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IMPACT OF SOCIAL ENGAGEMENT ON SELF-CARE BEHAVIORS IN PATIENTS WITH TYPE 2 DIABETES IN SOUTHWESTERN NIGERIA

Daniel-Alpheaus Chioma Irene* **and Olanrewaju Motunrayo F. (Prof.)**

Public Health Department, School of Public and Allied Health, Babcock University,

Email: alpheaus-danielc@babcock.edu.ng

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ABSTRACT: *Effective self-care is crucial for managing Type 2 Diabetes Mellitus (T2DM), as it helps prevent complications, reduces hospitalizations, and enhances quality of life. However, in low-resource settings, adherence to self-care practices such as medication use, blood glucose monitoring, diet, physical activity, and foot care remains poor due to inadequate knowledge, weak social support, and systemic barriers. To address these gaps, this study examined the effects of a social-behavioural engagement programme, a structured ten-week intervention combining social support, role-play, and educational sessions, on self-care management among adults with Type 2 diabetes in teaching hospitals in Ogun State, Nigeria. The study adopted a quasi-experimental design with one intervention and one control group. The population comprised adults aged 30–70 with diagnosed T2DM attending outpatient diabetes clinics. A total of 60 participants were systematically selected from Olabisi Onabanjo University Teaching Hospital (intervention site) and Babcock University Teaching Hospital (control site). The sample size was determined using Katz et al. (2013):* $N = \frac{(Z_\alpha + Z_\beta)^2 \times P_0(1 - P_0)}{(P_1 - P_0)}$. *Data were collected using a validated and reliable researcher-developed questionnaire based on the PRECEDE-PROCEED model (Cronbach's alpha = 0.70–0.82). Data were analysed using paired and independent sample t-tests at a 5% level of significance with SPSS version 23.0. Findings showed a significant improvement in self-care management from 19.73±3.05 to 30.30±2.91 ($t(29)=15.48$, $p < .001$). The study concludes that the social-behavioral engagement programme substantially improved the psychosocial and behavioural components of self-care management among adults with T2DM. It recommends that similar structured interventions be adopted and scaled across teaching hospitals in Nigeria to enhance diabetes control and patient outcomes.*

KEYWORDS: Self-care Management, Social-behavioral Engagement Programme, Type 2 Diabetes Mellitus, Adults with Type 2 Diabetes.

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INTRODUCTION

Self-care management—including regular blood glucose monitoring, medication adherence, proper dietary practices, and physical activity—is critical to managing Type 2 diabetes mellitus (T2DM) (American Diabetes Association, 2019). Despite its importance, many individuals with T2DM face significant challenges in adhering to these practices, leading to poor glycemic control, severe complications, such as cardiovascular diseases, retinopathy, and neuropathy, and a diminished quality of life (Atun et al., 2019; Shiferaw et al., 2020). In sub-Saharan Africa, adherence to self-care practices is notably low, with only 30% of individuals with T2DM following dietary recommendations and fewer than 20% regularly monitoring their blood glucose levels (Atun et al., 2019). This non-adherence contributes significantly to diabetes-related complications and increased mortality (Chinenye et al., 2019).

LITERATURE REVIEW

Future Trends and Projections

The global burden of T2DM is expected to increase dramatically, with the number of adults living with diabetes projected to reach 783 million by 2045 (IDF, 2021). In Africa, the prevalence is expected to increase by 129%, the highest regional growth worldwide. In Nigeria, the number of adults with diabetes is projected to exceed 11 million by 2045 if current trends persist (IDF, 2021). Future strategies must focus on improving access to self-care education, integrating diabetes care into primary healthcare systems, and leveraging technology to enhance self-management practices (Zhou et al., 2022).

Diabetes Self-Care Management

In healthcare, self-care management is crucial, especially for mental and chronic illnesses. It entails people actively taking charge of their health situations and using different tactics to keep their bodies and minds in good condition. Diabetes self-care management refers to the routine actions and choices people with diabetes make in order to properly manage their illness. Blood glucose monitoring, following dietary recommendations, getting regular exercise, taking prescribed medications, and stress management are some of these activities (American Diabetes Association, 2019). In order to improve the quality of life for people with diabetes, effective self-care is essential for reducing both acute and chronic problems (Powers et al., 2020). In mental health services, self-care is becoming acknowledged as a strategy that complements self-help, self-management, and rehabilitation. A narrative review emphasizes the value of self-care for people with mental health issues by highlighting actions and procedures that help with self-care. Studies have demonstrated that self-care can significantly improve the course of chronic illnesses, such as heart failure. Chronic disease management requires self-care practices, such as symptom monitoring, drug adherence, and lifestyle changes (Lean et al., 2019).

