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Perspectives of healthcare providers and persons with type 2 diabetes mellitus on improving glycaemic control in Kinshasa, Democratic Republic of the Congo: a qualitative study

Jean-Pierre Fina Lubaki ,[1,2] Joel M Francis,[1] Olufemi Babatunde Omole[1]

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[1]Department of Family Medicine and Primary Care, School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand Johannesburg, Johannesburg, South Africa
[2]Department of Family Medicine and Primary Care, Protestant University of Congo, Kinshasa, Congo (the Democratic Republic of the)

Correspondence to
Dr Jean-Pierre Fina Lubaki; jeanpierrefina@yahoo.fr

ABSTRACT

Introduction Glycaemic control remains suboptimal in the Democratic Republic of the Congo. Defining interventions to improve glycaemic control requires a clear knowledge of factors driving poor glycaemic control. Qualitative studies exploring the perspectives of key stakeholders on this issue are lacking in the Democratic Republic of the Congo. This study aimed to explore the perspectives of persons with type 2 diabetes and healthcare providers on ways to improve glycaemic control in Kinshasa, Democratic Republic of the Congo.

Methods This qualitative study used face-to-face, semistructured interviews on 26 purposively sampled participants: 10 persons with type 2 diabetes and 16 healthcare providers. The study used deductive, constructionist and thematic analyses. Themes were organised and integrated using the WHO Innovative Care for Chronic Conditions Framework.

Results The healthcare providers recommended better preparation of the healthcare system for better care of diabetes. This is achieved through training of healthcare providers, equipping healthcare structures and organising a reliable drug delivery system. Healthcare providers must also act to ensure that patients get adequate support from their surroundings and the community by providing adequate information about diabetes. The policy environment must create conditions for alleviating the cost of care and prevention of diabetes. In addition, patients with diabetes identified three needs: need mainly for financial support to overcome the cost of diabetes, knowledge for better self-management of the illness and support from healthcare providers to succeed in self-management.

Conclusion Improving glycaemic control in persons with type 2 diabetes requires multidimensional strategies, with particular focus on empowering patients and their families for efficient self-management, strengthening the healthcare system for diabetes care and greater involvement of the government in terms of funding and adopting positive policies. To be efficient, these interventions need to be integrated into the chronic diseases management framework.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ There is a knowledge gap on the perspectives of healthcare providers and persons with diabetes on ways to improve glycaemic control in Kinshasa.

WHAT THIS STUDY ADDS

⇒ An explanatory model for improving glycaemic control in persons with type 2 diabetes was developed.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Multidimensional and integrated targeted interventions are needed for improving glycaemic control.

⇒ Greater involvement in diabetes care is needed from the government.

INTRODUCTION

Diabetes mellitus, like other non-communicable diseases, is gaining epidemiological and clinical importance worldwide.[1] Low-income and middle-income countries, where up to 94% of persons with diabetes live, are expected to demonstrate the most impact of diabetes.[2] The WHO African Region is experiencing the greatest increase in the number of cases of diabetes and has the highest prevalence of undiagnosed diabetes.[3 4] In the Democratic Republic of the Congo, the prevalence of diabetes will also increase, with urban areas most affected.[2]

Glycaemic control is one of the main goals of diabetes management as it avoids or reduces the risk of diabetic complications.[5] Despite advances in therapeutics, the effects on glycaemic control remain unclear.[6] Worldwide, only half of persons with type 2 diabetes have controlled glycaemia.[7] In Sub-Saharan Africa, the rates of glycaemic control are very low,[8] and in the Democratic Republic of the

Congo a recent study found that only 14% of persons with type 2 diabetes had controlled glycaemia.[9]

Accurate knowledge of the factors driving glycaemic control is crucial to plan for interventions.[8] These factors are multiple and vary depending on the context.[10–12] Nevertheless, very few studies have dealt with the perspectives of key players, such as persons with type 2 diabetes and healthcare providers, on improving glycaemic control.[13] A systematic review of qualitative studies by Sibounheuang *et al*[14] identified nine themes for better diabetes management: community linkage, health service system for persons with diabetes, continuity of care, self-management, providers' support, referral system, patient–provider interaction, increasing healthcare providers' competency and family support.

