

Stakeholders' Perceptions, Expectations, and Proposed Improvements for Noncommunicable Disease Surveillance and Response in the Butembo Branch of the North Kivu Provincial Health Division, Democratic Republic of the Congo: A Qualitative Study

Kasereka Wanzuwite Emmanuel^{1,2*}, Nshimirimana Jacques¹, Déogratias Katsuva Sibongwere³,
Rodrigue Kambale Kalumendo⁴ and Katembo Kambere Thaddée⁵

¹Department of Health Services Management, Institut Supérieur des Techniques Médicales de Butembo, DRC

²School of Public Health, Texila American University, Guyana and Zambia

³School of Public Health, Institute of Tropical Medicine, Antwerp, Belgium

⁴Department of Computer Science, Université Adventiste de Lukanga, Butembo, DRC

⁵Department of Public Health, Université Adventiste de Lukanga, Butembo, DRC

*Correspondence to be addressed: E-mail - emawanzuwite@gmail.com

Cite this article as: Kasereka Wanzuwite Emmanuel, Nshimirimana Jacques, Déogratias Katsuva Sibongwere, Rodrigue Kambale Kalumendo, Katembo Kambere Thaddée.. Stakeholders' Perceptions, Expectations, and Proposed Improvements for Noncommunicable Disease Surveillance and Response in the Butembo Branch of the North Kivu Provincial Health Division, Democratic Republic of the Congo: A Qualitative Study. Texila Int J Public Health. 2026;14(3).

<https://doi.org/10.21522/TIJPH.2013.14.03.Art032>

Received: 31.07.2026

Accepted: 24.09.2026

Published: 30.09.2026

Article Type: Original Research

Abstract Noncommunicable diseases (NCDs) remain insufficiently integrated into surveillance and response functions in the areas covered by the Butembo provincial health division branch, North Kivu, RDC. This study aimed to explore stakeholders' perceptions, expectations, and suggestions for improvement. A descriptive qualitative study with an exploratory focus was conducted among 25 stakeholders selected through purposive sampling. Data were collected through semi-structured individual interviews and subjected to manual inductive and deductive thematic analysis. Participants' accounts converged on recognizing the growing burden of NCDs while lamenting the limited consideration given to these diseases in health priorities. Surveillance was limited to the reporting of incomplete indicators that were rarely used locally. According to participants, out-of-pocket payments, poverty, insecurity, supply shortages, limited diagnostic capabilities, and inadequate longitudinal patient follow-up undermined clinical response. The lack of referral pathways, dedicated resources, supervision, and structured community involvement exacerbated these difficulties. Participants recommended increased commitment from the health system toward NCDs, a more inclusive information system, and the effective integration of referral, longitudinal follow-up, and community participation into primary health care.

Keywords Continuity of Care, Health Response, North Kivu, Noncommunicable Diseases, Primary Health Care, Surveillance.

Introduction

Noncommunicable diseases (NCDs) are on the rise worldwide in terms of mortality and morbidity and are believed to be responsible for premature deaths, most of which occur in low- and middle-income countries [1] in the context of demographic transition, the burden of these diseases may continue to weigh heavily on the countries in fragile contexts [2, 3]. The leading causes of these diseases are primarily cardiovascular diseases, various cancers, diabetes, and chronic respiratory diseases associated with four risk factors: tobacco use, a sedentary lifestyle or physical inactivity, harmful use of alcohol, and an unhealthy diet [4-6].

In the WHO African Region, health systems are under severe strain due to the coexistence of health emergencies and NCDs [7, 8], which complicates the supply chain for essential medicines and modern treatment technologies. The shortage of adequately trained human resources and systems to ensure continuity of care for chronic conditions further illustrates the fragility of health systems in addressing the challenges associated with NCDs [9, 10].

In the Democratic Republic of the Congo (DRC), data—though still incomplete—reveal an alarming increase in the contribution of NCDs to mortality among the Congolese population [11]. However, the lack of reliable data limits the understanding of the scale of the crisis and, consequently, the ability to implement urgent and appropriate response measures; this is particularly true for North Kivu Province, which has never undergone a WHO STEPwise-type population-based survey to assess the extent of the problem [12].

In the field of NCDs, surveillance goes beyond the compilation or periodic reporting of data to instead incorporate information on risk factors, morbidity, health system capacity, the social determinants of health, and the quality of health care services [13-15]. Promoting surveillance at all levels of the health care pyramid would contribute to early detection

with a view to an appropriate response to public health events [16]; hence the need to establish integrated indicator systems capable of simultaneously measuring the dimensions of structure, response, and outcome as suggested by Zhang et al. [17].

In the 17 health districts of Butembo provincial health division branch, a previous quantitative study found that certain reporting indicators, namely, completeness, timeliness, feedback, and quality of data entry were more relevant than other surveillance indicators, including the monitoring of risk factors. The survey also highlighted major shortcomings in the area of response to NCDs [18]. Nevertheless, it could not determine, in particular, how decision-makers perceive and interpret seemingly favorable indicators when the scope of surveillance remains limited, why NCDs are less prominent in the concerns of certain coordination bodies, or how providers, patients, and community actors cope with supply shortages and gaps in follow-up.

