self-reported data.

Conclusion

The study concludes that social-behavioural engagement interventions significantly improve Perceptions of self-care management among adults with T2DM. Enhanced Perception contributes to better adherence and improved health outcomes. It is recommended that similar programmes be integrated into diabetes care protocols across Nigeria and other resource-limited settings to strengthen patient empowerment and reduce disease burden.

Abbreviations

BUHREC: Babcock University Health Research and Ethical Committee

OOUTH: Olabisi Onabanjo Teaching Hospital

BUTH: Babcock University Teaching Hospital

IDF: International Diabetes Federation

SPSS: Statistical Package for Social Sciences

Declarations

Ethics Approval and Consent to Participate: Ethical approval was obtained from the Babcock University Health Research Ethics Committee (BUHREC 826/24) and Olabisi Onabanjo University Health Research Ethics Committee (OOUTH/HREC/03/001/E236/2025AP) to conduct the study. Ethical guidelines, as outlined by BUHREC and OOUTHREC, were strictly adhered to.

Data Availability: Available upon request.

Competing Interests: None declared.

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Author contributions: DAIC designed the study, collected and analysed the data, interpreted the findings, and drafted the manuscript. OMF supervised the project

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References

1. Powers MA, Bardsley J, Cypress M, Funnell MM, Harms D, Hess Fischl A, et al. Diabetes self-management education and support in adults with type 2 diabetes. *Diabetes Care*. 2020;43(7):1636–1649. <https://doi.org/10.2337/dci20-0023>
2. Stephani V, Opoku D, Beran D. Self-management of diabetes in Sub-Saharan Africa: a systematic review.

- BMC Public Health. 2018 Sep 29;18(1):1148. <https://doi.org/10.1186/s12889-018-6050-0>
3. Atun R, Davies JI, Gale EAM, Bärnighausen T, Beran D, Kengne AP, et al. Diabetes in sub-Saharan Africa: from clinical care to health policy. *Lancet Diabetes Endocrinol.* 2019;5(8):622–667. [https://doi.org/10.1016/S2213-8587\(17\)30181-X](https://doi.org/10.1016/S2213-8587(17)30181-X)
 4. International Diabetes Federation. *IDF Diabetes Atlas*. 11th ed. Brussels: International Diabetes Federation; 2024.
 5. Mogre V, Johnson NA, Tzelepis F, Shaw JE, Paul C. A systematic review of adherence to diabetes self-care behaviours: Evidence from low-and middle-income countries. *Journal of Advanced Nursing.* 2019 Dec;75(12):3374-89. <https://doi.org/10.1111/jan.14190>
 6. World Health Organization. *Diabetes fact sheet* [Internet]. Geneva: World Health Organization; 2021 [cited 2026 Jan 3]. Available from: <https://www.who.int/news-room/fact-sheets/detail/diabetes>
 7. Abdullahi MI, Bi Y, Wang M, Ashiru MH, Zheng ZJ, Jin Y. Self-care behaviors and glycemic control in Nigerian patients with type 2 diabetes: a pilot cross-sectional study. *Global Health Research and Policy.* 2025 Nov 11;10(1):60. <https://doi.org/10.1186/s41256-025-00427-9>
 8. Galaviz KI, Narayan KMV, Lobelo F, Weber MB. Lifestyle and the prevention of type 2 diabetes: a status report. *Am J Lifestyle Med.* 2018;12(1):4–20. <https://doi.org/10.1177/1559827615619159>
 9. Adu MD, Malabu UH, Malau-Aduli AEO, Malau-Aduli BS. Enablers and barriers to effective diabetes self-management: a multinational investigation. *PLoS One.* 2019;14(6):e0217771. <https://doi.org/10.1371/journal.pone.0217771>
 10. Aina MA, Agbede CO. Perception of self-care and self-care practice of diabetic patients attending selected hospitals in Oyo State, Nigeria. *Int J Public Health Pharmacol.* 2021;1(2):50–59. <https://doi.org/10.52589/IJPHP-XKALSFE8>