To the best of our knowledge, there have been no studies in the Democratic Republic of the Congo that had explored the perspectives of persons with type 2 diabetes and health providers on the control of glycaemia. This gap in literature prevents effective interventions from improving the status quo. Therefore, the aim of this study was to explore the perspectives of persons with type 2 diabetes and healthcare providers on ways to improve glycaemic control in Kinshasa, Democratic Republic of the Congo.

METHODS

Study design

This was a qualitative study that explored the perspectives of persons with type 2 diabetes mellitus and health providers on ways to improve glycaemic control in Kinshasa, Democratic Republic of the Congo. This study was part of a broad project designed to develop an intervention package to improve glycaemic control among persons with type 2 diabetes in Kinshasa, Democratic Republic of the Congo.[15]

Study setting

Kinshasa is the capital of the Democratic Republic of the Congo. It has about 16 315 534 inhabitants in 2023.[16] The Democratic Republic of the Congo is a low-income country located in Central Africa, and a large majority of the population live below the poverty line and experience food insecurity.[17] The resources are very scarce and only a small proportion (4%) of the budget is devoted to health.[18] Patients contribute to more than 70% of the health expenditures as universal health coverage is not fully implemented, leaving most people uninsured.

The study took place in purposively selected healthcare structures managing patients with type 2 diabetes in Kinshasa. These facilities belong to the state or to private organisations. Note that in Kinshasa, one structure called Kinshasa Primary Healthcare Network, which reunites the health structures of the Catholic and the Salvation Army, comprises about 60% of the structures taking care of persons with diabetes in Kinshasa. The diabetes clinics in these structures are managed by nurses, and once a month a doctor comes to visit persons with diabetes.

Study population and sample

In this study, we recruited health providers and persons with type 2 diabetes in Kinshasa. Persons with type 2 diabetes and healthcare providers aged ≥18 years were invited to participate. Patients were purposively selected, ensuring that both controlled and uncontrolled individuals were included and ensuring diversity in sociodemographic characteristics and disease duration were taken into account. Persons with type 2 diabetes who were selected were those who have been followed for diabetes for at least 6 months. Caution was taken to select those who were willing to discuss their views on improving blood glucose control. With regard to selecting healthcare providers, preference was given to those with longer experience with diabetes. Male and female providers were selected, as well as doctors and nurses. Those who had difficulty communicating due to mental disability or who refused to give consent were excluded.

Note that the sustained observations of various players (caregivers and patients with diabetes) during the preliminary meetings to launch the project enabled us to identify those who were in the position to make a substantial contribution to the study. The selection of the participants took place from 21 October 2022 to 31 March 2023. A total of 26 participants were included in the study: 10 persons with type 2 diabetes and 16 healthcare providers. None of the participants invited for inclusion in the study refused or was excluded.

Data collection

Data collection was carried through face-to-face, semi-structured interviews. The principal researcher, a family physician with expertise on qualitative research, conducted all the interviews. The interviews were guided by an interview schedule (online supplemental file 1). The interview guide was designed on the basis of the findings of a systematic review conducted and published as part of a research project that included this study,[8] as well as other internet research conducted on the subject. It was further pretested during a pilot test by submitting the interview guide to three individuals, who validated it for the study.

At the respective facilities, the principal investigator interviewed the participants in a quiet room, where confidentiality of the participants' statements was guaranteed. During the interview, only the principal investigator and the participant were present in the room. All interviews were audio-recorded and lasted about 40–50 min. Notes were taken during the interviews. Each interview was analysed and codes were identified. In subsequent interviews, any new aspects, dimensions or nuances of that code were identified until no novelty emerged.[19]

Data management and analysis

The recorded interviews were transcribed verbatim and then translated into English by a language expert based in Kinshasa. The principal researcher, who is fluent in French and Lingala, verified the translation and transcription by relistening to the audio recordings while reading the transcripts. The coding was performed independently by the principal researcher and one supervisor in the selected interviews without any preconceptualised theoretical framework. The analysis was performed using MAXQDA V.2022.[20] The analysis went through the six steps described by Braun and Clarke[21]: familiarising with the data, generating initial codes, searching for themes, reviewing potential themes, defining and naming the themes, and producing the report.

The researcher uploaded the transcripts of the interviews to MAXQDA. After a code was identified during the readings, the code was then created in the system and a memo to describe its meaning was written. After this, all the words, parts of sentences, sentences and groups of sentences related to this code were associated with this particular code. Note that a sentence, a word or part of a sentence, or a sentence or a group of sentences could be associated with more than one code. The different codes identified were then grouped into subthemes and finally into themes.