International experience in humanitarian settings shows that organizational, relational, and informational mechanisms shape the continuity of chronic care in ways availability indicators do not fully capture, as demonstrated by Akik et al. [19]. A qualitative approach is therefore necessary to understand the meanings attributed to shortcomings, the constraints encountered, perceived responsibilities, and acceptable solutions. To our mind, these dimensions have not yet been studied collectively among leadership teams, data managers, providers, community liaisons, patients, and partners in the health districts of the Butembo Provincial Health Division Branch.

This study aimed to explore stakeholders' perceptions and experiences of NCD surveillance and response, analyze their expectations, and identify areas for improvement relevant to the local context.

Materials and Methods

Study Design and Approach

To understand the stakeholders' perceptions, expectations, and proposals regarding NCD surveillance and response, a descriptive qualitative study with an exploratory focus was conducted; this allowed a deep examination of the participants' experiences, practices, organizational constraints, and the meanings they attribute to the functioning of the established system. Interpretive analysis was used to understand surveillance and response to NCDs based on the stakeholders' experiences, in accordance with the recommendations of Braun and Clarke [20].

Study Setting

The North Kivu Butembo provincial health division Branch in the DRC serves as the setting for this study. This provincial health division covers 17 health districts, which, within the Congolese health system, represent the operational levels of and planning, coordination, and supervision of as well as health facilities, health information management organization of the response to priority health issues, while the health facilities located within these health districts serve as the structures for NCD surveillance and response through the services provided by the various actors in the health system.

Selection of Participants

The participants in this study were primarily stakeholders directly or indirectly involved in the surveillance, coordination, prevention, diagnosis, management, or community-based follow-up of NCDs, as well as recipients of these services. Participants were selected through a reasoned selection process based on their experience, their role in NCD surveillance and response, and their ability to provide relevant information on the subject [21]. The group comprised 25 individuals, including 5 supervising nurses, 3 data managers (DM), 2 district management officers (MDO),

2 clinicians, 2 head nurses (HN), 2 Community Health Workers (CHWs), 2 community facilitators from the health districts, 2 representatives of chronically ill patients, 2 technical and financial partners, 2 nutritionist-dietitians, and 1 traditional healer.

The final number of interviews was determined based on the principle of thematic saturation, defined as the point at which new data no longer contributed any new insights relevant to the study's objectives. The principle of analytical sufficiency was also applied, to obtain a sufficiently rich understanding of the organizational and contextual mechanisms under study [22-24]. Starting with the 18th interview, an increasing redundancy of information was observed; the following seven interviews did not reveal any new major themes.

Data Collection

Data were collected between June and July 2026 by the principal investigator through individual semi-structured interviews lasting an average of 50 minutes, conducted in French and Kiswahili. An interview guide was developed based on the study's objectives and the main conceptual dimensions of NCD surveillance and response. The interviews were recorded with the participants' consent and then transcribed in full by the principal investigator. Throughout the interviews, field notes were used to document certain nonverbal elements. No refusals to participate were recorded, and no interviews were excluded from the analysis. The researcher's familiarity with the local context was an asset for data collection. However, a reflective approach and consideration of divergent viewpoints helped minimize the researcher's influence on interpreting the results.

The following dimensions were explored through the interviews:

1. Perceptions of the importance and prioritization of NCDs;

2. The organization of surveillance at the health district and health facility levels;
3. Surveillance of risk factors, morbidity, complications, and mortality;
4. The availability and use of data collection and reporting tools;
5. The analysis and local use of data;
6. The availability of human resources, equipment, medications, and diagnostic tools;
7. The organization of prevention, screening, care, and follow-up for patients;
8. Referral and counter-referral mechanisms;
9. Coordination, supervision, and community participation;
10. Participants' expectations and their suggestions for improvement.

Data Analysis

The interviews were transcribed and then subjected to thematic analysis. Coding was guided by emerging themes from the field, using both deductive and inductive approaches. Units of meaning were identified, grouped into codes, and then organized into themes and subthemes corresponding to the main dimensions of NCD surveillance and response. The thematic analysis was particularly relevant since the aim was to study experiences, perceptions, and the institutional mechanisms put in place [21, 25, 26]. Data analysis was conducted manually and began concurrently with data collection to allow for a progressive deepening of insufficiently explored issues [27]. It followed six interdependent steps based on a practical approach presented by Naeem et al. and Saunders et al. [28, 29].

1. Familiarization with the data through repeated reading of the transcripts.
2. Generating initial codes from relevant segments.
3. Grouping related codes into provisional categories and themes.
4. Examining the themes in light of the coded excerpts and the entire corpus.

