

Towards an Effective Communication in the Care of Patients with Long Term Disease in Kenya via Cybernetic—A Systematic Review

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Abstract

In this paper, to effectively treat chronic disorders and improve the standard of care, effective communication between patients and healthcare professionals was essential. The aim of the study was to review the literature on how good communication might improve treatment outcomes for Kenyan patients with chronic and terminal illnesses and to determine whether Cybernetic electronic communication can improve those outcomes even more. We uncovered the history of treatment outcomes for chronic and terminal diseases in this research study, both with and without communication at the core of the patient's care plan. We discussed the importance of good communication in the treatment of patients with chronic and terminal illnesses and why it is a momentous endeavor comparable to medical diagnosis and treatment for the long-term health of patients. To locate pertinent material for the background literature study, we carried out a comprehensive literature search. Although the preliminary literature review was a continuation of the introduction research, it also highlighted the paucity of local Kenyan literature and suggested that improved communication might help patients with chronic and terminal illnesses have better treatment outcome. Methodology maintained the literature search, as a systematic literature review focused on core of the study, making separate sections of the same body necessary. This ensured that a methodological literature search section is as comprehensive as possible. We used an integrated PRISM model to limit a comprehensive literature search and a systematic literature review design as part of the overall process. Non-probability sampling and snowball approaches on literary papers over the previous 17 years were used in this arrangement. Since this was a multidisciplinary study, the four experts who also serve as authors were chosen from within their respective fields of expertise to design the study. They created search strategies, generated key words, looked up keywords in

database engines, assessed the results of the literature using the PRISMA logical model, looked over successful literature, and triangulated their findings. The conclusions of the experts individually revealed a convergence of thoughts, beliefs, and practices across. The study concluded that even though there isn't much research done in Kenya on the same subject; what is available illustrates how crucial good communication is for patients with chronic illnesses. The study's findings also highlighted the positive effects of effective communication between patients and healthcare professionals on treatment plan adherence, patient satisfaction, and overall health outcomes. The results also noted that in order to improve patient care and outcome, Kenyan healthcare workers should underscore developing their communication skills. The study also found that the incorporation of cybernetics is crucial if a truly effective communication is required so as to enable centered care for patients with long-term diseases in Kenya. The goal of the Cybernetics is to activate genuinely effective communication in the care of Patients with long-term disease in Kenya. This study is organized to begin with an abstract, followed by keywords, an introduction, literature review, methodology, findings, discussion, and finally conclusions.

Keywords

A Preliminary Literature Review, Meta-Analysis, Indigenous Cancer Palliative Care, Ontology, Epistemology, Phenomenological Approach, Effective Communication, Chronic Illnesses, Enhanced-Patient Care, A Non-Probability Sampling, A Snow Ball Technique, Cybernetics

1. Introduction

In this study, a preliminary literature review mounts its objectives and aids in honing it to focus. It is adopted for a comprehensive grasp of current literature. On the flip side, a systematic review of literature comes later after a clear understanding of this study's purpose and reviews direct literature relevant to its goal. Undertaken preliminary literature studies of Kenyan context have brought to light the difficulties and obstacles experienced by patients who have chronic illnesses on account of a communication gap in their treatment plan. In particular a study by Raphael *et al.* (2016) [1] revealed that telephone conversations between practicing nurses and elderly patients with chronic illnesses frequently concentrate on managing the diseases in lieu of taking the patient's perspective into account concurrently. A study by (Nooshin, 2014) [2] also showed that insufficient health literacy impedes the ability of healthcare providers and patients of chronic illnesses to communicate effectively. Also, the influence of language obstacles on successful communication in healthcare institutions is affirmed by Oberle *et al.* (2020) [3] as additional culprit. On the same note, Butto *et al.* (2020) [4] discovered that insufficient functional health literacy is a barrier to efficient doctor-patient communication among HIV/AIDS patients.

A detailed review of the preliminary literature posits that some of the difficulties faced by Kenyan patients can be settled via a good synergized communication plan. This plan interchanges communication among healthcare professionals, patients, caregivers and plays a significant role in patient recovery (Chaturvedi, Loiselle, & Chandra, 2009) [5]. A case in point is a study by Caren *et al.* (2020) [6] who investigated the communication experiences of caregivers and patients with cervical cancer, highlighting the therapeutic value of communication. Moreover, the prominence of intercommunication in the healthcare industry was highlighted by (Kourakos *et al.*, 2017) [7] who claimed that better patient outcomes, compliance, and satisfaction result from good intercommunication between patients and healthcare providers. Similarly, (Raphael *et al.*, 2016) [1] demonstrated the potential advantages of telephone-based treatments as a communication medium to influence patient behavior, enhance disease-specific health indicators amid practicing nurses and elderly patients with long-term diseases.

Thus far, we have seen a substantial focus of the preliminary literature on significance of efficient communication to turn around wretchedness faced by chronically sick patients in Kenya. Besides, Caren *et al.* (2020) [6] who looked at the communication experiences of patients with cervical cancer and caregivers, provided another typical example of a desperation experienced by patients thus calls for expeditious redress. Their results emphasized on the therapeutic benefit of dialogue in patients' long-term illness rehabilitation. Another study by (Kourakos *et al.*, 2017) [7] found that better patient outcomes, compliance, and satisfaction result from a coordinated communication among patients and healthcare providers.

Another preliminary literature review undertaken was a meta-analysis of a research study conducted in Kenya to identify determinants of Patient Satisfaction in Indigenous Cancer Palliative Care Services which recorded that Patient Satisfaction is positively associated with waiting time (AOR = 2.663, 95% CI = 1.235 - 5.743), provider attention (AOR = 3.698, 95% CI = 1.657 - 8.254), provider politeness (AOR = 6.774, 95% CI = 3.697 - 12.413) and provider social communication skills (AOR = 6.520, 95% CI = 3.642 - 11.673) hinting at the significance of Effective Communication in the care of Patients with long term Disease in Kenya. This study used a descriptive cross-sectional design among patients exiting in indigenous outlets using pretested, semi-structured questionnaires. Cross-sectional studies involve data collected at a defined time. They are often used to assess the prevalence of acute or chronic conditions, but cannot be used to answer questions about the causes of disease or the results of intervention. Indigenous health practitioner outlets were included and stand-alone clinics. The selected outlets were visited, consented and client exit interviews undertaken during the survey period. This study concluded that a good patient-provider interaction, provider social skills and service waiting time influence patient recovery satisfaction with indigenous palliative care (Cheboi, Nyawira, Ngolo, & Ng'ang'a, 2023) [8].

Over and above, there is a reviewed preliminary literature on the World Bank that has categorized Kenya as a low-middle-income nation (World Bank Country and Lending Groups - World Bank Data Help Desk, n.d.) [9]. This categorization stems from many factors besides a shift in the population's demographics, which comes with new health implications as an increase in chronic and fatal diseases like breast cancer (BC). For instance in 2017, Lukong *et al.* [10] conducted a study titled "Breast cancer in Africa: prevalence, treatment options, herbal medicines, and socioeconomic determinants." This preliminary review indicated that the number of deaths related to breast cancer (BC) has increased significantly in lower-middle-income countries, where a growing trend toward urbanization and the adoption of Western lifestyle is on the rise. According to Lukong *et al.* (2017) [10], these countries *i.e.* lower-middle-income nation, account for 70% of all breast cancer (BC) fatalities worldwide, and that a higher proportion of these deaths are thought to be related to inadequate communication. Furthermore, a 2016 study (Healthcare Miscommunication Cost \$1.7 B—and Nearly 2000 Lives) [11] found that communication problems in the treatment of patient with long-term illness is congruent to medical malpractice claims and account for about 30% of mortality instances. In this instance, communication breakdowns were found in 37% of all high-severity injury cases. These preliminary literature findings provide eminence and the impetus to undertake this study. The outlined substance is significant having been demonstrated that effective intercommunication and improved healthcare outcomes in chronic and terminal conditions is like conjoined twins.

This study's relevance lies in its contribution to understanding the ontological and epistemological basis of the communication problem in Kenyan patients with long-term diseases, as well as examining whether cybernetic electronic communication improves those outcomes further. The notion of ontology represents how Kenyans view the inefficiency of communication among chronic and terminal illness patients, whereas epistemology is their idea of how this problem should be investigated and resolved.

Multidisciplinary research of this caliber is essential for efficient communication and treatment outcome. In the Kenyan context, where death due to insufficient communication is widespread (Ndemo, 2020) [12], it crystallizes localized ontological and epistemological underpinnings of a remediating model solution for effective communication in patients with long-term diseases who are confined to the agony of inefficient communication.

In this interdisciplinary study, a team of specialists and/or writers from other disciplines collaborate to address the 30% death rate in patients with chronic and terminal illnesses, attributed to inadequate communication (Healthcare Miscommunication Cost \$1.7 B—and Nearly 2000 Lives) [11]. Theoretical frameworks, concepts, and approaches supporting ontological and epistemological aspects of effective patient-centered communication are examined by these experts/authors. This endeavor is likely to make a good contribution to the corpus of knowledge. This is since it adds to theoretical frameworks a study that might

enhance patient care and identifies variables impacting successful communication. In order to create strong integrated communication deliverable solutions that are expected to enhance treatment results, this study integrates principles from the fields of communication, health, and information technology into a cybernetic framework.