The integration of the themes identified was performed using the WHO Innovative Care for Chronic Conditions Framework.[22] This model was developed by the WHO as a roadmap for management of chronic conditions in developing countries. It comprises fundamental components at the patient (micro), healthcare organisation and community (meso), and policy (macro) levels. It emphasises the role of patients, families and communities in the management and prevention of chronic conditions.

Credibility, transferability, dependability and confirmability

The credibility of the study was enhanced through triangulation of findings. Two experts, one in diabetology and one in sociology, assisted in the review and conceptualisation of the findings of the study. The findings were submitted to four participants to seek their agreement with the identified themes. The thick description of data ensured transferability; external audits conducted by the supervisors ensured dependability, while confirmability was ensured by external audits and audit trail.[23]

Research team and reflexivity

At the time of the study, the principal researcher was working with the Protestant University of Congo as a senior lecturer and had experience conducting qualitative enquiries. For this study, he had no previous relationship with the participants. Information about the researcher was shared with the participants for research purposes only.

Table 1 Sociodemographic characteristics of the participants (N=26) in Kinshasa, 2023

	n (%)
Persons with type 2 diabetes	
Age (years)	
<40	1 (3.8)
40–65	7 (26.9)
≥65	2 (7.7)
Sex	
Male	4 (15.4)
Female	6 (23.1)
Occupation	
Employed	5 (19.2)
Unemployed	5 (19.2)
Duration of diabetes (years)	
<5	1 (3.8)
5–10	3 (11.5)
≥10	6 (23.1)
Health providers	
Age (years)	
<40	5 (19.2)
40–65	6 (23.1)
≥65	2 (7.7)
Sex	
Male	9 (34.6)
Female	7 (26.9)
Category	
Doctors	
Specialists	6 (23.1)
Generalists	5 (19.2)
Nurses	4 (15.4)
Nutritionist	1 (3.8)
Number of years of experience with diabetes	
<5	1 (3.8)
5–10	7 (26.9)
≥10	8 (30.8)

Ethical considerations

Informed consent was obtained from each participant for entry into the study and for publication of the study results. Patients or the public were not involved in the design, or conduct, or reporting or dissemination plans of our research.

RESULTS

A total of 26 participants were included in the study: 10 persons with type 2 diabetes and 16 healthcare providers. None of the participants invited for inclusion in the study refused or was excluded. Table 1 summarises the

Table 2 Themes identified for improving glycaemic control, Kinshasa, Democratic Republic of the Congo, 2022–2023

	Theme	Subthemes
Healthcare providers	Strengthening the healthcare system for diabetes care.	Defining a management protocol.
		Training of healthcare providers.
		Providing basic materials.
		Organising a reliable drug delivery system.
	Supporting persons with diabetes and the population.	Community sensitisation about diabetes.
		Involving families as support system to persons with diabetes.
	Adopting supportive policies.	Fight against poverty to address socioeconomic disparities.
		Effective financing of the healthcare system.
		Support activities for prevention of diabetes.
		Multidisciplinary approach.
Patients with type 2 diabetes	Need for support for caring for the illness.	Diabetes leading to poverty.
		Could they be treated as those with HIV without having to pay?
		Need for support for better adherence.
	Need for knowledge on diabetes.	Lack of knowledge on diabetes.
		Knowledge as a means to better support and adequate behaviours from persons with diabetes' relatives.
	Need for a better approach from healthcare providers.	Better communication between persons with diabetes and healthcare providers.
		Support for patient-centred care.

participants' characteristics. Majority of the persons with diabetes (60.0%, n=6) were on insulin, while others were on oral hypoglycaemic drugs.

Three major themes were identified for improving glycaemia in persons with type 2 diabetes in Kinshasa (table 2).

Perspectives of healthcare providers

Theme 1: better preparation of the healthcare system for diabetes care

Many participants recommended that the healthcare system should be better prepared for diabetes care. This is achieved through definition of an updated management protocol, training and empowerment of healthcare providers for new roles in diabetes management, and provision of medications and equipment on a regular and reliable basis.