5. Defining, delimiting, and naming the themes.
6. Writing an analytical report linking the themes, interpretations, and illustrative verbatim quotes.

To illustrate the results, the most representative verbatim quotes from certain participants were chosen based on their ability to shed light on the topic at hand. However, the study also considered divergent or minority viewpoints to avoid reducing the results to a single, uniform position. Participants were asked to verify the accuracy of their statements and ensure their interpretations aligned with the corresponding subtheme. Targeted validation with certain participants (*member checking*) allowed verification of the accuracy of the transcription of their comments and the consistency of the interpretations with the corresponding subthemes. This process led to the correction of certain transcription inaccuracies and, where necessary, to the refinement of the interpretation of the collected comments [30].

Ethical Considerations

Ethical approval was sought and obtained in advance from the Ethics Committee of Lukanga Adventist University (CER/UNILUK/CER-FRIDI-UNILUK/2026/0028). The study also received written authorization from the Head of the North Kivu Butembo Provincial Health Division (No. 251/178/DPS-NK/BN/2026). Participation in the study was voluntary and informed. Participants signed a consent form describing the research objectives, confidentiality and anonymity guarantees, and the option to refuse to answer certain questions before data collection.

Results

A total of 25 stakeholders from various professional, institutional, and community backgrounds participated in the study, enabling the collection of diverse perspectives on the surveillance and response to NCDs.

Stakeholders' Perceptions of Prioritizing NCDs

The majority of participants acknowledged that NCDs are a priority given the high incidence of cases and deaths linked in particular to diabetes, strokes, asthma, hypertension, cancers, and many other conditions, both in healthcare facilities and in the community. While acknowledging the scale and consequences of NCDs, the majority of participants are aware that these diseases do not receive as much attention from the health system as communicable diseases, some of which are relatively mild. A supervising nurse stated: *"All it takes is for a single case of Mpox to be reported in the area, and you'll see a major mobilization in terms of cascade training for a disease with a very low case-fatality rate; yet noncommunicable diseases that claim more lives do not receive as much attention"* (NS-01).

It also became apparent that not all NCDs receive the same level of attention. Diabetes and hypertension are the two NCDs that are monitored relatively more closely than others. Another key informant stated: *"In analysis meetings, only diabetes, high blood pressure, and strokes seem to capture the attention of the district management team"* (NS-02). The limited involvement of technical and financial partners specifically committed to working alongside the health districts to support NCD surveillance and response was cited as one of the challenges of the system in place, as highlighted by a district officer: *"Currently, when a program lacks financial support, its results remain mixed at the operational level... Similarly, at the central and intermediate levels, progress in this area is slow due to a lack of financial support... Entire programs remain shelved due to a lack of funding..."* (DMO-01).

Regarding NCD coordinators at the DMO level, the reality is that this role is not formally defined at the district level. Activities related to NCDs are considered "secondary activities" of the supervising nurse in charge of curative care: *"In reality, the health district does not officially*

have an NCD coordinator: the supervising nurse in charge of curative care handles it. It goes without saying that, given their many responsibilities, it is difficult for them to fully assume this role" (NS-03).

From a technical standpoint, the majority of participants cited the lack of support for local stakeholders in a context where virtually all capacity-building activities are primarily focused on communicable diseases: *"In any case, training on surveillance and response to NCDs is almost nonexistent. In the field, community health workers do not receive enough specific training on these diseases, apart from a few rare training sessions—mainly on community-based screening for diabetes and high blood pressure"* (IS-04).

At the community level, participants highlighted the lack of training for stakeholders on risk factors, case definitions, preventive measures, screening, continuity of care, and community-based follow-up for patients with chronic diseases. Under the current NCD management framework, the contribution of Community Health Workers is limited. One CHW stated: *"...we only monitor the diseases on the list we were given; we don't monitor these diseases [NCDs], perhaps because they aren't transmitted from person to person; yet they continue to cause many deaths in the community"* (CHW-01).

Perceptions Regarding the Quality of Surveillance

Participants from various categories acknowledged that NCD surveillance in its current format amounts to passive case registration without any focus on monitoring NCD risk factors. The reporting templates currently in use do not allow for in-depth data collection on NCDs. This could affect the quality of the data produced and its analysis at the operational level: *"One need only analyze the data presented in our annual activity reports to see that NCDs are not sufficiently*

documented, unlike communicable diseases or perinatal issues” (NS-01).