The study explores strategies to address the communication gap among patients with long-term diseases in Kenya by focusing on healthy communication between healthcare professionals, patients, and caregivers. This is crucial for patient-centered care and may guide future research studies and practice. Furthermore the study examines patterns and trends in patient recovery post activation of the Effective Communication in the Medicare program.

A limitation of this study is that it doesn't espouse meta-analysis in its methodology. Not conducting a meta-analysis of the literature, is a drawback. Limited synthesis of evidence in the literature material in this study might provide a qualitative overview of existing studies which is informative but lacks the quantitative synthesis that a meta-analysis offers. It's difficult therefore to identify overall trends without aggregating and quantifying the across studies' results. These might deny this study an opportunity to assess whether there is a consistent effect or if results are conflicting. However it was our view as experts that not conducting a meta-analysis wouldn't have any significant impact on our finding as the study was phenomenological qualitative research, which looks in-depth at non-numerical data and uses interviews and observation notes. A phenomenological study explored on patients experience and attentions given to how this experience was influence by ineffective Communication as a phenomenon. Though at the initial stage of this study, we considered a meta-analysis review from a manuscript by (Cheboi, Nyawira, Ngolo, & Ng'ang'a, 2023) [8] but only for this preliminary literature review. This was useful as it helps mount objectives of the study from a wider perspective to sharpen the study focus. Failure to have an instance of a meta-analysis at the preliminary literature review, would have probably made it an uphill task to persuade our audience as to why we did not factor it as part of the actual Systematic Review of literature. This would have as well created an impression of biasness. It is therefore understood that we didn't close out an essential design process for fun but since it was proven at a preliminary literature review that it would be insignificant for our study.

Another limitation is that some patients may communicate inaccurate information due to their old age that is synonymous to long term Disease and diminished or poor memory. This study assumes that reviewed literature are sufficiently succulent and similar in terms of participants, interventions and outcomes, in pooling of data. That is all necessary data is available for extraction and analysis. This implies that the distribution of effect sizes of reviewed material is normal. Also assumed is that included literature for review are of reasonable quality. Another assumption is that findings of this study can be generalized to a

broader population or context. Lastly, it's assumed in the study that the effects of interventions in reviewed literature are consistent over time and that the results of older studies are still applicable today.

The design and implementation of this study are described in the methodology section, where cybernetics is advocated in tandem to season and propel the necessary communication outcome in Kenyan patient care for long-term illnesses.

2. Methodology

The methodology is a procedure of the study represented by a flowchart of the study in **Figure 1**. The processes involved in carrying out this investigation are outlined in the study flowchart.

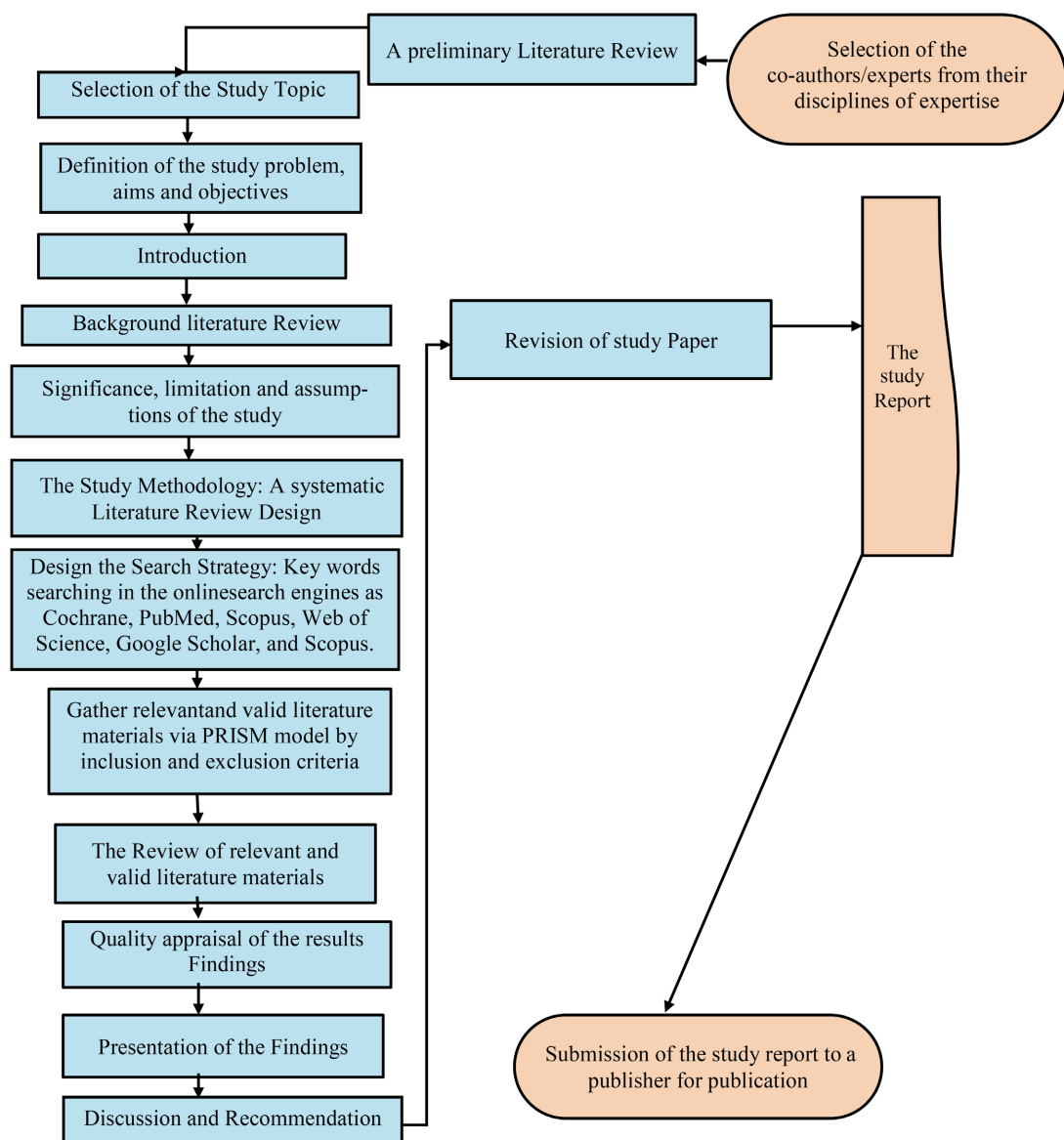


Figure 1. The flowchart of the study.

2.1. Selection of the Co-Authors/Experts from Their Disciplines of Expertise

Experts and co-authors were not chosen at random. An expert became an author automatically upon joining the project research. As a result, co-authors served as experts in the study and were admitted provided they possessed training in clinical psychology, computer science, health informatics, public health, or communication. Additionally, they had to have been prepared to commit time and resources as needed.

2.2. The Study Design

We employed search terms from important knowledge databases, such as Cochrane, PubMed, Scopus, Web of Science, Google Scholar, and Scopus, to direct the literature design approach in this study. To find pertinent studies published in the last 17 years, we combined subject headings and keywords. The search strategy was refined to ensure that only the most relevant and up-to-date literature was included.

2.3. The Search Terms

For this, search terms were used. For example, “Importance of communication in the care of patients with long term diseases in Kenya” OR “Communication and patient care for long term diseases in Kenya” OR “Effective communication and patient care for patients with long term diseases in Kenya” AND “Therapeutic communication and its relationship with chronic disease in Kenya” used were. Results were filtered to include only publications from the past 17 years. Filtration was via a systematic evaluation of all the publications that ultimately informed a sample size for the inclusion, exclusion criteria, and formulation. A systematic evaluation of publications was done by reading these journals in full to assess their eligibility. The PRISMA model fused in a systematic review provided a general logical review approach. Thus a manual review of all eligible publications occurred via a systematic evaluation and their results are summarized in **Table 1**.

2.4. Literature Population of the Study

The study considered all relevant literature, including titles, terms, summaries, and concepts about effective communication in the care of long-term disease patients in Kenya.

2.5. A Sampling of the Literature Journals

Non-probability sampling was also used instead of a probability sampling approach. A non-probability sampling method selects literature from a population using a subjective (non-random) process. This sampling method is an appropriate technique in this study as we were unable to practically and convincingly determine all possible pieces of literature that underpin the study’s title, concept, and summary as would be in the ideal case (random).

Table 1. Outcome summary findings of a Systematic literature evaluation.

