

TITLE: Evaluation of a mobile health intervention to improve medication adherence in type 2 diabetes in Nigeria: A randomized clinical trial

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ABSTRACT: A one-year retrospective review of pharmacy refill records was followed by a 6-months' randomized controlled intervention conducted among 120 newly diagnosed type 2 diabetes (T2D) patients in a tertiary healthcare facility in Nigeria. Participants were assigned into two equal (n = 60) control and intervention groups. Intervention comprised daily short message service (SMS) follow-up messaging to the intervention group alongside usual care services. Control group received no SMS. Primary (HbA1c) and secondary (knowledge and adherence) outcome indices were measured and compared pre- and post-intervention. Same questionnaires were administered at baseline and post-intervention to both groups. Chi square test was used to examine association of variables while two-sample t-test was conducted to compare mean pre- and post- intervention scores in both groups at $p < .05$. Intervention significantly improved glycemic control (HbA1c reduction) ($p = 0.01$). For control group, mean pre- and post-intervention knowledge scores were 2.798 and 3.118 respectively ($t = 1.1368$, $p = .2705$) while intervention group recorded 2.714 and 4.193 respectively ($t = 5.6772$, $p < .001$) on a 5-point Likert scale. Pre- and post- intervention adherence scores for control group were 3.804 and 4.013 respectively, ($t = 0.2343$, $p = .8182$) while intervention group had 3.430 and 6.859 respectively ($t = 6.3216$, $p > .001$) on the 8-point Morisky Medication Adherence Scale (MMAS-8). Patients initially had poor glycemic control, fair knowledge of T2D and low adherence to medications. SMS intervention significantly improved all three indices. Policy reforms in healthcare financing is recommended for sustainable provision of mHealth follow-up in diabetes care.

BIOGRAPHY: Madu Ihekoronye obtained a PhD in pharmacy administration from the Obafemi Awolowo University, Ile-Ife Nigeria in 2021. He also holds a postgraduate fellowship in public health pharmacy from the West African Postgraduate College of Pharmacists. He currently holds a faculty position in the Department of Clinical Pharmacy and Pharmacy Administration at the Obafemi Awolowo University. He has published 10 research articles in peer-reviewed journals and is a reviewer to a number of international journals. His h-index is 2.

Prior to joining the academia, Madu Ihekoronye had acquired over a decade of practice experience in pharmaceutical sales and marketing as well as community pharmacy. His research interest is in expanding access to quality healthcare by optimizing community pharmacy services

and integrating them with the primary and public health systems. He is currently participating in a team to develop a framework for managing household-generated pharmaceutical wastes via the community pharmacy conduit in Nigeria.