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METHODOLOGY

The study utilized a quasi-experimental design comprising one experimental group and one control group.

Study Population

The study population will include adults between the age of 30 and 70 who are diagnosed with Type 2 Diabetes who are registered in two teaching hospitals in Ogun State.

Inclusion Criteria: Participants in the study will meet the following criteria:

1. Adults between the ages of 30 and 70 years. The age range of 30–70 years is chosen in diabetes research to focus on the population at highest risk and prevalence of Type 2 diabetes, avoid confounding with Type 1 diabetes, and capture long-term treatment outcomes and complications.
2. Adults with Type 2 Diabetes are fully registered in the health facilities.
3. Adults who are registered for 3 months and above.
4. Adults who gave consent to participate in the study.
5. Adults who can communicate in English.

Exclusion Criteria

Participants who will be excluded from the study will be based on these criteria:

1. Adults with severe diabetes complications requiring hospitalization.
2. Pregnant or lactating women.
3. Adults with cognitive impairments that hinder understanding or participation.

RESULTS/FINDINGS

Socio-demographic Characteristics of Study Participants

The socio-demographic characteristics of the study participants were assessed and compared between the experimental group and the control group. The aim was to ensure comparability between groups and identify any background differences that may influence the outcomes.

Table 1 shows the socio-demographic characteristics of the study participants The mean age of participants in the experimental group was 50.4 (±11.3) years, while the control group had a slightly lower mean age of 45.3 (±9.8) years. Even though there is a slight difference in age, the closeness in age suggests that they will exhibit a similar behavioral pattern and are affected by similar external factors. In the experimental group, females comprised a larger proportion of participants (73.3%) compared to males (26.7%). Similarly, the control group had more females (65.4%) than males (34.6%). Most participants in both groups identified as Yoruba—80.8% in the experimental group and 84.6% in the control group. This was followed by Igbo—

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13.3% in experimental and 11.5% in control, and Hausa (6.7% in experimental, 3.9% in control).

A notable difference in educational levels was observed. The majority of the participants in the experimental group had secondary education 63.3%, while the control group showed a slightly more diverse distribution with 46.2% having secondary education and a higher proportion (20.0%) attaining tertiary education compared to 30.8% in the experimental group. Full-time employment was the most common occupational status among the participants in both groups: 36.7% in the experimental group and 42.3% in the control group. Part-time employment was higher in the experimental group (23.3%) compared to the control (15.4%). Unemployment and retirement rates were fairly similar across both groups. The majority of the participants in both groups were civil servants (56.7% experimental, 50.0% control), followed by self-employed individuals and professionals. A key difference was observed in the family history of diabetes, with 83.3% of the experimental group reporting a family history compared to 65.4% in the control group.

Table 1: ***Socio-demographic Data of the Study Participants***

Variables **Group**	**Experimental group**	**Control**
Age 30–69	50.4 ± 11.3	45.3 ± 9.8
Gender		
Male	8 (26.7%)	9 (34.6%)
Female	22 (73.3%)	17 (65.4%)
Ethnicity		
Yoruba	24 (80.0%)	22 (84.6%)
Igbo	4 (13.3%)	3 (11.5%)
Hausa	2 (6.7 %)	1 (3.9%)
Education		
Non-formal	2 (7.7%)	2 (9.5%)
Primary	2 (7.7%)	2 (9.5%)
Secondary	19 (65.4%)	10 (47.6%)
Tertiary	6 (19.2%)	7(33.3%)
Occupational Status		
Employed full-time	11 (36.7%)	11 (42.3%)
Employed Part-time	7 (23.3 %)	4 (15.4%)
Currently Unemployed	6 (20.0%)	6 (23.1%)
Retired	6 (20.0%)	5 (19.2%)
Nature of Occupation		
Civil Servant	17 (56.7%)	13(50.0%)
Self-employed	8 (26.7%)	7 (28.9%)
Professional	3 (10.0%)	4 (15.4%)
Housewife	2 (6.7 %)	2 (7.7%)
Family history of diabetes		
Yes	25 (83.3%)	17 (64.4%)
No	5 (16.7%)	9 (34.6%)