The Manuscript Reviewed	Literature Reviewed Key findings	Methodology	Total papers on Google search	Source	Year of Publication
The Impact of Onset Controllability on Stigmatization and Supportive Communication Goals Toward Persons With HIV Versus Lung Cancer: A Comparison Between Kenyan and U.S. Participants.	The study analyzed the influence of transmission methods and disease type on stigmatizing attitudes and supportive communication goals among Kenyan and U.S. participants. The study found that means of transmission significantly impacted the blame component of stigma, but not cognitive attitudes or social interaction. It also showed no effect on supportive interaction goals. Kenyan participants, both students and nonstudents, were slower to adopt blame communication goals compared to American participants.	A study involved 464 Kenyan and 526 American students, 441 Kenyan and 591 American nonstudents, and 441 Kenyan and 591 American nonstudents, randomly assigned to 12 hypothetical scenario conditions, and asked to respond to three stigmatizing attitudes and six supportive communication goals.	394,000	Taylor and Francis Group	2007
The Effect of a Health Communication Campaign on Compliance with Mass Drug Administration for Schistosomiasis Control in Western Kenya—The SCORE Project	Communication campaigns effectively influence health behaviors in various public health contexts, but there is limited documentation on their use in schistosomiasis control programs. Mass media exposure improves awareness of the MDA, leading to better treatment compliance. The findings suggest that communication campaigns can improve health behaviors and awareness of schistosomiasis control interventions.	A qualitative study involving community health workers (CHWs) investigated the impact of a health communication campaign on their experiences during praziquantel MDA for schistosomiasis, with discussions recorded, translated, and analyzed using ATLAS.ti software.	46,100	The American Society of Tropical Medicine and Hygiene	2014
Physician communication behaviors from the perspective of adult HIV patients in Kenya	A study in Kenya investigated physician communication behaviors among HIV patients on combined antiretroviral therapy (cART). The study involved 400 patients, with a median age of 38 and 56.5% being female. Results showed that patients perceived physicians engaging in a high number of communication behaviors. Factors such as general health status, distance to the health facility, and time spent at the facility were associated with higher perceived physician communication behaviors. Physician-patient relationship factors were not associated with these behaviors. A higher number of perceived physician communication behaviors was associated with a higher likelihood of patients attending the next HIV clinic, a lower likelihood of missing an appointment, and missing cART medication. In conclusion, patients' perception of physician communication behaviors was found to be associated with their adherence to HIV care.	A cross-sectional study conducted in Kenya between July and August 2011 aimed to describe the perceptions of physicians' communication behaviors among HIV patients and explore the association between these behaviors and adherence to care. The study involved 400 HIV-positive adult patients on cART, part of the Academic Model Providing Access to Healthcare (AMPATH) program, and was conducted in three adult HIV clinics.	16,600,000	International Journal for Quality in Health Care	2014

Continued

<p>Health Care Providers' Communication: The Cancer Patients' Perspective-A Study among Cervical Cancer Patients in Uasin Gishu County, Kenya</p>	<p>The study explores the communication processes between cervical cancer patients and healthcare providers, revealing mixed experiences. Some patients had positive experiences with counseling and preparation, while others had negative experiences due to poor delivery methods. Information was packaged differently, with some receiving detailed and comprehensive information while others received sketchy information. The environment also elicited mixed reactions. Communication processes vary across settings and providers, emphasizing the need for effective communication between cervical cancer patients and healthcare providers.</p>	<p>A qualitative study was conducted in Uasin Gishu County, targeting cervical cancer patients receiving specialized treatment or palliative care at home or hospice. Eight cases were recruited, and content analysis was conducted, with data reported in narrative form.</p>	<p>47,200</p>	<p>International Journal of Recent Innovations in Medicine and Clinical Research</p>	<p>2020</p>
<p>Providers' perceptions of communication and women's autonomy during childbirth: a mixed methods study in Kenya</p>	<p>The study highlights the importance of effective communication and respect for women's autonomy in person-centered care. However, there is limited evidence in low-resource settings about providers' perceptions of these aspects during childbirth. Few studies have assessed potential barriers to communication and women's autonomy maintenance. Despite acknowledging the importance of these aspects, providers often fail to provide them due to various reasons. To improve communication and autonomy, the study suggests addressing factors that negatively affect providers' interactions with women. This will help ensure women's autonomy and better care during childbirth.</p>	<p>A mixed-methods study in Migori County, Kenya, involved 49 maternity providers, 32 clinical and 17 non-clinical, who were asked structured and open-ended questions about communication and autonomy, with descriptive and thematic analysis conducted.</p>	<p>563,000</p>	<p>Reproductive Health</p>	<p>2020</p>
<p>Socio-cultural contexts of end-of-life conversations and decisions: bereaved family cancer caregivers' retrospective co-constructions</p>	<p>The study reveals that end-of-life communication becomes more challenging in terminal cancer, particularly in resource-limited areas where women play crucial roles as informal caregivers. It examined the content and contexts of family end-of-life conversations and decisions, focusing on advance directives and initiating death talk. The findings are relevant for palliative psychosocial interventions, particularly for cancer patients and their families. The study highlights the need for further engagement in equipping family caregivers in resource-limited contexts for end-of-life care.</p>	<p>The study used an interpretative phenomenological analysis method to investigate end-of-life communication themes through four mini focus group interviews with 13 participants.</p>	<p>85,800</p>	<p>BMC Palliative Care</p>	<p>2017</p>

Continued

The potential of schoolchildren as health change agents in rural western Kenya	<p>The study suggests that a multi-faceted approach involving biomedical interventions, behavioral change, and improving living conditions can significantly reduce the spread of major diseases in developing countries. School-going children can be effective health change communication agents in both school and home environments, demonstrating their potential to assist peers and parents in acquiring health-related knowledge and practices. Children collaborate with other students to introduce and maintain changes in the school environment, while in home settings, they communicate health messages and introduce relevant practices, enabling parents to improve their knowledge and behavior. This study challenges the common belief that children cannot teach and influence adults.</p>	<p>A pre-tested questionnaire survey was used to assess individual knowledge on intervention topics before and after exposure. The survey was administered three times, covering three individual topics. School-based observations were used to gather information on school routines, sanitation, and hygiene before and after the intervention.</p>	92	Elsevier	2005
mHealth text and voice communication for monitoring people with chronic diseases in low-resource settings: a realist review	<p>The study highlights the importance of routine monitoring for managing chronic diseases in low-resourced health systems. It proposes mobile health (mHealth) as a solution, as cellphones can enhance health communications and allow people to “talk back” to broadcast media. mHealth can involve one-way or two-way communication between health workers and patients using any digital channel that allows them to be mobile. The study suggests that mHealth interventions for monitoring chronic diseases in low-resource settings, based on existing frameworks and theory, can be effective. The effectiveness of these interventions depends on the match between the intervention’s content and the needs or social factors relevant to the specific patient group.</p>	<p>The study aimed to evaluate the effectiveness of mHealth interventions for chronic diseases. A systematic search of mHealth reviews revealed mixed effectiveness, suggesting a lack of understanding of these interventions. Articles were screened and analyzed using realist synthesis to understand the reasons behind these interventions. Four articles were identified based on monitoring hypertension and HIV/AIDS in Kenya, Pakistan, Honduras, Mexico, and South Africa. The interventions included reminders, patient observation of health state, motivational education, support communication, targeted actions, and praise and encouragement. The study found that variations in existing theory and frameworks moderated outcomes.</p>	10,300	BMJ	2017