Added to this is the challenge posed by the reliance of a segment of the population on traditional medicine and even certain non-integrated modern health facilities that operate in isolation from the established surveillance system: *“In any case, we do not have control over information regarding NCDs in traditional-modern health facilities and those operating illegally without being integrated into the reporting system” (DM-01).*

Regarding the paradox of both high timeliness and high completeness observed in the analysis of data extracted from DHIS2, participants believe that these data should be viewed with caution: *“These DHIS2 reporting indicators are merely apparent performance, as they only reflect that the partially collected information on NCDs was reported promptly and from a sufficient number of health facilities, while obscuring the reality surrounding important details about a phenomenon that is insufficiently monitored...” (NS-04).*

Perception of the Clinical Response

Several participants acknowledged that the clinical response in the North Kivu Butembo provincial health division faces the challenge of a health system based on household income in a context of poverty and insecurity. Furthermore, the inadequate supply of quality medications, reduced access to care in certain areas—especially rural ones—healthcare staff not supported by the government, limited diagnostic resources, untrained and unsupervised community health workers, demanding nutritional care, and a lack of supporting partners... are among the challenges raised by providers. A member of the district management team states: *“Frankly, managing NCDs is beyond our capabilities given the many challenges involved; the Ebola experience [2018–2020] has shown us that as long as an initiative isn’t financially supported by partners, nothing can work. Current*

performance is clearly good in the health districts supported by partners” (DMO-02).

The clinical response is thus compromised; one patient stated: *“We face the challenge of long-term treatment, periodic follow-up exams, and a very demanding diet; sometimes we are forced not to report health concerns because we don’t want to be a burden to our children, from whom we must receive everything” (PAT-01).*

Perceptions of Coordination and Supervision

Given the lack or limited nature of budget lines dedicated to NCDs, these conditions are rarely the focus of specific discussions at the DMO level, unlike communicable diseases, vaccination activities, maternal and child health issues, nutrition, and other activities directly supported by partners. A nutritionist-dietitian noted: *“The district management team is overwhelmed by vertical programs: the Expanded Program on Immunization, integrated management of childhood illnesses, etc. If there is no focal point, no budget for NCDs, no coordination, no specific meetings, no standardized case reporting...” (ND-02).*

Perceptions of Referral and Long-Term Follow-Up of Patients

A recurring observation in the interviews is that, even though referrals and counter-referrals are handled satisfactorily between health facilities, it is the long-term follow-up of these patients that poses a problem. Chronic patients, who are not well organized into associations, manage on their own to meet their care needs, and healthcare providers do not have enough time for this follow-up. A head nurse stated: *“We don’t have enough time to provide home follow-up for patients we’ve lost track of. They may move from one facility to another, but there isn’t always someone to support them in their follow-up...that’s why they’re left to their own devices” (HD-01).*

Expectations and Areas for Improvement

Participants' expectations were expressed in several ways. First, the allocation of sufficient resources dedicated to NCDs, and the effective involvement of health authorities and community stakeholders. Regarding the involvement of health authorities, one IS stated: *"Surveillance doesn't always work well due to a lack of clear instructions from higher-ups... all it takes is a simple letter from the provincial health division instructing local stakeholders to report specific information, and everything will automatically run smoothly"* (SN-01).

Participants proposed several other areas for improvement, including:

1. Appoint an NCD coordinator in each health district and allocate a budget to them.
2. Create standardized reference and cross-reference sheets for NCDs.
3. Train health care providers at all levels on NCD surveillance and response.
4. Use community health workers for active case finding.
5. Expand and integrate NCD-related indicators into the health information system.
6. Ensure a continuous supply of essential medicines.
7. Promote associations for people with chronic diseases.
8. Organize regular integrated supervision sessions that include NCDs.

Discussion

This study highlighted a discrepancy between participants' recognition of the growing burden of NCDs in terms of morbidity and mortality and the limited extent to which this is reflected in the operational priorities of health districts. Participants described a health system more concerned with communicable diseases, perinatal issues, humanitarian crises, and other programs receiving clearly identified external funding and support, to the detriment

of NCDs, which currently do not appear to constitute an epidemiological priority. The absence of a formal NCD focal point, a structured community-based approach, specific budget, dedicated NCD meetings, and ongoing capacity-building for stakeholders clearly illustrates this lack of institutionalization.

This finding is consistent with analyses conducted in the WHO African Region, where programmatic progress on the ground remains uneven and where the level of preparedness of primary health care facilities remains generally insufficient for NCDs in a context where humanitarian crises are the health system's primary concern [8, 10]. This finding had also been highlighted by Kabir et al. [31], who, in a systematic review, demonstrated an overall low level of preparedness among countries in fragile contexts to address NCDs; with only diabetes and hypertension showing more or less satisfactory levels of preparedness, whereas these levels are significantly low for the other major NCDs, namely cardiovascular diseases, cancers, and chronic respiratory diseases.

A second major finding of the study concerns the essentially non-comprehensive nature of this surveillance. Although reporting was notably prompt and complete, these figures should be viewed as apparent administrative achievements that do not guarantee the comprehensiveness or validity of the data, nor their use for action. This interpretation follows the paradox highlighted in a study conducted at the Butembo provincial health division Branch [18]: reports are submitted on time yet document only a fraction of relevant events, whereas functional surveillance of NCDs should integrate risk factors, morbidity, complications, mortality, quality of care, clinical outcomes, and the system's capacity to address NCDs; it should then translate this information into local decisions[13-15]. A Vietnamese study has indeed shown that data collection is insufficient when the system lacks the analytical and coordination capabilities,

resources, and a culture of using data for decision-making [32].