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Self-Care Management

Table 2 presents the influence of the intervention on diabetes self-care management practices among participants. The result reveals behavioral improvements in the experimental group across several key domains compared to the control group. Before the intervention, only 16.7% of the experimental group reported going for regular eye examinations as recommended, compared to 23.1% in the control group. After the intervention, there was a notable increase in the experimental group to 80.0%, while the control group had a smaller improvement (42.3%), suggesting increased awareness and adherence to preventive eye care. The proportion of participants following a structured meal plan tailored to diabetes was initially low, with just 20.0% in the experimental group and 23.1% in the control group. After intervention, adherence in the experimental group increased significantly to 80.0%, while the control group improved to only 34.6%. Examining feet for sores, cuts, or changes was practiced by 60.0% of the experimental group before the intervention, increasing to 80.0% afterward. The control group, however, remained unchanged at 42.3%, indicating the intervention had a specific impact on this important self-care behavior. Ownership and use of a glucometer to monitor blood sugar showed limited progress. The experimental group rose marginally from 16.7% to 16.7%, while the control group declined from 34.6% to 19.2%, reflecting ongoing challenges in personal monitoring.

Testing blood sugar levels, as advised by healthcare providers, showed a marked improvement in the experimental group, increasing from just 13.3% before the intervention to 80.0% after. The control group also improved from 34.6% to 76.9%. Physical exercise was already practiced by all participants in the experimental group before the intervention, with a slight drop to 96.7% afterward. In contrast, the control group showed improvement from a low baseline of 23.1% to 46.2%, indicating modest gains in physical activity. Only 10.0% of the experimental group reported eating three balanced main meals daily, and this figure did not change after the intervention. The control group experienced a notable decline from 84.6% before the intervention to 57.7% after, suggesting dietary routines weakened over time.

Attendance at scheduled doctor's appointments improved in the experimental group from 66.7% to 83.3%, whereas the control group remained stable at 65.4%, showing that the intervention may have reinforced consistency in medical follow-up. Avoidance of smoking and alcohol use increased from 50.0% to 86.7% in the experimental group, indicating a substantial positive shift in health behaviours. The control group maintained a stable rate of 80.8% across both periods. Unexpectedly, participation in diabetes education or self-management classes declined in the experimental group from 66.7% to 26.7%. Meanwhile, the control group showed a slight increase from 57.7% to 65.4%, possibly reflecting a substitution effect or lower perceived need due to the intervention. Use of medication consistently, even when feeling fine, improved significantly in the experimental group, rising from 60.0% to 86.7%. In contrast, the control group declined in this behaviour, from 76.9% to 46.2%, highlighting a potential erosion in adherence. The number of participants who reported stopping medication due to side effects increased slightly in the experimental group from 56.7% to 66.7%, suggesting persistent concerns needing attention. The control group remained unchanged at 61.5%. Acknowledging the cost of medication as a reason for not using it as prescribed increased in the experimental group from 46.7% to 73.3%, the control group showed a decrease in agreement, from 65.4% to 42.3%. Forgetfulness in taking medication increased in the experimental group from 43.3% to 76.7% after the intervention, which may indicate heightened self-reporting accuracy or the need for reminder systems. The control group also experienced a slight increase, from 46.2%

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to 61.5%. Taking medication only when blood sugar is high was more frequently endorsed after the intervention, with the experimental group increasing from 43.3% to 76.7%, and the control group rising from 42.3% to 53.8%. Skipping diabetes medication declined significantly in the experimental group from 33.3% to 16.7%, reflecting improved adherence. In contrast, the control group showed no change, remaining at a high 65.4%, suggesting the absence of intervention led to sustained poor adherence. Before the intervention, both groups had similar mean scores, with the experimental group slightly higher. After the intervention, the experimental group showed a substantial increase in mean score (from 19.73 to 30.30), indicating a strong positive effect of the intervention. While the control group showed only a slight increase (from 18.15 to 18.65).