Continued

<p>Successes and challenges of speech language therapy service provision in Western Kenya-Three case studies</p>	<p>The manuscript observed that Communication access is a recognized human right, and speech language therapists have a responsibility to engage in conversations to improve service disparities in communities and around the world. It also noted that addressing communication disorders is crucial as people with communication disabilities are more likely to experience poverty, social exclusion, and poor health outcomes. The paper emphasized on the need for culturally responsive practices in speech, language, and hearing sciences to address communication disorders in low-income countries. It noted that the development of communication-related services in sub-Saharan Africa is well-documented and involves responsive global engagement. The review suggests that the development of communication services should focus on local knowledge, including language and culture. The paper also suggests that communication disability can be improved by focusing on the community context and need, such as a direct one-on-one model of communication care.</p>	<p>A qualitative case study was conducted to examine three collaborative work cases between a non-governmental organization (NGO) in Western Kenya and three government-funded health and education institutions between 2007 and 2020. Case 1 involved one-on-one therapy, community outreach, education, parent and teacher training, classroom observations, and a clinical model. Case 2 involved one-on-one therapy, participation in hospital rounds, patient support groups, inter-professional training, and interdisciplinary co-treatment. Case 3 was a none, bespoke service model, based on community outreach, education, parent training, and case management. The case studies contributed to literature on language therapy services practices and provided opportunities for reflection, discussion, and improvement. The collaborative writing process allowed for bi-directional, culturally responsive learning and guided speech language therapists to consider social structure factors and diverse worldviews in clinical practice.</p>	<p>4,670,000</p>	<p>National Institutes of Health (NIH) 2021, September 27</p>
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Experience of communication among cervical cancer patients in Kenya by Jerop Caren, George Mose and Kibiwott Kurga	The study analyzed communication experiences among cervical cancer patients and their caregivers in Uashin Gishu County, Kenya. It found that effective communication helps patients express their fears and improves their survival strategies. However, patients often face communication dilemmas, where caregivers and medical professionals are reluctant to engage with them. Insufficient communication leads to limited information, hindering improved care and quality of life for cancer patients. Therefore, dialogues about long-term illness are crucial for patients' well-being.	The study utilized in-depth interviews with patients and caregivers, employing non-probability sampling through snowballing, and applying the Hermeneutic theory. The data was presented in the form of thematic presentations of narratives, demonstrating the understanding and reflection between the two groups.	2	International Journal of Palliative Nursing 2020, Vol 26, No 7	2023 (April)
Higher Clinician-Patient communication is associated with Greater Satisfaction with HIV Care	The study explored the correlation between care provider-patient communication skills and patient satisfaction in HIV patients in Busia County Kenya. It found that patient expectations significantly influence satisfaction with services, and communication skills are crucial for fostering better relationships and promoting patient-provider partnership. High satisfaction levels were observed at 85%, with patients indicating that their care providers had strong communication skills. The study supports the notion that effective communication skills are essential for patient-centered care and clinical practice, highlighting the importance of these skills in the patient-centered care system.	The study was a cross-sectional, randomized trial, descriptive, and quantitative pilot with a large AMPATH study.	14,400,000	National Institutes of Health.	2021
All her children are born that way': gendered experiences of stigma in families affected by sickle cell disorder in rural Kenya,	The study explores early experiences of sickle cell disorder (SCD) in families with young affected children in sub Saharan Africa. It highlighted low initial recognition and lay practices of surveillance, contributing to stigmatization. Mothers are often blamed, with misaligned paternity risk. This stigma is particularly affecting mothers, who lose independent livelihoods and face limited coping options. Counteracting this stigma in health and research programs is crucial.	A qualitative study in coastal Kenya involved in-depth interviews with 13 families affected by SCD and 12 staff of a biomedical research program. The study aimed to maximize diversity in socioeconomic status, religion, illness burden severity, and staff experience, using constant comparative method for family interviews and thematic framework approach for staff data.	288	TAYLOR & FRANCIS	2011

Continued

Communication skills of general practitioners in Nairobi, Kenya: a descriptive observational study	The study evaluates the quality of communication in consultations by General Practitioners (GPs). The median age was 30.0 years and consultation time was 7.0 minutes. GPs demonstrated skills in gathering information, making diagnoses, and suggesting management. However, they did not make appropriate introductions, explore patients' perspectives, allow shared decision making, or provide adequate safety netting. The scores were higher in consultations of moderate complexity.	A study in Nairobi, Kenya, analyzed 23 GP consultations and evaluated 16 communication skills using the Stellenbosch University Observation Tool. The study compared consultations' demographics, complexity, and duration using SPSS, version 25, and calculated a percentage score per consultation.	640,000	The National Institutes of Health.	2022
Multidimensional needs of patients living and dying with heart failure in Kenya: a serial interview study	The study analyzed the experiences of heart failure patients in Kenya, revealing physical, psychosocial, spiritual, and financial distress, unmet needs for information, and influenced healthcare seeking. Patients with acute symptoms sought care earlier than those with gradual symptoms, expecting cure. Accumulating costs hindered care continuity and caused social tensions. Patients valued information on their illness, prognosis, self-care, lifestyle changes, and prevention strategies, but this was rarely available.	A study recruited 18 patients with advanced heart failure from a Kenyan rural district hospital, conducted in-depth interviews at various intervals and conducted bereavement interviews with carers, analyzed using a thematic approach and Nvivo software.	2,030,000	BMC PALLIATIVE CARE	2018
Health Literacy and Doctor-Patient Communication among HIV/Aids Patients in Homa Bay County, Kenya	The study examined the impact of health literacy on doctor patient communication among HIV/AIDS patients in Homa Bay County, Kenya. It found that gender, education level, marital status, and illness duration significantly influenced communication. However, functional and communicative health literacy levels were inadequate. Most respondents found communication effective. Critical health literacy had the most significant influence, followed by communicative and functional health literacy. The study highlights the need for improved health literacy in healthcare settings.	A cross-sectional survey was conducted among 362 HIV/AIDS patients at eight sub-county hospitals in Homa Bay County, using a self-administered structured questionnaire.	4650,000	JKUAT DIGITAL REPOSITORY	2022
"You have a swelling": The language of cancer diagnosis and implications for cancer management in Kenya	The study explores the impact of language on communication in Kenya's healthcare system, revealing that language barriers can hinder understanding of cancer diagnoses and the type of interventions sought by family members as informal caregivers.	The review explores literature on language access and health care in Kenya, using electronic databases like Scopus, Web of Science, Ebscohost, ProQuest, and Google Scholar, and provides two case studies from a Nairobi-based qualitative research project.	63,600	PUBMED	2017

Thus in this study, not every literature sample from the population pool had an equal chance for an invitation to participate before being classified into included or excluded criterion. This is since certain terms, titles, concepts, and summaries were used to query selected databases for relevant literature and thus didn't guarantee inclusivity for every literature material on other databases but ascribed to the same nature of the study.

Consequently, non-probability sampling permitted us to target literature journals on the subject matter but not all in the population pool. This is a natural phenomenon to have certain literature journals excluded from the study's sampling despite the likelihood of qualifying inclusion criteria. In this study, the exclusion of certain literature journals is not necessarily that they were unsuccessful on inclusion criteria but that the technique in use is constrained. Thus the exclusion of additional literature materials despite the likelihood to qualify the study's criterion, didn't affect the validity of our results and conclusions as the nature of the study is largely qualitative, intuitive, and doesn't involve any form of meta-analysis.

Since Non-probability sampling doesn't require a complete survey frame, it was fast, easy, and inexpensive way to obtain data for literature review.

2.6. The Inclusion Criteria

1) Context: Low-resourced settings of a low and Low Middle Income Country (LMIC).

2) Intervention Design: The study intervention includes the embedding of effective communication in the care of patients with long-term Disease in Kenya to improve health outcome.

3) The outcome of reviewed papers must either impact positively or negatively on the quality outcome of patients with long-term diseases in Kenya.

4) Any publication journal on effective communication to improve the quality of health, care for patients with long-term disease in Kenya.

5) The reviewed Journals must have been about the Kenyan context.

6) The Journal reviewed must have been published from May 2006 through December 2023.

7) Selection of the co-authors/experts was on long as the experts was coming from public health medical, communication, information technology, computer science and clinical psychologist background and was willing to dedicate time and resource whenever called upon.

2.7. Exclusion Criteria

1) Any studies set that didn't include Kenyan Context.

2) Any publication journal that didn't meet the set inclusion criteria above.

2.8. Search Strategy to Identify Relevant Articles for Review

To identify relevant and adequate literature, we considered articles published from May 2006 through December 2023. This enabled us to acquire sufficient

articles to review since the preliminary study indicated that effective communication in the care of patients with chronic disease is a new concept and is not commonly practiced in Kenya and sub-Saharan Africa. Thus, longer periods enabled us to cast our net wider in capturing past and present relevant publications.

To obtain significant concepts underpinning Effective Communication in the care of patients with long-term diseases, the study adopted a systematic review approach. A systematic review approaches uses a predefined protocol based on the PRISMA guidelines as shown below to systematically identify, appraise, and synthesize relevant studies' information.

Based on the PRISMA model, six computerized databases including Cochrane, PubMed, Scopus, Web of Science, Google Scholar, and Scopus were searched for the systematic review. In the search, relevant concepts, synonyms, keywords, titles, and abstract terms relating to Effective Communication in the care of patients with long-term diseases in Kenya were queried.

The titles and summaries of the studies that were screened against the inclusion and exclusion criteria are detailed in **Table 1**.