The study also cited the case of non-integrated health facilities and the use of traditional medicine as factors that may increase the risk of underreporting of NCDs despite apparent completeness and timeliness. This situation is consistent with the findings of a study conducted by the DRC's Ministry of Public Health, Hygiene, and Prevention [33], in which an analysis of DHIS2 data revealed that of nearly 16,010 health facilities surveyed, only 12,050 were recorded in the system. Approximately 25% of health facilities, primarily private facilities, were therefore not reporting their data to the system. This finding suggests a coverage bias and, consequently, a likely underestimation of the problem's scale, given that satisfactory timeliness and completeness can coexist with the exclusion of a significant volume of data from non-integrated facilities. A study conducted in Lubumbashi by Mutombo et al. [34] showed that 79.4% of respondents had previously sought treatment through traditional African medicine, either alone or in combination with modern medicine. Although this result cannot be directly applied to the context of Butembo, it underscores the potential importance of health data that may fall outside the formal reporting system. Hence the need, according to the WHO [35], to incorporate comparisons with other sources into data analysis.

The third key finding of this study is the difficulty in organizing an appropriate clinical response. Participants linked the discontinuity of care to the challenge of out-of-pocket payments by households, poverty, insecurity, drug shortages, limited diagnostic resources, and a shortage of trained personnel. These constraints are particularly severe for NCDs, whose management requires repeated consultations, periodic examinations, and long-term treatment. Under such circumstances, patients are at risk of delayed care, interruption of their treatment, or financial dependence on

their families and friends. This lack of preparedness in primary health care facilities contributes to fragmented care pathways and disruptions in continuity of care, against a backdrop of poor coordination among stakeholders [19, 31]. In such an environment, there is an urgent need to accelerate the integration of NCDs into emergency and financial protection plans for affected communities, in accordance with WHO recommendations [36].

The lack of long-term patient follow-up, despite the existence of a theoretically defined referral system between facilities, demonstrates that the one-time transfer of a patient does not, in itself, guarantee continuity of care. Continuity of care requires a documented reverse referral, a registry to enable follow-up, well-organized appointments, efforts to locate patients who have been lost to follow-up, and a functional link between health facilities, communities, and families. This is where the role of community health workers becomes particularly important, especially in resource-limited countries, provided they are sufficiently trained, supervised, and integrated, as has been documented in Uganda and Tanzania [37]. However, the community health workers interviewed reported that they lacked both a clear mandate and sufficient training to effectively provide this type of care. This finding is consistent with the study conducted in Cape Town by Doresha et al. [38], who also documented that community health workers were not sufficiently prepared to provide high-quality services in the area of NCDs; hence the importance of strengthening their capacity to ensure greater effectiveness.

Finally, participants proposed a range of solutions, most of which focused on effectively integrating NCDs into the normal functioning of the health system. Designating a point person, adopting more comprehensive indicators, integrating supervision, ensuring consistent medication availability, standardizing referral procedures, and

involving communities directly address the challenges identified in the study. The promotion of patient associations deserves special attention because they are effective in resource-limited African settings and have enormous potential to strengthen mutual support, therapeutic education, and continuity of care without shifting the responsibility for funding inadequate care onto patients [39, 40].

Conclusion

According to study participants, there is a real disparity between the burden of NCDs and their limited integration into the surveillance and response system currently in place in the health districts of Butembo provincial health division Branch. Respondents believe that, at this stage, surveillance is limited primarily to reporting a small number of indicators that are not very useful and are derived solely from integrated health facilities. They also believe that the response to NCDs is compromised by the user-fee system, insecurity, and shortages of supplies, low community participation, and the fragility of continuity of care. The proposed improvements focus on integrating NCDs into health district priorities, strengthening stakeholder capacity, implementing ongoing supervision, designating formal points of contact, and expanding the information system. They also include establishing functional mechanisms for referral, counter-referral, and community-based monitoring.

Recommendations

The Department of Public Health (DPS) and the health districts should designate NCD focal points and allocate budget lines specifically dedicated to NCDs. The information system should expand its indicators to include complications, deaths, risk factors, and patient follow-up; gradually integrate non-affiliated private facilities; and regularly triangulate data with other sources. Health facilities should have protocols, diagnostic tools, essential medicines, and documented mechanisms for referral,

counter-referral, and tracing patients lost to follow-up. Finally, providers and community liaisons should be trained and supervised, while patient associations should be supported and guided by the health system.

Limitations

This study has certain limitations. Purposive sampling and the small sample size do not allow statistical generalization, but they align with the study's exploratory aim and enabled the collection of diverse professional and community perspectives. Self-reported data may be influenced by memory bias or social desirability; however, the inclusion of divergent viewpoints and the use of verbatim quotes strengthened the credibility of the analysis. Finally, despite the absence of systematic triangulation with official records and the fact that the principal investigator conducted the analysis, repeated transcript readings, progressive analysis until saturation, and cross-checking of testimonies helped minimize the risk of subjective interpretation.