> There is no normative document to guide the management of diabetes. It would be desirable to have them to guide the management and that even if a doctor is isolated, he can be guided in the way to treat the diabetic patient. (Nurse, male, more than 10 years of experience)

> Many of our staff care for diabetes based on training they followed (received) since 5 to 6 years ago. There is a need to retrain so that they can improve the way they are taking care of diabetes. (Generalist, male, around 5 years of experience)

> It (the health facility) must have a well-trained provider to carry out the diagnostic process and even offer opportunistic screening aimed at high-risk groups. (Diabetologist, male, more than 10 years of experience)

> What I can recommend is that drug products be available in our community. (Nurse, male, around 15 years of experience)

> There is a need to equip healthcare structures on basic equipment to assist on the diagnostic process and care. (Diabetologist, male, more than 10 years of experience)

One participant stated that, as qualified health providers were not available in primary healthcare settings, task shifting is strongly recommended to make less qualified healthcare workers perform tasks reserved to highly qualified healthcare workers.

> At our health center, the doctor comes once monthly, in the meantime, I'm taking care of persons with diabetes. I have been trained for this task. I can prescribe antidiabetics, educate, and follow the treatment. (Nurse, male, more than 40 years of experience)

Two participants expressed that as persons with diabetes are from different categories (age, revenue, associated medical conditions), their care must be patient-centred.

> The diet must be individualized according to the economic resources of the patient with diabetes to render him able to afford what is prescribed. (Family physician, male, fewer than 4 years of experience)

> We have people who are bureaucrats, who work, sitting in offices. I tell them when you work in the office, do not sit there for more than one or two hours of time, you have to create activities that can help you make movements. Either you can go up and down the stairs for people who are working in offices on the second or third floor. (Generalist, male, around 15 years of experience)

One participant suggested that regular home visits be performed to gain a deeper understanding of the patients' social context.

> If they had (the) financial means, we would also do home visits and arrive where the persons with diabetes live with their families, since these are elements that we do not know. These elements can help us in finding solutions to the challenges raised while caring for them. (Generalist, male, around 15 years of experience)

Theme 2: supporting persons with diabetes and the population

Better understanding of diabetes and its treatment is crucial for persons with diabetes to adequately adhere to their healthcare providers' prescriptions. Misunderstandings could favour persons with diabetes abandoning treatment and moving towards non-recommended alternatives.

> Persons with diabetes who do not receive good information about their disease will orientate themselves to alternative medicine. (Diabetologist, male, more than 10 years of experience)

> It is also crucial to fight against those charlatans coming with illusions saying that they can cure diabetes, and spreading messages through mass media. (Nurse, female, around 25 years of experience)

Several participants reported that it is important to involve families in the care of their family members. They found that this was of interest not only to the extent that families could help to lighten the burden of care, but also to encourage persons with diabetes to adhere to treatment.

> My experience is that when the parents have diabetes, their elderly children respond favorably to our call and act to find a way to support their parents; when the sick persons is a brother or a sister, assistance (support) is more difficult to get from their relatives. (Family physician, male, around 5 years of experience)

> To improve glycaemic control, it is important to involve family members, because they are the ones who surround him more closely, help him to heal himself or to overcome difficulties. (Nurse, female, more than 15 years of experience)

Theme 3: adopting supportive policies

Many participants expressed that the government has to play key roles in improving diabetes care and consequently glycaemic control. One of these roles is ensuring that the health system is strengthened with a functioning and efficient national programme of diabetes and guaranteeing that all the activities dedicated to the fight against diabetes are supported.

> The Government must revise its lists of health priorities; diabetes might be put at the same levels as malaria, tuberculosis and HIV/AIDS. (Generalist, male, around 5 years of experience)

The lack of resources conditions many, if not all, aspects of diabetes care, from the organisation of care in the health system to the capacity of the persons with diabetes, to adequate adherence to the treatment prescribed by healthcare providers, through to motivation of healthcare providers to be engaged in this activity.

> It is important that health providers be motivated for diabetes care. (Generalist, male, around 5 years of experience)

One participant suggested that persons with diabetes should be empowered in terms of financial capacity.

> Persons with diabetes do not know how to follow their treatments well if they are food insecure. Government action should also aim at improving food security. (Diabetologist, male, fewer than 15 years of experience)

Other participants expressed that universal health coverage be implemented to alleviate the financial burden of diabetes among persons with diabetes and their families.