2.9. Findings

2.9.1. Quality Appraisal Results

This is a process used to evaluate the reliability, validity, and relevance of the reviewed study. Findings from reviewed articles were extracting from high number of articles upon which 24,977,018 articles did not report a philosophical perspective or address substance of our research concept. Additionally, 17 articles were also expunge from the study having gone through further rigorous review. In synthesis these articles, the study adopted phenomenological approach to understand hidden idea in them and if were underpinning effective communication in the care of patients with long term diseases in Kenya. Non-probability sampling was used, for the reason that the review study was social research and the main objective was not to give an equal opportunity to the entire population of articles but to select the population samples of articles that recognizes the phenomenon under study (Vehovar *et al.*, 2016) [13]. Snowball sampling was also adopted in the study to build up a sample through informants articles (Blaxter *et al.*, 2010) [14]. Snowball sampling, is a non-probability sampling method commonly used when studying hard-to-reach or hidden populations. This method is particularly useful when the target population is small, difficult to identify, or has limited accessibility as was the case in our study as the study focused on Kenya alone. In snowball sampling, articles were initially selected based on the study's criterion, as already known in the study. Once the initial articles were recruited, they were used to refer or "snowball" additional articles that fit the study criteria or connection. This process continued iteratively, with each article referring others that are related in the study's requirements. Thus the search from computerized databases yielded a total of 24,977,052 papers (**Figure 2**) when restricted to English language. Out of the 24,977,052 papers that were generated, only 34 studies were

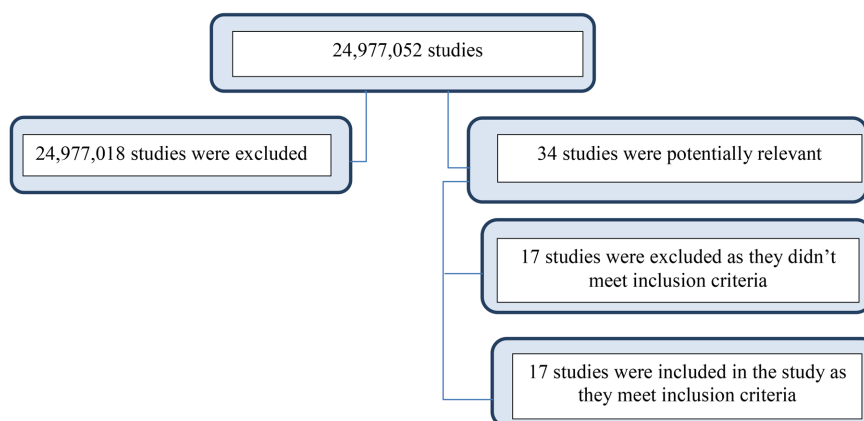


Figure 2. The PRISMA model.

potentially relevant. Only 17 of the 34 potentially relevant studies met the inclusion criteria and were reviewed as shown in **Table 1**, whose findings are discussed in the following subsections.

2.9.2. Overview of Findings

In one of the reviewed article of the study established that Kenya is less likely than America to adopt communication for healthy recovery of a patient with long term diseases precisely HIV and lung cancer (Miller *et al.*, 2007) [15]. The paper highlighted the drawbacks and impact of communication and support for individuals with stigmatized conditions as a result of HIV and lung cancer as per Kenyan context. The paper found out that Effective communication can help reduce stigma towards individuals with HIV and lung cancer. By promoting understanding, empathy, and education, communication can challenge misconceptions and stereotypes, leading to more supportive attitudes (Miller *et al.*, 2007) [15]. Further synthesis of the article also noted that effective communication towards persons with HIV and lung cancer can reduce stigma, increase support, enhance treatment adherence, empower individuals, provide access to information and resources, promote emotional well-being, and contribute to education and awareness efforts(Miller *et al.*, 2007) [15].

Another reviewed manuscript examined the impact of a health communication campaign on compliance with mass drug administration (MDA) for schistosomiasis control in western Kenya and found out that the campaign improves awareness and compliance with MDA, leading to better treatment outcomes. It also highlighted the importance of involving community leaders and using multiple communication methods for effective health interventions. In this review, health communication campaign on schistosomiasis control in western Kenya was found to have a positive impact on compliance with mass drug administration (MDA) Onkanga M, *et al.* (unpublished data). The increase in the number of people who complied with treatment was largely attributed to the intensive mass media campaign that was implemented before the MDA Onkanga M, *et al.* (unpublished data). The campaign raised community awareness of the disease,

the control programs, and the intervention, leading to behavior change and increased healthcare-seeking behaviors Onkanga M, *et al.* (unpublished data).

Another study by Wachira *et al.*, 2014 [16], was reviewed as well. The study was entitled “Physician communication behaviors from the perspective of adult HIV patients in Kenya”. According to this study, perceived physician communication behaviors are associated with HIV patient adherence to treatment. The detailed study noted that patients who observed higher physician communication behaviors were more likely to attend clinic appointments and adhere to medication. The study found out that patients who believed that their physicians were more communicative were more likely to attend clinic, less likely to miss appointments and take medication as prescribed (Haskard Zolnieriek & DiMatteo, 2009) [17]. These findings illustrate the positive association between physician communication behaviors and patient adherence to treatment. This study underscore that effective physician communication is crucial in fostering patient engagement, understanding patient preferences, and addressing informational gaps, ultimately leading to improved adherence to HIV care (Haskard Zolnieriek & DiMatteo, 2009) [17]. The study noted that physicians often have a poor understanding of patients’ preferences and may have a more directive communication style, which can hinder patient engagement (Strull, 1984) [18]. Thus, it is important for physicians to adopt a patient-centered communication approach that involves effective questioning, transmission of information, expression of empathy and concern, and active engagement with patients. This study also noted that patients’ perception of physician communication behaviors can as well be influenced by factors such as their trust in the physician, their relationship with the physician, and their health status. Overall, the overarching statement in that study is that effective physician communication is essential for promoting adherence to HIV care and improving patient outcomes (Wachira *et al.*, 2014) [16]. The study used a cross-sectional design and was conducted between July and August 2011 in three adult HIV clinics at the Moi Teaching and Referral Hospital-Eldoret, Kenya. A convenient sample of 400 HIV-positive adult patients on combined antiretroviral therapy (cART) was surveyed during their routine medical visits. The study employed two instruments for data collection: a recruitment instrument and a main instrument. The recruitment instrument collected self-reported measures of specific patient characteristics such as gender, receiving HIV treatment, number of missed medical appointments, and frequency of missed cART medication. The main instrument included measures of socio-demographic characteristics, health status, healthcare system factors, and physician-patient relationship characteristics. Perceived physician communication behaviors were assessed using a scale consisting of 11 items, with higher scores indicating more communication behaviors. The study used SPSS-18 statistical package for data analysis, and a p-value of <0.05 was considered statistically significant (Wachira *et al.*, 2014) [16].

In the systematic literature review, another study examined the stigma faced by rural Kenyan families affected by sickle cell disease. The study revealed that

mothers of children with sickle cell disorder are particularly vulnerable to stigmatization within their families, often being blamed for the condition. The findings emphasize the importance of effective communication and sickle cell disorder (SCD) management in addressing stigma and discrimination, as well as the need for broader social programs targeting gender and economic inequalities (Marsh *et al.*, 2011) [18]. The analysis of this study noted that blaming mothers for sickle cell disorder (SCD) has several implications for emotional distress, economic costs, and limitations on their lives and choices. For instance blaming mothers for SCD can lead to significant emotional distress. This blaming can create a sense of guilt and shame for mothers, who may feel responsible for their children's suffering (Marsh *et al.*, 2011) [19]. This emotional distress can have a negative impact on their mental health and overall well-being. The reviewed manuscript pointed out that Mothers of children with SCD may face economic challenges due to the limitations imposed by the disorder. This study found out that mothers often experienced a loss of independent livelihoods and had limited options in coping with their children chronic condition which can result into financial strain and increased economic costs for the family exacerbating challenges of providing adequate care and support for their children in an emergent nation. The study also shows that blaming mothers for SCD can also limit their lives and choices in terms of protecting their own and their children's livelihoods for instance, mothers may face difficulties in seeking employment or pursuing education due to the demands of caring for a child with SCD. Additionally, mothers may not have the option to leave their children with their husbands or other family members, as there may be concerns about the ability of others to care for the children adequately (Marsh *et al.*, 2011) [19]. The study recommends health and research policies to address these issues targeting underlying gender and economic inequalities in this kind of a set up and fronting effective communication as a solution. The study documents that effective communication can play a crucial role in addressing the stigma faced by families affected by sickle cell disorder (SCD) in rural Kenya. The study suggest that by improving communication and providing accurate information about the genetic nature of SCD, misconceptions and blame can be addressed, reducing the stigma faced by mothers and families. The study advices that effective communication can promote understanding and empathy among community members. The study counseled that by raising awareness through effective communication on SCD and its impact, community members can develop a better understanding of the challenges faced by affected families and that understanding can help reduce stigmatizing attitudes, behaviors and foster a more supportive and inclusive environment (Marsh *et al.*, 2011) [19]. The study concluded that effective communication is a crucial solution to address the stigma faced by families affected by SCD in rural Kenya. This is due to the provision of accurate information, promoting understanding, empathy besides connecting families with communicative support services. This can play a significant role in reducing blame, discrimination, the limitations imposed on the lives and choices of affected mothers

and families. In that review, qualitative research methods were utilized in rural Kenya for conducting the study. In-depth interviews were conducted with 13 families affected by sickle cell disorder (SCD) and 12 staff members of a local biomedical research program. The selection of participants was purposive, aiming to maximize diversity in socioeconomic and educational status, religion, severity of illness burden, and religion among families. Purposive sampling refers to a group of non-probability sampling techniques in which units are selected because they have characteristics that are needed in the sample. In other words, units are selected “on purpose” in purposive sampling. The interviews were recorded, transcribed, and analyzed using the constant comparative method for family interviews and a thematic framework approach for staff data (Marsh *et al.*, 2011) [19]. The analysis of data from approximately 28.5 hours of recordings of family narratives involved line-by-line coding, progressive categorization, and the development of analysis charts for comparison of emerging categories across participants. The analysis of perceptions of SCD inheritance and impacts on family relations also drew on data from the staff interviews, using a thematic framework method combining deductive assessment within the themes generated by the family narratives and an inductive search for new emerging issues relevant to these themes. The study obtained scientific and ethical approval from the institutional review committee and national scientific and ethical review committees in Nairobi (Marsh *et al.*, 2011) [19].

