Report to the World Diabetes Foundation

Chiara Cimenti

Based on the Master thesis in Global Health
Understanding the diagnostic pathways for diabetes in Sofala, Mozambique; from a patient, community, and healthcare perspective.

Picture taken outside the clinic of Lamego on the 19th of May, 2022.

Supervisor: Dirk Lund Christensen
External supervisor: Edoardo Occa
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Acronyms

APEs: Agentes Polivalentes Elementares
AMODIA: Mozambican Diabetes Association
CHAs: community health activists
CHWs: community health workers
COM-B: Capability, Opportunity, Motivation and Behaviour
CUAMM: University College for Aspiring Missionary Doctors, Doctors with Africa
DM: diabetes mellitus
HCPs: healthcare professionals
IDF: International Diabetes Federation
LMICs: low- and middle-income countries
NCDs: non-communicable diseases
NGO: non-governmental organization
SSA: sub-Saharan Africa
UNDP: United Nations Development Programme
WHO: World Health Organization
Executive summary

Background:
Diabetes is one of the fastest-growing global health challenges of the 21st century and the highest increase (129%) in the number of people with diabetes is expected in sub-Saharan Africa (SSA) (IDF, 2021). A major obstacle to reducing the burden of the disease in SSA is a delayed or missed diagnosis (IDF, 2021). In the region, one in two individuals (54%) is unaware of their diabetes status (IDF, 2021). In Mozambique, the prevalence of undiagnosed diabetes was estimated to be even higher, with nearly 90% of people with diabetes unaware of their illness (Silva-Matos et al., 2012). Mozambique, one of the poorest countries in the world, is approaching a diabetes epidemic as a consequence of rapid urbanisation, globalisation and a nutritional shift (UNDP, 2020). Here, diabetes represents a great threat due to the persistent challenges posed by infectious diseases, a substantial underfunding of non-communicable diseases (NCDs), and healthcare unpreparedness (Beran, 2015; Zeltner et al., 2017). A few projects, including the intervention led by the NGO CUAMM and funded by WDF (WDF12-745), contributed to the increased political commitment to NCDs care and prevention, training in diabetes care of healthcare professionals, and greater public awareness (Beran et al., 2010; Politi, 2020). However, further efforts are needed, and new research should unveil the causes of undiagnosed diabetes in Mozambique.

Objectives:
1) To explore the diagnostic pathway of people with diabetes in Sofala, Mozambique, and 2) to understand healthcare professionals (HCPs)’ and community health activists (CHAs)’ perceptions of the enablers and barriers to a timely diagnosis in Mozambique.

Methods:
A qualitative study design was applied using an interpretive phenomenological approach to gain a deep understanding of the experiences of study participants. The research team involved in the data collection included Chiara Cimenti, a global health master’s student, Artimisia Mainato, a staff member of CUAMM responsible for the logistics and the recruitment of participants, and Daniel Xavier Nhabacha, a local translator. Recruitment was carried out by convenience at healthcare clinics and the Mozambican Diabetes Association (AMODIA) in both the urban and rural areas of Sofala, Mozambique. Data collection instruments were first piloted. A questionnaire was then distributed

1 In Mozambique, CHAs are community health workers supported by civil society. They carry out the same tasks of “Agentes Polivalentes Elementares” (APEs), the local name for community health workers supported by the government.
among patients to gather data on their age, sex, religion, occupation, walking distance from the health facility, diagnosis of diabetes, duration of illness since diagnosis, sources of social support, and referral to diabetes testing by a community health activist and an “Agentes Polivalentes Elementares” (APEs). Thereafter, twenty-one people with diabetes, eight community health activists, and three doctors took part in in-depth, semi-structured interviews and focus groups. Two theoretical models guided the data collection and analysis of this study. Patients´ experiences were explored on the basis of the model Pathways to Treatment (Scott et al., 2013). This model implies that the patient passes through four phases from the recognition of the first “bodily changes” to the diagnosis of the disease and start of treatment: appraisal interval, help-seeking interval, diagnostic interval, and pre-treatment interval (Scott et al., 2013). The role of HCPs and CHAs were investigated through the Capability, Opportunity, Motivation and Behaviour (COM-B) model (Michie et al., 2011). This model helps understand the factors contributing to behaviour and conceives an action as the product of interaction between capability, opportunity, and motivation (Michie et al., 2011). Data was scribed and analysed using a “hybrid” thematic approach (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006). Authorization for data collection was obtained from the local authorities of Sofala Province by the NGO CUAMM. Study participants were informed about the study and their rights both orally and through a consent form and their data were anonymised.

**Results:**
The diagnostic pathway of diabetes was typically prolonged due to factors associated with both the community and HCPs.

**At the individual level**
Knowledge of diabetes was very low and contributed to delayed symptom appraisal and help-seeking behaviour. Supernatural explanations of illness and the use of traditional medicine were still persistent to a certain extent. For instance, some patients preferred alternative medicine when medical treatment was perceived as inadequate. Furthermore, co-morbidities, expectations about diabetes, and fear were associated with a delayed start of medication. Support from patients´ social networks was often crucial in recognising symptoms, obtaining care, and adhering to treatment.

**At the community level**
CHAs experienced several challenges to raise awareness. For example, CHAs could not access remote community members due to the lack of transportation means or found them resistant to the information due to cultural beliefs, expectations, and socio-economic conditions. In general, CHAs wished for further training and greater incentives.
At the healthcare level
The capacity of health clinics to identify and support people with diabetes was poor, especially in rural areas. The perceived causes were an inconsistent availability of equipment, infrequent campaigns, and difficulties to reach all patients, and poor knowledge of diabetes. Moreover, patients´ decision to accept their diagnosis and initiate treatment immediately was influenced by HCPs´ communication style, availability bias\(^2\) towards diseases, and lacking knowledge of diabetes subtypes and their respective treatment.

**Conclusion and perspectives:**
This study was the first one to explore the diagnostic pathway of diabetes from a patient, community, and healthcare perspective in Mozambique. The findings highlighted that a prolonged diagnostic pathway is common in Sofala. Contributing factors include low healthcare capacity, limited knowledge of DM, socio-cultural beliefs, a difficult acceptance of the diagnosis, communication challenges, and poor accessibility of services, medicines, and healthy diets. The findings are validated by other studies conducted in SSA and have important implications for future research and interventions in Mozambique.

To begin with, the present study could be replicated in other provinces and followed up by a quantitative survey to identify trends on a larger scale. Dietary surveys could be crucial to understand the eating patterns of people with DM as well as the broader population. Whereas new clinical studies could help determine the prevalence of different forms of diabetes, including type 2, type 1, malnutrition-related, and latent autoimmune diabetes at local and national levels.

In terms of interventions, future project activities should increase the knowledge of diabetes within communities and the healthcare sector through more seminars and further training. Community health perceptions, communication barriers, socio-economic differences, and religious beliefs should all be considered carefully to promote better education among the public. Dietary recommendations for at-risk individuals and people with DM should be revised based on socio-cultural practices and accessibility of healthy foods. Finally, future interventions should also consider the persistent use of traditional medicine and the potential benefit of training traditional healers in diabetes care and prevention.

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\(^2\) Availability bias towards diseases refers to the tendency of HCPs to associate symptoms with the most common or plausible diseases such as prevalent infectious diseases (Scott et al., 2013).
References