Table 2: ***Pre- and Post-intervention Descriptive Results of Self-care Management Responses***

Variables	**Before Intervention**		After Intervention	
	Experimental Group	Control Group	Experimental Group	Control Group
I go for regular eye exams as recommended.				
Agreed	5 (16.7%)	6 (23.1%)	24 (80.0%)	11(42.3%)
Disagreed	25 (83.3%)	20 (76.9%)	6 (20.0%)	15 (57.7%)
I follow a structured meal plan tailored to my diabetes.				
Agreed	6 (20.0%)	6 (23.1%)	24 (80.0%)	9 (34.6%)
Disagreed	24 (80.0%)	20 (76.9%)	6 (20.0%)	17 (65.4%)
I examine my feet for sores, cuts, or changes.				
Agreed	18 (60.0%)	11 (42.3%)	24 (80.0%)	11 (42.3%)
Disagreed	12 (40.0%)	15 (57.7%)	6 (20.0%)	15 (57.7%)
I own and use a glucometer to monitor my blood sugar				
Agreed	5 (16.7%)	9 (34.6%)	5 (16.7%)	5 (19.2%)
Disagreed	25 (83.3%)	17 (65.4%)	25 (83.3%)	21 (80.8%)
I test my blood sugar levels as advised by my healthcare provider.				
Agreed	4 (13.3%)	9 (34.6%)	24 (80.0%)	20 (76.9%)
Disagreed	26 (86.7%)	17 (65.4%)	6 (20.0%)	6 (23.1%)
I engage in physical exercise each week.				
Agreed	30 (100.0%)	6 (23.1%)	29 (96.7%)	12 (46.2%)
Disagreed	0 (0.0%)	20 (76.9%)	1 (3.3%)	14 (53.8%)
I eat three balanced main meals daily.				
Agreed	3 (10.0%)	22 (84.6%)	3 (10.0%)	15 (57.7%)
Disagreed	27 (90.0%)	4 (15.4)	27 (90.0%)	11 (42.3%)
I attend my doctor's appointments as scheduled.				
Agreed	20 (66.7%)	17 (65.4%)	25 (83.3%)	17 (65.4%)
Disagreed	10 (33.3%)	9 (34.6%)	5 (16.7%)	9 (34.6%)
I avoid smoking and alcohol use.				
Agreed	15(50.0%)	21 (80.8%)	26 (86.7%)	21 (80.8%)
Disagreed	15(50.0%)	5 (19.2%)	4 (13.3%)	5 (19.2%)

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I participate in diabetes education or self-management classes.				
Agreed	20 (66.7%)	15 (57.7%)	8 (26.7%)	17 (65.4%)
Disagreed	10 (33.3%)	11 (42.3%)	22 (73.3%)	9 (34.6%)
I use my medication consistently, even if I feel fine.				
Agreed	18 (60.0%)	20 (76.9%)	26 (86.7%)	12 (46.2%)
Disagreed	12 (40.0%)	6 (23.1%)	4 (13.3%)	14 (53.8%)
I stop the medication because of side effects				
Agreed	17 (56.7%)	16 (61.5%)	20 (66.7%)	16 (61.5%)
Rarely Disagreed	13 (43.3%)	10 (38.5%)	10 (33.3%)	10 (38.5%)
The medication is too expensive so I do not use it as prescribed so it doesn't finish quickly				
Agreed	14 (46.7%)	17 (65.4%)	22 (73.3%)	11 (42.3%)
Disagreed	16 (53.3%)	9 (34.6%)	8 (26.7%)	15 (57.7%)
I do not remember to take the medication				
Agreed	11 (43.3%)	12 (46.2%)	23 (76.7%)	16 (61.5%)
Disagreed	15 (56.7%)	14 (53.8%)	7 (23.3%)	10 (38.5%)
I only take my medication when my blood sugar level is high				
Agreed	13 (43.3%)	11 (42.3%)	23 (76.7%)	14 (53.8%)
Disagreed	17 (56.7%)	15 (57.7%)	7 (23.3%)	12 (46.2%)
I skip my diabetes medication				
Agreed	10 (33.3%)	17 (65.4%)	5 (16.7%)	17 (65.4%)
Disagreed	20 (66.7%)	9 (34.6%)	25 (83.3%)	9 (34.6%)
Max. point on the scale of measure for computed construct =	48	48	48	48
Mean score (SD)	19.73 ± 3.05	18.15 ± 1.80	30.30 ± 2.91	18.65 ±1.72
Percentage of max. point score =	41.1%	37.8%	62.5%	38.8%

T-test Showing the Effects of Socio-behavioral Engagement on Diabetes Self-care Management

The result of the comparison between the mean score for selfcare management at baseline and post-intervention for the control group shows no significant difference ($t = 1.72$, $p = 0.09$). This indicates that without any structured intervention, participants in the control group did not experience meaningful improvements in their diabetes self-management behaviours over the study period.