Another manuscript that we reviewed having meet the requirement of an Effective Communication in the care of Patients with long term Disease in Kenya was a descriptive observational study (Mohamoud & Mash, 2022) [20] that evaluated the quality of communication in consultations by general practitioners (GPs) in Nairobi, Kenya. The study found that while GPs demonstrate skills in gathering information, making diagnoses, and suggesting management, there are areas for improvement in terms of patient-centered care and communication skills. The paper suggests that further training in communication skills, particularly in delivering person-centered consultations, would benefit GPs in Nairobi Kenya. Additionally, deploying family physicians to the primary care setting could enhance the overall quality of service delivery. The study identified both strengths and weaknesses in the communication skills of general practitioners (GPs) in Nairobi, Kenya. Strengths that were identified for example were that GPs demonstrated skills in gathering information, explaining the diagnosis, and suggesting appropriate management (Louw *et al.*, 2020) [21]. Though their weaknesses were that GPs did not make an appropriate introduction, explore the context or patients’ perspectives, allow shared decision making, or provided adequate safety netting. Their consultations were brief and had a biomedical approach, lacking skills in whole-person medicine (Mohamoud & Mash, 2022) [20]. Furthermore, GPs lacked training in effective communication skills, particularly in delivering person-centred consultations and that the quality of communication was negatively impacted by the young and inexperienced GPs, who dealt with low-to-moderate complexity and mostly acute problems. On account

of that, synthesized study recommended for further training and expertise in communication skills for GPs in Nairobi, Kenya, to deliver high-quality primary care among patients with chronic conditions (Louw *et al.*, 2020) [21]. The study utilized a descriptive observational cross-sectional design for its methodology. A cross-sectional study is a type of research design where data is collected from many different manuscripts at a single point in time. In cross-sectional research, variables are observed without influencing them. This study took place in 13 primary care clinics attached to a tertiary hospital in Nairobi, Kenya, owned and operated by the private healthcare organization. All 25 GPs working in these facilities were invited to contribute one audio recording of a consultation (Louw *et al.*, 2020) [21]. The consultations were recorded using a discrete micro recorder, and basic demographic data related to each GP was collected (Louw *et al.*, 2020) [21]. The audio recordings were assessed using the Stellenbosch University Observation Tool (SUOT), which evaluated 16 communication skills (Louw *et al.*, 2020) [21]. The Statistical Package for Social Sciences (SPSS) was used to analyze the data (Mohamoud & Mash, 2022) [20].

This review also examined a manuscript on providers' perceptions of communication and women's autonomy during childbirth in sub-counties of Migori, Kenya (Afulani *et al.*, 2020) [22]. According to the manuscript, poor communication and lack of respect for women's autonomy during childbirth can adversely affect women, including negative birth experiences, reduced trust in healthcare providers, decreased satisfaction with care, increased risk of medical interventions (such as episiotomies, cesarean sections), adverse maternal and neonatal decision-making outcomes that could result in adverse infant outcomes (Afulani *et al.*, 2020) [22]. The reviewer noted that while health providers recognize the importance of communication and autonomy, there are instances of poor communication and lack of respect for women's sovereignty. The study stressed on the need to address these factors to improve communication and autonomy of women during childbirth. The study mounted a mixed-methods design, combining quantitative and qualitative data collection and analysis. The 49 clinical and non-clinical providers working in maternity units across all sub-counties of Migori, Kenya were interviewed. The interviews were conducted using a questionnaire with both closed and open-ended questions, and the data was analyzed using descriptive statistics and thematic analysis (Afulani *et al.*, 2020) [22].

The systematic literature review also inspected an article on Socio-cultural contexts of end-of-life conversations and decisions for bereaved family cancer caregivers entitled "Socio-cultural contexts of end-of-life conversations and decisions: bereaved family cancer caregivers' retrospective co-constructions" by (Githaiga & Swartz, 2017) [23]. This article scrutinized the content and contexts of end-of-life conversations and decisions among bereaved women family cancer caregivers in Nairobi, Kenya. The article found that family dynamics plays part in influencing the nature of conversations and decisions thus their role is often critical in palliative care despite being ill-prepared to deal with end-of-life issues. The article concluded that palliative psychosocial interventions should equip

family caregivers with end-of-life care skills in resource-limited settings as Kenya being an emerging economy. This study demonstrated the transitional nature of family caregiver roles, with caregiving being a shared role particularly in the terminal phase. The study suggested that interventions should focus on providing support and guidance to family caregivers in navigating the unknown end-of-life terrain and making difficult decisions. The review noted that when family caregivers are not equipped with necessary tools as communication skills for end-of-life care, there are potential adversaries that may increase as emotional distress and burden if they are for instance unable to effectively communicate with their loved ones about end-of-life issues which can lead to guilt, anxiety, and uncertainty. The study reverberates that family caregivers may struggle to understand their loved ones' wishes and preferences for end-of-life care which can lead to misunderstandings and conflicts within the family. The study recognized that inadequate effective communication skills can lead to lack of coordination and collaboration between family caregivers and healthcare professionals. This can result in a lower quality of care for the patient, as important information may not be effectively communicated (Githaiga & Swartz, 2017) [23]. The methodology used in this study was an Interpretative Phenomenological Analysis (IPA). An IPA technique is an approach which focuses on in-depth investigation of people's significant life experiences and the meanings they ascribe to those experiences (Githaiga & Swartz, 2017) [23]. The study adopted also the focus group discussions (FGDs) for its primary data collection which were conducted in small groups, with an average duration of 2 hours per group. The discussions were held in English and audio recorded with participants' consent (Githaiga & Swartz, 2017) [23]. The data analysis involved several readings of each focus group transcript, with observations and comments written down alongside the numbered meaning units. The analysis process included a thematic scrutiny across the four focus groups, identifying points of convergence and divergence (Githaiga & Swartz, 2017) [23].

Another article that we examined in the Systematic review study was on the potential of schoolchildren as a health change agents in rural western Kenya. The analysis of the article upheld that schoolchildren are able to improve their knowledge, practice related to health issues, as well as influence their peers and guardians. The review reported that schoolchildren can teach and influence adults, challenging the assumption that children are passive individuals in society health issues (Onyango-Ouma *et al.*, 2005) [24]. Detailed synthesis of the manuscript established that children were able to bring about positive changes such as cutting grass and clearing footpaths, faster than adults. Although the total number of latrines in the area remained low, children were able to motivate their parents to build latrines (Onyango-Ouma *et al.*, 2005) [24]. The intervention of Health communication in the study, registered increased knowledge levels among children, parents, and teachers. The intervention involved teaching activities and health communication, targeting children, parents, and teachers. Scrutiny of this manuscript showed that teachers facilitated the activities, ad-

addressing the concerns and fears of the health communicators (HCs) or school-children. The method of the study involved a prospective, quasi-experimental design to compare groups with different circumstances or treatments and find cause-and-effect links. The study used questionnaire surveys to assess knowledge levels among the study's population. The surveys were conducted at baseline (T1), 4 months into the intervention (T2), and 14 months later (T3). The surveys included both open-ended and closed-ended questions and covered topics related to malaria, diarrhea, and hygiene. The data collected from the surveys were coded and entered into a computer for analysis. Largely, the study utilized a combination of surveys, observations, and interviews to assess knowledge levels and evaluate the impact of the health communication intervention. In a nutshell, the study demonstrated that children can learn health messages/communication and pass them on to others, making them effective health change agents in their communities (Onyango-Ouma *et al.*, 2005) [24].