> Usually the persons with diabetes are offered a limited range of products, new anti hypoglycaemic agents or even the new insulins are above the revenue of many. This is the place where health financing must intervene within universal health coverage or health insurance or health mutuals. (Diabetologist, male, more than 10 years of experience)

> Yes, it is essential that diabetes, which is a chronic pathology, is covered by universal health insurance which renders the process of care easier. (Nurse, female, fewer than 10 years of experience)

Healthy lifestyle choices counted much in the prevention of diabetes. In Kinshasa, there was a tendency for inhabitants to consume fast foods, which were mainly sweetened beverages and cholesterol-rich foods. The consumption of these products is supported by widespread advertising spots on streets, radio and televisions:

> It is important to regulate the manufacture and consumption of sugar-sweetened beverages. Another measure would be to look (screen) for diabetes in persons with high risk of cardiovascular disease. (Diabetologist, male, around 15 years of experience)

Diabetes, by its nature, needs to bring together many actors from different disciplines. It was found that patients were receiving contradictory messages on how to live with diabetes, mainly with regard to diet. Creating a multidisciplinary team that acts in harmony with tasks that complement each other will be a major step forward in primary healthcare.

Perspectives of persons with diabetes

Theme 1: need for support for caring for the illness

Many participants stressed the need to extend social protection to people living with diabetes through universal health coverage. Diabetes care took up a large part of their revenue and sometimes was beyond their income. One participant reported that, even for him who was covered by a health mutual fund for the care of his illness, there was a limit on what he could use for a month. This made it difficult to adhere to what was prescribed. Adhering to what is prescribed was identified by the participants as one way to succeed on diabetes treatment.

> In current situation without health insurance, if they have not a good source of revenue, patients with diabetes are condemned to poverty and poor health outcomes. (Patient, male, around 20 years of living with diabetes)

> Yes, if you do not respect what is prescribed, you will have complications. (Patient, female, around 15 years of living with diabetes)

Many participants noticed a lack of distributive justice and called for equity in the distribution of health resources particularly in diabetes care. Many were asking themselves why they had to pay for their treatment while those suffering from malaria and HIV/AIDS were not paying.

> Why are we not treated freely as the other who had HIV/AIDS? We have no money. We are suffering for an illness that has no end. (Patient, female, around 10 years of living with diabetes)

Many participants reported that they find it difficult to access medicines due to lack of a reliable drug delivery system. Patients had to rely on private merchants, who usually import diabetes medicines and determine prices without any control. Organising a reliable drug delivery system through a public–private partnership is essential to ensure the accessibility and affordability of medicines.

Many participants also explained how they used what was within their reach (technology) to help with adherence to treatment. One participant explained using the phone alarm to remember the time he needs to take medication.

> I try to take the medication as prescribed. I use my phone alarm to remind me of medication times. (Patient, female, fewer than 10 years of living with diabetes)

Other participants revealed the help they were receiving from their relatives, who reminded them of the time to take medicines, or in some instances even proceeded with administering their insulin. As stated earlier, one may gain too much to develop a family-oriented care.

Theme 2: need for enhanced knowledge about diabetes

Many participants expressed their concern about mass broadcasting channels having no message about diabetes, while messages about other diseases such as malaria and HIV were common. The information they had about diabetes mainly came from the education they were receiving at diabetes clinics. Moreover, most relatives of persons with diabetes had misunderstanding or erroneous beliefs about diabetes, leading in many instances to the adoption of behaviours interfering with the support they normally must provide for the persons with diabetes. The participants recommended that the population must be informed about diabetes.

> I think we need a campaign to raise awareness or educate the population. The lack of information contributed to the deaths of many people. (Patient, male, around 20 years of living with diabetes)

At many times, the participants do not know exactly how to exercise or what to eat. The information they received was not sufficient to allow them to efficiently manage their diabetes. They recommended that they be provided with sufficient information.

Theme 3: need for a better approach from healthcare providers

Diabetes is a disease for which the care requires active participation from the person with diabetes. The healthcare provider has the role to empower the person with diabetes. The healthcare provider must accurately understand the challenges faced by the person with diabetes in order to know how to manage the disease effectively. To adequately identify the health needs and the context in which diabetes was experienced, participants recommended that healthcare providers develop good communication with their patients.

> If I have to recommend something to improve the care I'm receiving, this will be for the healthcare provider to develop good communication with their patients so as to let them understand what is going on with their disease and help them engage in the care. (Patient, female, around 5 years of living with diabetes)

One participant stated that before she changed healthcare providers, she did not understand the real threat posed by diabetes and how necessary it was to manage the disease. Her current healthcare provider tried to help her understand the results of her lab exams, discuss what was better to achieve in terms of her glycaemia and the side effects she could encounter. This showed the patient what was expected of her in the diabetes treatment.