Conflict of Interest

The authors declare no conflicts of interest.

Acknowledgement

The authors sincerely thank all participants who generously devoted their valuable time to this study. They also thank the health authorities of the Provincial Health Division and the participating health districts for granting permission and facilitating access for data collection.

Authors' Contributions

The lead author participated in all stages of the study, including its design, data collection and analysis, and the drafting of the manuscript. The other authors critically reviewed the manuscript, proposed substantial improvements, and approved the final version.

Ethical Approval

This study received ethical approval from the Ethics Committee of the Adventist University of Lukanga (No. CER/UNILUK/CER-FRIDI-UNILUK/2026/0028). Informed consent was obtained from all participants.

Data Availability

The qualitative data supporting this study are not publicly available because of their sensitive

nature and the need to protect the confidentiality of the stakeholders and beneficiaries interviewed. Anonymized data may be obtained from the corresponding author upon reasonable request, subject to applicable ethical requirements.

Funding

This study received no external funding and was entirely financed by the authors.

References

- [1]. Organisation mondiale de la Santé. Maladies non transmissibles [Internet]. 2025 [cited 2025 Oct 2]. <https://www.who.int/fr/news-room/fact-sheets/detail/noncommunicable-diseases>. Accessed 2 Oct 2025
- [2]. Freihat O, Sipos D, Aamir M, Kovacs A. Global burden and future projections of non-communicable diseases (2000–2050): Progress toward SDG 3.4 and disparities across regions and risk factors. Hennis AJM, editor. PLoS One [Internet]. 2025 [cited 2026 Apr 1];20:e0336036. <https://doi.org/10.1371/journal.pone.0336036>
- [3]. Zhu M, Xu S, Li Y, Wang W, Liu L, Xu Q, et al. Global burden of non-communicable diseases attributable to behavioral factors. Science Bulletin [Internet]. 2025 [cited 2026 Apr 1];70:3129–33. <https://doi.org/10.1016/j.scib.2025.08.037>
- [4]. Organisation mondiale de la Santé. Surveillance des maladies non transmissibles dans la région OMS de la Méditerranée occidentale [Internet]. Bureau régionale de la Méditerranée Orientale; 2021 [cited 2024 Mar 20]. ISBN 978-92-9022-482-2. Accessed 20 Mar 2024
- [5]. Schwartz LN, Shaffer JD, Bukhman G. The origins of the 4 × 4 framework for noncommunicable disease at the World Health Organization. SSM - Population Health [Internet]. 2021 [cited 2025 Nov 7];13:100731. <https://doi.org/10.1016/j.ssmph.2021.100731>
- [6]. World Health Organization. Noncommunicable diseases country profiles 2018. World Health Organization; 2018.
- [7]. World Health Organization Regional Office for Africa. Noncommunicable diseases in Africa: The invisible epidemic (Analytical fact sheet: NCD morbidity and mortality). African Health Observatory. World Health Organization Regional Office for Africa; 2022.
- [8]. World Health Organization Regional Office for Africa. Noncommunicable diseases and mental health in the WHO African Region: Progress report 2024. World Health Organization Regional Office for Africa; 2024.
- [9]. Ahmed SM, Krishnan A, Karim O, Shafique K, Naher N, Srishti SA, et al. Delivering non-communicable disease services through primary health care in selected South Asian countries: are health systems prepared? The Lancet Global Health [Internet]. 2024 [cited 2025 Dec 29];12:e1706–19. [https://doi.org/10.1016/S2214-109X\(24\)00118-9](https://doi.org/10.1016/S2214-109X(24)00118-9)
- [10]. Barry A, Impouma B, Wolfe CM, Campos A, Richards NC, Kalu A, et al. Non-communicable diseases in the WHO African region: analysis of risk factors, mortality, and responses based on WHO data. Sci Rep [Internet]. 2025 [cited 2026 Mar 25];15:12288. <https://doi.org/10.1038/s41598-025-97180-3>
- [11]. World Health Organization. Health at a glance | Democratic Republic of the Congo (created 11/12/2024). WHO Data. World Health Organization; 2024.
- [12]. Ministère de la Santé Publique, Hygiène et Prévoyance Sociale. Enquête sur les facteurs de risque des maladies non transmissibles dans les provinces de Kinshasa, Thsopo et Kasai Orientale. Kinshasa; 2025.