The systematic literature study assessed critically a realist review article which focused on mHealth text and voice communication to monitor people with chronic diseases in low-resource settings. The article was a review of other studies on the use of mobile health (mHealth) interventions to monitor chronic diseases in low-resource settings such as an emerging economy. A realist review is a theory-driven approach for reviewing the literature with the aim of producing one or more theories to explain particular phenomena. This study found that mHealth interventions can be effective for improving patient care and health outcomes when based on existing frameworks and theory (Anstey Watkins *et al.*, 2018) [25]. The manuscript presented specific studies that used text message interventions, the effectiveness of mobile health interventions in improving patient outcomes, mechanisms of change in mHealth interventions, and the limitations in low-and middle-income countries. The study noted that the common components in mobile health interventions for monitoring chronic diseases in low-resource settings are: Reminders, Patient observation of health state, Provision of support communication among others. For the reminders, the intervention included prompts to patients about appointments, medication compliance, or other important health-related tasks. In patient observation of health state, the intervention encouraged patient to monitor their own health state, such as tracking their symptoms, medication side effects, or physiological measures like blood pressure. As for Provision of support communication an interventions facilitated two-way communication between the patient and health worker, allowing patients to seek support, ask questions, or receive guidance and would be done through text messages or voice calls. The review noted that text message interventions have shown positive impacts on health outcomes for patients with HIV, hypertension, and other chronic diseases. For example a systematic review on text message interventions for HIV and other chronic diseases found that text mediations improved adherence to antiretroviral therapy, viral suppression, and retention in care for HIV patients (Mehra *et al.*, 2021) [26]. Also a randomized controlled trial in South Africa found that text message interventions for hyper-

tension led to improved medication adherence and increased proportion of days covered for blood pressure lowering medication (Bobrow *et al.*, 2016) [27]. In other chronic diseases, text interventions are also shown improved health outcomes. A point in case is a systematic review that established text message interventions improved medication adherence and health outcomes for patients with diabetes, asthma, and cardiovascular diseases (Adunlin *et al.*, 2018) [28]. These findings suggest that text message interventions can be a valuable tool in improving health outcomes for patients with chronic diseases, including HIV and hypertension. The methodology used for the review was a combination of a realist review and a systematic search for empirical studies. The realist review approach was used to make sense of heterogeneous evidence about complex interventions applied in diverse contexts, while the systematic search was conducted to identify relevant empirical studies. The review included searching for systematic reviews, extracting examples of how interventions worked from included papers, mapping these examples onto a realist Context-Mechanism-Outcome configuration (CMOc), and developing a summary of how the interventions were intended to work according to the study authors. Data extraction was conducted from the included studies, including research design, participant sample, setting, outcome measures, intervention description and components, intervention effect, and authors' program theory (Anstey Watkins *et al.*, 2018) [25].

In addition, the systematic literature study reviewed a manuscript on successes and challenges of speech language therapy service provision in Western Kenya based on three case studies (Staley *et al.*, 2021) [29]. The manuscript presented the challenges and successes of speech language therapy services in Western Kenya. It emphasizes the need for communication-related services in sub-Saharan Africa and proposes alternative models of service provision for instance a framework for responsive global engagement in speech language therapy, collaboration and sustainable relationships in under-resourced communities. The review identified some challenges faced in provision of speech language therapy services in sub-Saharan Africa such as a significant shortage of trained speech language therapists contributing to limited availability of services and adequate care to individuals with communication disabilities (Staley *et al.*, 2021) [29]. The emerging profession of speech language therapy lacks adequate structures and support systems. Furthermore, Sub-Saharan Africa is home to a diverse range of cultures and languages thus providing speech language therapy services that are culturally and linguistically appropriate can be challenging. The review noted also that many of the services currently offered in sub-Saharan Africa are influenced by minority world cultural ideals and may perpetuate structural racism and language socialization. The study recommended that for a revise the service models to better meet the needs of individuals in African contexts. The study noted that the challenges in providing speech language therapy services in sub-Saharan Africa are multifaceted and require collaborative efforts to address the gaps in service provision and support the development of culturally and linguistically appropriate care. The study stated that effective commu-

nication can facilitate collaboration, cultural sensitivity, awareness, training, advocacy, and policy development, ultimately helping to address the challenges faced in providing speech language therapy services in sub-Saharan Africa (Staley *et al.*, 2021) [29]. For example effective communication between different stakeholders, such as speech language therapists, healthcare providers, educators, and community members, can foster collaboration and partnerships. By sharing knowledge, resources, and expertise, these stakeholders can work together to address the challenges and develop sustainable solutions. Also effective communication allows for a better understanding of the cultural and linguistic diversity in sub-Saharan Africa. By actively listening and engaging in culturally sensitive communication, speech language therapists can tailor their services to meet the specific needs and preferences of individuals with communication disabilities (Staley *et al.*, 2021) [29]. The study method was the examination of three clinical case studies from Western Kenya based on a conceptual framework.

The systematic literature review also surveyed a manuscript advancing that Higher Clinician-Patient Communication Is Associated with Greater Satisfaction with HIV Care (Wachira *et al.*, 2021) [30]. The paper examines the relationship between clinician-patient communication skills and patient satisfaction with HIV care in Kenya. It emphasizes the importance of effective communication and patient-centered care in improving patient outcomes and satisfaction. It suggests that promoting good communication skills and provider-patient interactions may be key to enhancing patient satisfaction with HIV services. The study disclosed that effective communication plays a crucial role in patient satisfaction with HIV care. It showed that patients who perceive their clinicians as having good communication skills are more likely to report satisfaction with care. Provider-patient communication (PPC) skills, such as clear and empathetic communication, facilitate better provider-patient relationship dynamics and empower patients with knowledge about their health (Wachira *et al.*, 2021) [30]. When patients feel that their clinicians have good communication skills, they are more likely to feel satisfied with the care they receive. This relationship between communication and satisfaction has been observed in high-income countries, but its characterization in resource-limited settings with a high HIV burden is still limited (Wachira *et al.*, 2021) [30]. Therefore, promoting good PPC skills is essential for improving patient satisfaction with HIV care (Wachira *et al.*, 2021) [30]. The researchers employed a quantitative research method, such as surveys/questionnaires, to assess patient satisfaction with HIV care and the role of effective communication. These surveys measured patient perceptions of communication skills, such as clarity, empathy, and information provision by healthcare providers. The study population consisted of adult patients living with HIV who are receiving HIV care at healthcare facilities. Eligibility criteria included factors such as being on a first-line antiretroviral therapy regimen and having an elevated viral load. Data collection instruments were developed and some adapted from validated measures of provider-patient communication (PPC) skills. These instruments assessed various aspects of communication, including verbal and

non-verbal communication, active listening, and information sharing, and shared decision-making. Data was analyzed using statistical methods such as correlation analysis, regression analysis, and structural equation modeling to examine the relationship between effective communication and patient satisfaction with HIV care. In addition, confounding factors such as sociodemographic characteristics, medication self-efficacy, and knowledge of HIV and treatment were controlled (Wachira *et al.*, 2021) [30].

The systematic literature review unmasked another research study on the experiences of patients living and dying with heart failure in Kenya (Kimani *et al.*, 2018) [31]. The study focused on the physical, psychological, spiritual, and financial distress patient's experience, as well as the information/communication needs they do not receive from healthcare providers. The study suggested that a holistic approach, such as palliative care, could improve the quality of life for these patients. The article also emphasized on the need for further research to integrate palliative care into the management of heart failure in Kenya and Sub-Saharan Africa. Effective communication was stressed in the article as an integral part of palliative care for the management of heart failure in Kenya and Sub-Saharan Africa (Kimani *et al.*, 2018) [31]. The study records that a palliative care is multidimensional care aimed at reducing suffering and improving quality of life of a patient. It's an appropriate holistic approach for addressing patient's needs. The review also noted that there are significant barriers to effective communication and information exchange such as poor prognostication of heart failure, patients' fear of retaliation for asking questions, and care that overlooks psychological, social, and spiritual needs. The study records that Improving communication with health professionals and providing timely information to patients are essential for enhancing symptom management and patients' quality of life such as providing information at the time of diagnosis and during acute crises when symptoms become unfamiliar and unresponsive to treatment. The reviewed study recommended that as non-communicable diseases, including heart failure, continue to rise in Sub-Saharan Africa, it is crucial to address the communication and information needs of patients to ensure effective management and improve outcomes (Kimani *et al.*, 2018) [31]. The study utilized a longitudinal qualitative study design using serial in-depth interviews to explore the experiences of patients living with advanced heart failure in Kenya for methodology. Qualitative longitudinal research (QLR) comprises qualitative studies, with repeated data collection, that focus on the temporality (e.g., time and change) of a phenomenon. The use of QLR is increasing in health research since many topics within health involve change (e.g., progressive illness, rehabilitation). The researchers conducted face-to-face interviews with patients at three-month intervals for up to six months, with the timing of interviews being flexible based on the patients' health status or occurrence of events such as hospital admissions. The interviews took place in hospital wards or at the patients' homes and lasted between 25 and 125 minutes. All interviews were audio recorded and transcribed into English. A topic guide was used to direct the inter-

views and explore patients' physical, social, spiritual experiences, as well as their experiences with care. The researchers also conducted monthly phone calls with patients to record any changes in their condition and to plan subsequent interviews. The data analysis was done following Braun and Clark's multi-staged approach to thematic analysis. Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) within data (Braun & Clarke, 2006) [32]. The transcripts were read repeatedly to familiarize the researchers with the data, and codes were identified and arranged into themes and sub-themes. Regular multidisciplinary team meetings were held to review emerging codes, themes, and data saturation. The Nvivo qualitative data analysis computer software package was used to manage the data, document systematically and individually (Kimani *et al.*, 2018) [31].