In contrast, the experimental group showed a substantial and statistically significant improvement in self-care management, following the intervention ($t = 15.48$, $p = 0.00$). This

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large difference between pre- and post-intervention scores in the experimental group reflects the effectiveness of the social-behavioral engagement program in enhancing participants' ability to manage their condition. These findings reinforce the value of structured, targeted educational interventions in promoting comprehensive behavioural change and highlight the intervention's critical role in improving self-care management, which is the core dependent variable of this study.

Table 3: Self-care Management Responses at Baseline and 10 Weeks after Intervention

Group	Mean± SD (Before)	Mean± STD (After)	N	T	Df	P-Value
Experimental	19.73±3.05	30.30±2.91	30	15.48	29	0.00
Control	18.15±1.80	18.65±1.72	26	1.72	25	0.09

Significance at p < .05.

DISCUSSION

Participants in both groups were predominantly females, aligning with gender trends in diabetes prevalence studies. The mean age suggests a middle-aged population, which is appropriate for evaluating diabetes self-care interventions. The majority of the participants were Yoruba, reflecting the demographic characteristics of the study setting. Educational levels were comparable, ensuring balanced cognitive readiness for intervention participation. These similarities indicate strong baseline equivalence, minimizing potential confounders. A significant improvement in self-care management was observed in the experimental group post-intervention. The control group showed no statistically significant change, emphasizing the effect of the social-behavioral engagement program. High t-values and $p < .001$ in the experimental group indicate robust intervention effectiveness. These findings affirm the importance of structured behavioral programs in enhancing diabetes self-management outcomes.

IMPLICATIONS TO RESEARCH AND PRACTICE

The findings from this study underscore the critical role of social and behavioral engagement interventions in improving diabetes self-care behaviors, especially in low-resource settings. For research, the results highlight the value of applying behavioral theories, such as the PRECEDE–PROCEED model, to design context-specific health interventions. The study contributes empirical evidence on the effectiveness of structured social-behavioral programs in sub-Saharan Africa, an area where most diabetes research remains clinically focused rather than behaviorally oriented. Researchers can use this as a foundation for larger-scale studies or randomized controlled trials to validate and generalize findings across diverse populations.

For practice, healthcare providers and policymakers should integrate structured social-behavioral engagement programs into diabetes management protocols within teaching and primary healthcare settings. Strengthening peer support groups, incorporating culturally relevant health education, and leveraging social networks can significantly enhance adherence

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to medication, diet, and lifestyle recommendations. Furthermore, involving multidisciplinary teams, including dietitians, psychologists, and social workers, can provide holistic care that supports both psychosocial and behavioral dimensions of diabetes management.

CONCLUSION

This study demonstrates that a structured social-behavioral engagement program significantly improves psychosocial and behavioral components of diabetes self-care among adults with Type 2 Diabetes Mellitus in Southwestern Nigeria. While knowledge alone showed no significant change, attitudes, perceptions, social support, and enabling factors improved markedly among participants who received the intervention. These results indicate that improving diabetes outcomes in resource-constrained environments requires interventions that extend beyond knowledge dissemination to include behavioral reinforcement and social support mechanisms. Implementing such programs across teaching hospitals and community clinics could enhance self-care adherence, glycemic control, and overall quality of life for individuals living with T2DM.

FUTURE RESEARCH

Future research should aim to:

1. Expand the sample size and geographic scope to include multiple states or regions in Nigeria for better generalizability.
2. Incorporate longitudinal follow-up to assess the sustainability of self-care behaviors over time.
3. Conduct cost-effectiveness analyses to evaluate the economic feasibility of integrating such programs into Nigeria's primary healthcare system.

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