- [13]. Armocida B, Tolonen H, Rakovac I, Formenti B, Farrington J, Ekberg A, et al. Strengthening non-communicable diseases monitoring systems in Europe through a multistakeholder collaborative approach: a key priority for advancing data-driven policymaking. *The Lancet Regional Health - Europe* [Internet]. 2026 [cited 2026 Apr 11];61:101553. <https://doi.org/10.1016/j.lanepe.2025.101553>
- [14]. Bovet P, Banatvala N, Cooper R, Riley L. Surveillance of NCDs and their risk factors. *Noncommunicable Diseases* [Internet]. 1st edn London: Routledge; 2023 [cited 2025 Dec 26]. p. 28–33. <https://doi.org/10.4324/9781003306689-5>
- [15]. Quiambao A, Malekpour M-R, Golestani A, Heidari-Foroozan M, Ghamari S-H, Abbasi-Kangevari M, et al. World health Organization's guidance for tracking non-communicable diseases towards sustainable development goals 3.4: an initiative for facility-based monitoring. *eClinicalMedicine* [Internet]. 2025 [cited 2026 Mar 25];85:103304. <https://doi.org/10.1016/j.eclinm.2025.103304>
- [16]. WHO Africa. Community-based surveillance, Traing Manual, Integrated Diseases Surveillance and Response in the African Region [Internet]. 2015 [cited 2024 May 20]. https://www.afro.who.int/sites/default/files/2017-06/community-based-surveillance_idsr_training-manual.pdf. Accessed 20 May 2024
- [17]. Zhang J, Wu Y, Tian R, Zhao D. Developing an integrated evaluation indicator system for non-communicable disease management in China's primary care: a modified Delphi-analytic hierarchy process study based on the structure-process-outcome framework. *BMC Public Health* [Internet]. 2025 [cited 2026 Apr 11];26:18. <https://doi.org/10.1186/s12889-025-25714-5>
- [18]. Kasereka Wanzuwite E, Nshimirimana J, Katsuva Sibongwere D, Kambale Kalumwendo R, Katembo Kambere T. Niveau de coordination opérationnelle de la surveillance et de la réponse aux maladies non transmissibles dans les zones de santé de l'Antenne DPS de Butembo, Nord-Kivu, République démocratique du Congo. 2026.
- [19]. Akik C, El Dirani Z, Willis R, Truppa C, Zmeter C, Aebischer Perone S, et al. Providing continuity of care for people living with noncommunicable diseases in humanitarian settings: A qualitative study of health actors' experiences in Lebanon. *Journal of Migration and Health* [Internet]. 2024 [cited 2026 Mar 25];10:100269. <https://doi.org/10.1016/j.jmh.2024.100269>
- [20]. Braun V, Clarke V. Reporting guidelines for qualitative research: a values-based approach. *Qualitative Research in Psychology* [Internet]. 2025 [cited 2026 July 25];22:399–438. <https://doi.org/10.1080/14780887.2024.2382244>
- [21]. Ahmad M, Wilkins S. Purposive sampling in qualitative research: a framework for the entire journey. *Qual Quant* [Internet]. 2025 [cited 2026 July 25];59:1461–79. <https://doi.org/10.1007/s11135-024-02022-5>
- [22]. Weller SC, Vickers B, Bernard HR, Blackburn AM, Borgatti S, Gravlee CC, et al. Open-ended interview questions and saturation. Soundy A, editor. *PLoS ONE* [Internet]. 2018 [cited 2026 Mar 15];13:e0198606. <https://doi.org/10.1371/journal.pone.0198606>
- [23]. Squire CM, Giombi KC, Rupert DJ, Amoozegar J, Williams P. Determining an Appropriate Sample Size for Qualitative Interviews to Achieve True and Near Code Saturation: Secondary Analysis of Data. *J Med Internet Res* [Internet]. 2024 [cited 2026 Mar 14];26:e52998. <https://doi.org/10.2196/52998>
- [24]. Lim WM. Sample Size in Qualitative Research: Moving from Data Saturation to Theoretical Saturation. *Journal of Global Marketing* [Internet]. 2025 [cited 2026 Mar 14];1–11. <https://doi.org/10.1080/08911762.2025.2590757>
- [25]. Byrne D. A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Qual Quant* [Internet]. 2022 [cited 2026 Mar 12];56:1391–412. <https://doi.org/10.1007/s11135-021-01182-y>
- [26]. Pearson H, Myall M, Darlington A-S, Gibson F. The approach and application of analysing inductive and deductive datasets: a worked example using reflexive thematic analysis. *Qualitative Research in Psychology* [Internet]. 2025 [cited 2026