A manuscript about Functional Health Literacy and Doctor-Patient Communication from Experiences of HIV/AIDS Patients in Homa Bay County, Kenya (Butto *et al.*, 2020) [33] also qualified for a systematic review. This manuscript examined the association between functional health literacy and doctor-patient communication among HIV/AIDS patients in Homa Bay County, Kenya. The majority of respondents had inadequate functional health literacy levels, which significantly influenced doctor-patient communication. Finding of the study was that functional health literacy needs to be improved to enhance interaction and improve health outcomes. The study noted that Effective communication plays a crucial role in improving functional health literacy and enhancing doctor-patient interaction as it helps patients better understand their health concerns. When doctors explain medical information in a way that is easy to understand then patients with limited health literacy are more likely to comprehend and retain the information (Butto *et al.*, 2020) [33]. This improves their overall health literacy and enables them to actively participate in their own healthcare decisions and management. Secondly, the effective communication guarantees patients clear instructions about taking care of their health problems. When doctors provide easy-to-understand instructions, patients are more likely to adhere to treatment plans, engage in self-care practices, leading to better health outcomes (Butto *et al.*, 2020) [33]. The review of the manuscript discovered also that effective communication helps doctors to listen carefully to their patients. Thus when doctors actively listen to patients, they gather important information about their health problems, leading to accurate diagnoses and appropriate treatment plans which enhances the quality of care and patient satisfaction. The review uncovered also that effective communication helps to establish trust and rapport between doctors and patients. This is since when doctors communicate in a respectful and empathetic manner, patients feel more comfortable discussing their health concerns and asking questions. This would eventually promote open and honest communication that is essential for effective healthcare delivery (Butto *et al.*, 2020) [33]. The methodology used in this manuscript was a cross-sectional hospital-based survey conducted among 362 HIV/AIDS patients receiving care at the eight sub-county hospitals of Homa Bay County in Kenya.

Data was collected using a self-administered structured questionnaire. Cronbach's alpha and confirmatory factor analysis tests were used to ascertain the reliability and validity of the study instruments. Logistic regression analysis was used to measure the association between functional health literacy and doctor-patient communication (Butto *et al.*, 2020) [33].

Finally, the systematic review concluded the scrutiny of manuscripts by a paper on language of cancer diagnosis and implications for cancer management in Kenya by (Githaiga & Swartz, 2017) [34] and captioned "You have a swelling': The language of cancer diagnosis and implications for cancer management in Kenya". This article examined the impact of language barriers on cancer diagnosis and management in the Kenyan healthcare system. It reiterates the challenges that are faced by patients and caregivers who may not understand medical terminology, leading to inadequate understanding of the diagnosis and compromised care. The article suggests the need to reassess the assumption that English and Swahili are sufficient for communication in healthcare settings in Kenya and calls for further research on language needs and interpreter training (Githaiga & Swartz, 2017) [34]. The article recommended use of effective communication in addressing challenges faced by patients and caregivers who may not understand medical terminology, leading to inadequate understanding of diagnosis and care. This is since Effective communication is capable of bridging the language barrier between healthcare professionals, patients or caregivers who may not speak the same language. Language barriers can hinder understanding of medical terminology and instructions, making it difficult for patients and caregivers to fully comprehend the diagnosis and the recommended interventions. Synthesized article endorsed utilization of professional interpreters and healthcare professionals to ensure that accurate information is conveyed and understood by all parties. The study observed that by effective communication that uses plain language and non-verbal clues enhances understanding. The study also asked Healthcare professionals to simplify complex medical terms and explanations that to that which is easily comprehensible to patients and caregivers (Meuter *et al.*, 2015) [35]. Additionally, non-verbal clues such as visual aids, diagrams, and gestures were also recommended to supplement and enhance understanding of verbal communication. The study noted that effective communication is edified by active listening and empathy on the part of healthcare professionals. Actively listening to patients, caregivers and healthcare professionals can enable better understanding of their concerns, fears and questions, before addressing them aptly. The article stated that empathy can help create a supportive and trusting environment in turn where patients and caregivers feel comfortable asking questions and clarification (Meuter *et al.*, 2015) [35].

3. Discussion and Recommendation

Despite numerous instances of failed patients care with long-term disease in Kenya attributed to ineffective communication, the study did come across a research study on this subject. The review aimed to provide valuable insights into

the importance of effective communication in improving patient care and outcomes in Kenya. While the availability of research specifically focused on effective communication in the care of patients with long-term diseases in Kenya is limited, the existing literature from other countries highlights the importance of this topic. The findings emphasize the need for healthcare providers in Kenya to prioritize and improve their communication skills to enhance patient care and outcomes. A review of evidence revealed a devastating instance where mothers of children with sickle cell disorder are stigmatized in their families and blamed for the condition of their newborns. Due to the lack of evidence from the findings that male patriarchy was culpable for blaming mothers of sickle cell disorder (SCD) children, these and other findings formed fertile ground for staging an effective communication targeted at this setting (Marsh *et al.*, 2011) [19]. Therefore, in our view, a lack of effective communication could have been a root cause of the affliction that innocent mothers and their newborns experienced with sickle cell disease. It was not just this study that informed our position, but also other reviewed studies. For instance it was discovered in one of these studies that schoolchildren could teach and influence adults, dispelling the myth that women and children are passive members of society when it comes to health issues (Onyango-Ouma *et al.*, 2005) [24]. In this case, male patriarchy was revealed not to be absolutely responsible for extreme negative cultural practices, to the point of blaming and stigmatizing mothers and their newborns for sickle cell disease (SCD). Secondly, we were influenced by the study (Staley *et al.* 2021) [29] on the successes and challenges of speech language therapy service provision in Western Kenya. This study found no evidence that male patriarchy contributed to the challenges faced by speech language therapy providers in Western Kenya. Though this study showed sufficient evidence that cultural and linguistic diversity in sub-Saharan Africa can be better understood through effective communication (Staley *et al.*, 2021) [29]. The study noted, for instance, that effective communication among different stakeholders, such as speech language therapists, healthcare providers, educators, and community members, can enhance collaboration, partnerships, and a better understanding of sub-Saharan Africa's cultural diversity and linguistic diversity. A third study upon which our view was anchored is by (Wachira *et al.*, 2021) [30] which suggested that higher clinician-patient communication is associated with greater satisfaction with HIV care. The study's results suggested that patients who perceive their clinicians to have good communication skills are more likely to be satisfied with their treatment (Wachira *et al.*, 2021) [30]. In high-income countries, the relationship between communication and patient satisfaction is well established. However, its characterization in resource-limited settings such as Kenya with a high HIV burden has not been well characterized. It's for these reasons that we recommended the promotion of Provider-patient communication (PPC) skills to improve patient satisfaction with HIV care (Wachira *et al.*, 2021) [30]. A fourth reviewed study by Kimani *et al.*, (2018) [31] witnessed similar trends. This study's title was "the experiences of patients living and dying with heart failure in

Kenya”. These trends were also true for the fifth study whose author was (Butto *et al.*, 2020) [33]. Butto *et al.*, (2020) [33] study’s was entitled “Functional Health Literacy and Doctor-Patient Communication from Experiences of HIV/AIDS Patients in Homa Bay County, Kenya”. The sixth study upheld our views also as observed by the earlier authors. This study was authored by Githaiga & Swartz, (2017) [34] and entitled “The language of cancer diagnosis and implications for cancer management in Kenya you have a swelling”. It advocated for the use of Effective communication in addressing challenges faced by patients and caregivers who may not understand medical terminology, leading to inadequate understanding of diagnosis and care. This was so, since Effective communication was capable of bridging the language barrier between healthcare professionals, patients or caregivers who couldn’t speak the same language thus hindered understanding of medical terminology and instructions, making it difficult for patients and caregivers to fully comprehend the diagnosis and the recommended interventions. The successful stories witnessed in these (six) studies demonstrate sufficiently that when effective communication is embraced by all subjects then the outcome of the task undertaken is likely to favorable as effective communication is at the center stage.

Our second view from findings is that to ensure a truly effective communication at the center of care to patient with long term disease, then adoption and integration of Cybernetics is supreme. This submission triangulates our initial view that endorsed the use of effective communication for improving patient care and outcomes in Kenya. Refraction in our view has been shaped by an observation in another study that focused on mHealth text and voice communication to monitor people with chronic diseases (Anstey Watkins *et al.*, 2018) [25]. This study promoted the adoption of a computer application with fixed modules or add-ons to facilitate effective communication in low-resource settings so that chronic disease patients can be monitored effectively (Anstey Watkins *et al.*, 2018) [25]. This study recount that effective monitoring can be achieved if the computer is fixed with modules or add-ons to provide reminders, patient observation of health status, support, and communication for people with chronic diseases (Anstey Watkins *et al.*, 2018) [25]. For instance, this study discovered that text message interventions for HIV and other chronic diseases in a computer application that fastened add-ons was able to improve adherence to antiretroviral therapy, viral suppression, and retention in care for HIV patients (Mehra *et al.*, 2021) [26]. It’s for this reason that we held the view that a truly effective communication that enables centric care for patients with a long term disease in Kenya is by the integration of Cybernetics. The view to adopt Cybernetics in this study was aimed at unlocking a truly effective Communication in the care of Patients with long term Disease in Kenya. Cybernetics is the study of communication in human and machine and has been an area of research for a while. Cybernetics combined concepts from information theory, feedback control systems (both biological and machine) and electronic computers (Marinescu, 2017) [36] thus recommended to revolutionize communication in the care of Patients with

long term Disease in Kenya.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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