> If I did not change the healthcare provider, I would probably be in jeopardy. I was not understanding what diabetes represented and what is required for its care. (Patient, female, more than 5 years of living with diabetes)

An important issue in this process was education for behavioural change. While many patients felt condemned when they received the diagnosis of diabetes, they appreciated the healthcare providers' support, which allowed them to develop a positive mindset towards their illness.

DISCUSSION

A total of 6 themes and 18 subthemes were identified as ways to improve glycaemic control among patients with type 2 diabetes in Kinshasa. These themes and subthemes can be integrated with reference to the three levels of the WHO Framework for the Care of Chronic Conditions Initiative.

At the micro-level (persons with diabetes and their families), a strong healthcare provider–patient relationship facilitates communication in a person-centred way and encourages self-management, improving persons with diabetes' positive experience of their own disease and its care.[24] At this level, it is also particularly important to involve patients' families, who are most of the times the sole source of emotional and financial support. This is achieved through a family-oriented management approach to diabetes in order to improve relatives' understanding of the disease, reduce their stress, increase their satisfaction, and improve their relationship with the healthcare providers.[25] Oba[26] in a study in the north of Thailand on the application of the WHO Innovative Care for Chronic Conditions Framework with regard to professional nurses in primary healthcare found that promoting self-care to patients, along with family participation, was one key to achieving better outcomes. At the meso-level (health system organisation and community), diabetes care needs to be evidence-based and provided by trained healthcare providers within healthcare facilities that are well equipped and supported by a reliable drug delivery system.[27 28] In his study, Oba[26] suggested that this system must be developed in the hospital and community to achieve better outcomes. To achieve these changes in the healthcare system, better healthcare financing is required; the government must invest more in healthcare and explores public–private partnerships.[29] At the macro-level (policy environment), appropriate measures should be taken to ensure primary prevention of diabetes, effective fight against poverty, improvement of food security, and regulation of healthcare advertising for 'truthful' health messaging. Also, there is a need for public healthcare financing that promotes universal coverage, and using a multidisciplinary team approach to diabetes care.[30–33]

Figure 1 presents an explanatory model that integrated the themes identified in this study using the WHO Innovative Care for Chronic Conditions Framework. The WHO Innovative Care for Chronic Conditions Framework has been found a valuable tool for integrating chronic care diseases in many settings, including in Sub-Saharan Africa.[34] Note that this model sometimes needs to be adapted to take into account the specificities of different settings.[34 35] In our setting in particular, essential elements added in the model include improving patient access, task shifting, clinical mentoring, tackling stigma and enhancing state–private partnerships.

This study has some strengths and limitations. The multisource triangulation allowed us to acquire a more broad understanding of the actions to improve glycaemic control in Kinshasa. Our findings could have been altered by the social desirability bias as the participants could have expressed statements that make them appear socially correct and have not mentioned their real experiences. The qualitative nature of the study does not allow generalisation of the findings to other settings. Overall, the findings of this study are useful in informing the development of programmatic frameworks and interventions aimed at