July 25];22:842–86.
<https://doi.org/10.1080/14780887.2025.2499265>
 [27]. Michelen M, Phan M, Zimmer A, Coury N, Morey B, Montiel Hernandez G, et al. Practical Qualitative Data Analysis for Public Health Research: A Guide to a Team-Based Approach With Flexible Coding. *International Journal of Qualitative Methods* [Internet]. 2024 [cited 2026 July 25];23:16094069241289279.
<https://doi.org/10.1177/16094069241289279>
 [28]. Naeem M, Ozuem W, Howell K, Ranfagni S. A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. *International Journal of Qualitative Methods* [Internet]. 2023 [cited 2026 July 25];22:16094069231205789.
<https://doi.org/10.1177/16094069231205789>
 [29]. Saunders CH, Sierpe A, Von Plessen C, Kennedy AM, Leviton LC, Bernstein SL, et al. Practical thematic analysis: a guide for multidisciplinary health services research teams engaging in qualitative analysis. *BMJ* [Internet]. 2023 [cited 2026 July 25];381:e074256.
<https://doi.org/10.1136/bmj-2022-074256>
 [30]. Lloyd N, Hyett N, Kenny A. To Member Check or not to Member Check? An Evaluation of Member Checking in an Interpretive Descriptive Study. *International Journal of Qualitative Methods* [Internet]. 2024 [cited 2026 July 27];23:16094069241301383.
<https://doi.org/10.1177/16094069241301383>
 [31]. Kabir A, Karim MN, Islam RM, Romero L, Billah B. Health system readiness for non-communicable diseases at the primary care level: a systematic review. *BMJ Open* [Internet]. 2022 [cited 2025 Dec 29];12:e060387.
<https://doi.org/10.1136/bmjopen-2021-060387>
 [32]. Nguyen TNT, Nguyen TTT, Tran BQ, Pham CT, Perry KE, Haregu T, et al. Putting non-communicable disease data to work in Vietnam: an investigation of community health surveillance capacity. *BMC Public Health* [Internet]. 2023 [cited 2026 July 26];23:321.
<https://doi.org/10.1186/s12889-023-14986-4>
 [33]. Ministère de la Santé Publique, Hygiène et Prévention de la République/RDC. Couvertures

nationales et provinciales et autres statistiques de services pour la santé reproductive, maternelle, néonatale et infantile à partir de données d'enquêtes et des établissements de santé, 2017-2021 [Internet]. Kinshasa; 2022.
https://www.countdown2030.org/wp-content/uploads/2022/10/Rapport-technique-actualise-RDC_Atelier-danalyse-donnees-SRMNEA-Nut_14.08.2022.pdf
 [34]. Mutombo CS, Bakari SA, Ntabaza VN, Nachtergaeel A, Lumbu J-BS, Duez P, et al. Perceptions and use of traditional African medicine in Lubumbashi, Haut-Katanga province (DR Congo): A cross-sectional study. Mordaunt DA, editor. *PLoS ONE* [Internet]. 2022 [cited 2026 July 26];17:e0276325.
<https://doi.org/10.1371/journal.pone.0276325>
 [35]. World Health Organization. Data quality assurance: module 2—discrete desk review of data quality: implementation guide [Internet]. Geneva: World Health Organization; 2020.
https://www.healthdatacollaborative.org/fileadmin/uploads/hdc/Documents/Working_Groups/RHIS/A._Standards_and_Tools/2._RHIS_data_generation/2d._Data_visualization__analysis_and_interpretation/WHO_Toolkit_for_RHIS_data/4-2b-2021_-dqa_module-2_desk-review_-implementation-guide.pdf
 [36]. World Health Organization. Recommendations on how to strengthen the design and implementation of policies, including those for resilient health systems and health services and infrastructure, to treat people living with noncommunicable diseases and to prevent and control their risk factors in humanitarian emergencies. Annex 4, Document A75/10 Add.2. [Internet]. Geneva: World Health Organization; 2022.
https://apps.who.int/gb/ebwha/pdf_files/WHA75/A75_10Add2-en.pdf
 [37]. Kasujja FX, Aikaali F, Garrib A, Van Widenfelt E, Namakoola I, Kivuyo S, et al. Integrated community-based versus facility-based care for people with HIV, diabetes, and hypertension in sub-Saharan Africa (INTE-COMM): an open-label, multicountry, cluster-randomised trial. The

Lancet [Internet]. 2026 [cited 2026 July 26];407:1084–94. [https://doi.org/10.1016/S0140-6736\(25\)02641-8](https://doi.org/10.1016/S0140-6736(25)02641-8)

[38]. Doresha L-M, Williams, Mash R. The role of community health workers in non-communicable diseases in Cape Town, South Africa: descriptive exploratory qualitative study. BMC Prim Care [Internet]. 2024 [cited 2026 July 26];25:176. <https://doi.org/10.1186/s12875-024-02424-2>

[39]. Sanya RE, Karugu CH, Iddi S, Kibe PM, Mburu L, Mbau L, et al. Feasibility and impact of a patient support group care model on diabetes and

hypertension care in informal settlements in Nairobi, Kenya: a quasi-experimental study. Global Health Action [Internet]. 2025 [cited 2026 July 26];18:2482304.

<https://doi.org/10.1080/16549716.2025.2482304>

[40]. Kazibwe J, Tran PB, Annerstedt KS. The household financial burden of non-communicable diseases in low- and middle-income countries: a systematic review. Health Res Policy Sys [Internet]. 2021 [cited 2026 July 26];19:96. <https://doi.org/10.1186/s12961-021-00732-y>