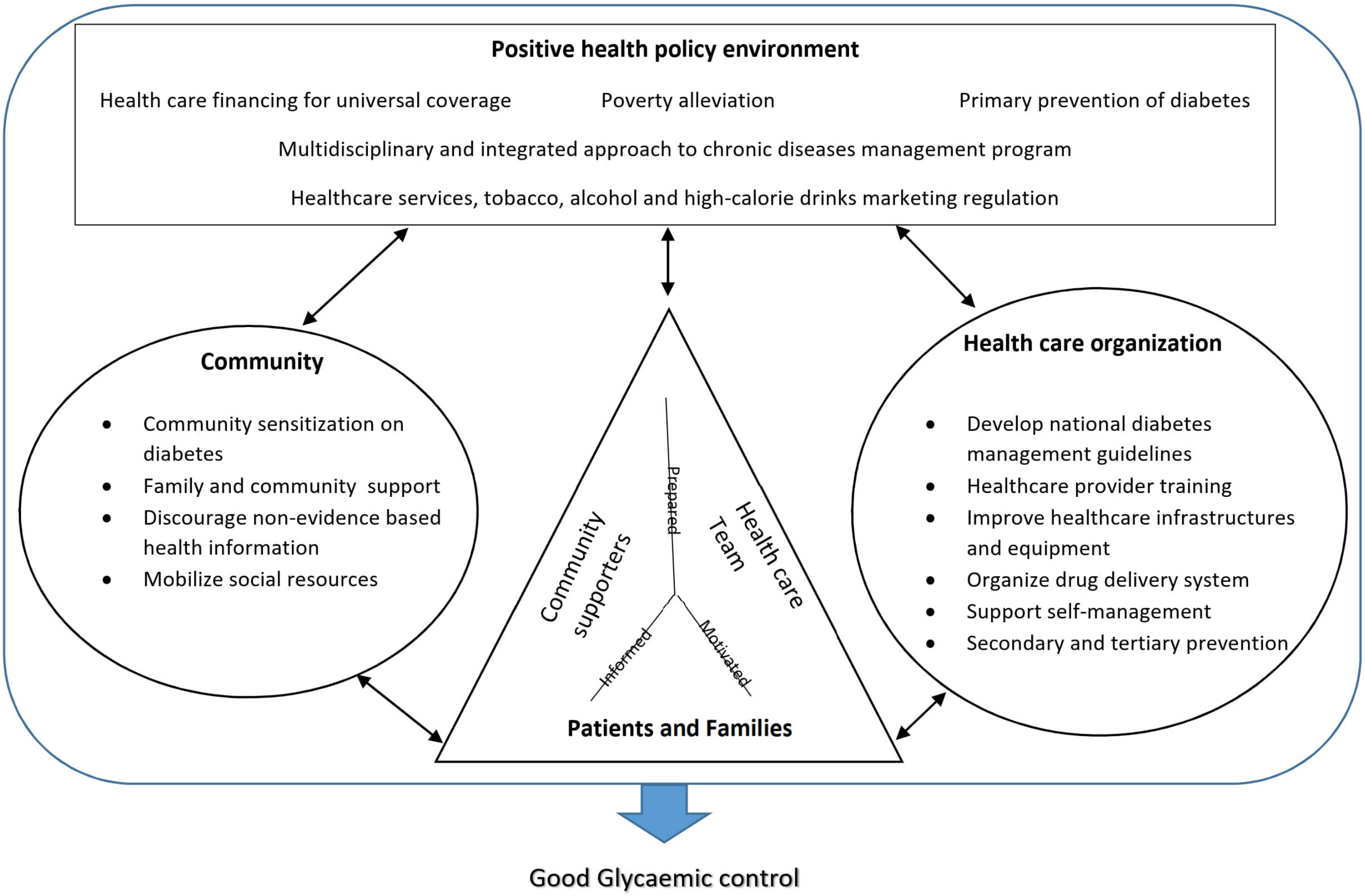

Figure 1 Integration of themes for improving glycaemic control using the WHO Innovative Care for Chronic Conditions Framework.

improving glycaemic control among patients with type 2 diabetes in Kinshasa, and similar settings in the DRC or Sub-Saharan Africa.

CONCLUSIONS

This study found that improvement in glycaemic control among persons with type 2 diabetes in Kinshasa, Democratic Republic of the Congo, requires multidimensional strategies, with particular focus on empowering patients and their families for efficient self-management, strengthening the healthcare system for diabetes care, and greater involvement of the government in terms of funding and positive policies. To be efficient, these interventions need to be integrated into existing platforms of healthcare services delivery, particularly the chronic diseases management framework.

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Contributors J-PFL is the guarantor of the study; he conceived the study, conducted the interviews, contributed to the translation of the transcripts to English, performed the analysis and wrote the first draft of the manuscript. JMF contributed to the operationalisation of the study and reviewed the manuscript. OBO contributed to the operationalisation of the study, analysis and review of the manuscript. All authors agreed with the final draft of the manuscript.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval This study involves human participants and was conducted after approval from the ethics committees of the Protestant University of Congo (reference number: CEUPC 0067; date: 5 February 2021) and Human Research Ethics Committee (Medical) of the University of the Witwatersrand (reference number: M210308; date: 26 August 2021). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. The transcripts of our study can be provided upon reasonable request to the corresponding author.

ORCID iD

Jean-Pierre Fina Lubaki http://orcid.org/0000-0002-9593-4812

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