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Doctor-Patient Communication in Tanzanian Public Hospitals: Language Use, Code-Switching, and Accommodation Strategies

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Abstract

This study examined how language use and communication strategies influence doctor-patient interactions in Tanzanian public hospitals. Guided by Communication Accommodation Theory, the study focused on Amana, Mwananyamala, and Temeke Regional Referral Hospitals. Using a phenomenological qualitative design, data were collected through observations, interviews, and document reviews from 90 participants (30 doctors, 30 nurses, and 30 patients). Data were analyzed using NVivo 12 software, enabling thematic coding and sentiment analysis. Findings revealed that Swahili was the dominant language, but code-switching with English was common, particularly for technical terms. While simplification, analogies, non-verbal cues, and occasional third-party interpretation improved understanding, excessive or unexplained English terms led to confusion especially among elderly or less-educated patients. Cultural and linguistic mismatches further hindered communication when doctors failed to adapt to patients' backgrounds. The study recommends Swahili communication training, standardized bilingual materials, and integration of communication skills into medical education. These findings contribute to efforts toward linguistically inclusive and culturally responsive healthcare in Tanzania.

Keywords: Code-switching, doctor-patient communication, health communication strategies, language barriers.

INTRODUCTION

Communication is integral to quality healthcare delivery and can impact the accuracy of diagnosis and treatment adherence, patient satisfaction, and doctor-patient relationship (WHO, 2021). Communication challenges are common in multilingual and multicultural situations like Tanzania, where both Swahili and English are utilized in health care environments (Langewitz, 2017; Mkony et al., 2020). Barriers such as language incompatibility, medical jargon confusion and inconsistent code-switching prevent mutual understanding between doctors and patients, increasing the risk of misdiagnosis and eroding trust in healthcare systems (Camara, 2020; Flores, 2022; Mboya et al., 2022; Kinyenje et al., 2023).

Amana, Mwananyamala, and Temeke Regional Referral Hospitals (the Tanzanian government hospitals on which the study focuses) serve as major health service providers to substantial and heterogeneous patient populations, making both types of hospitals sites of critical importance for examining linguistic dynamics within a healthcare context (Isangula, 2020; Gonzalez and Vega, 2024). Such hospitals are microcosms of the wider sociolinguistic landscape where differences in literacy, language competence and cultural expectations shape content and delivery of medical consultations (Mganga and Mtenzi, 2023). Language plays an important role in

patient-centered care, however there is limited research examining the strategies used by doctors and patients to overcome linguistic communication barriers in Tanzanian hospitals.

Although studies from other African states have investigated the role multilingualism plays on service provision for example, Kenya (Kangethe, 2010), Nigeria (Jaja and Adetunji, 2018), and South Africa (Pérez-Iglesias and Méndez-López, 2021)); much of the research focuses on access and policy issues rather than actual, real-time communication strategies in consultation settings. The fast-growing Tanzanian linguistic context is marked by the scarcity of empirical data examining how language is negotiated in doctor–patient interactions specifically in public referral hospitals serving linguistically and culturally heterogeneous patient populations. Furthermore, the role of cultural mismatches and language adjustments in influencing patient understanding and satisfaction has not been thoroughly investigated.

This study contributes to fill that gap by investigating the types of language leveraged in medical interaction, outlining approaches to bridged linguistic barriers, and exploring ways in which culture and diversity both affects and help the success of communication. Through analysis of three major public hospitals in Dar es Salaam using Communication Accommodation Theory, this study offers valuable insights into the sociolinguistic aspects of healthcare which have previously been underexplored in healthcare. The findings of this study are expected to inform language-sensitive health policies and encourage inclusive, culturally responsive communication practices in Tanzanian healthcare settings.

LITERATURE REVIEW

Effective communication is central to the provision of high-quality health care, impacting diagnosis, treatment adherence (including taking medications, following dietary or lifestyle changes, attending follow-up appointments), patient satisfaction, and overall patient outcomes (Silverman, Kurtz, and Draper, 2020; WHO, 2021). In multilingual societies like Tanzania, where more than 120 languages are spoken (Swahili is the national language and English prevails in professional and academic settings), communication in clinical contexts becomes very difficult (Al Shamsi et al., 2020). This interplay of language diversity, health literacy, and cultural variation creates a dynamic environment that either facilitate or inhibit effective doctor-patient communication (Mboya, Kahwa, and Mushi, 2022).

One of the most striking linguistic devices, when consulting in Swahili is code-switching, the switching from one language to another, for example using Swahili and English in the same medical consultation. In the Tanzanian context, multiple studies, include Mkony et al. (2020), emphasize that it is common for clinicians to combine English terms, particularly when making diagnostic or pharmaceutical references, irrespective of the patients' low English proficiency. Although this is done for biomedical precision, it often generates anxiety, misconceptions and in some cases comes to a misdiagnosis (Watson and Forshaw, 2022). These results are in agreement with findings from global studies conducted in similar contexts (Al Shamsi et al., 2020), which have revealed that language choice is based not solely on knowledge differences but also the prevailing practices in academic institutions involved in medical training. Most studies on code-switching are descriptive, however, rarely examining how clinicians determine when and how to switch languages as well as whether this practice corresponds to patient understanding. Very little works explore whether deliberate strategies are indeed being implemented in line with the premises of Communication Accommodation Theory, or whether any shifts are rather attributable to lack of training in effective, patient-centred communication.

A second strand of literature has focused on the cultural and linguistic misalignments enacted in healthcare encounters. According to Mganga and Mtenzi (2023), despite the extensive use of Swahili across various regions and ethnic backgrounds, dialectical and cultural differences hinder mutual understanding, as standard Swahili is not uniformly spoken in all regions and among all ethnic groups. This is especially true when doctors are not native speakers or patients come from linguistically marginalized groups. According to Nyoni and Marealle (2023),

especially in rural clinics, healthcare workers frequently depend on lay interpreters like relatives or hospital attendants to help overcome language barriers. Though these workarounds allow communication to continue, they inevitably sacrifice confidentiality, accuracy, and ethical standards (Schwei and Jacobs, 2023; Hsieh and Kramer, 2021). Nonetheless, those studies usually ignore the power dynamics at play how patients' deference to authority or fear of stigma can silence them, even in cases where they do not understand medical advice. There is little interrogation, however, of how health care workers can be trained to do better than improvisation in recognizing and responding to these mismatches of cultural-linguistic accord.

Although it is well-established that doctors employ a number of techniques to enable them to communicate including simplification, repetition, and analogies; these techniques have rarely been systematically documented. For example, Meuter et al. (2021) note that most of the health communication literature in low- and middle-income countries is either anecdotal or driven by policy needs with little analysis of how communication is negotiated in real time during a consultation. Additionally, the literature show that there is also a lack of detailed research on how patients respond to or interpret these strategies particularly in high-traffic, urban referral hospitals, where interactions are time-constrained and culturally diverse (Squires and O'Brien, 2021). Moreover, while existing literature identifies common barriers, few studies attempt to categorize or evaluate the effectiveness of different strategies based on patient outcomes or satisfaction levels.

It is most common way that the role of language choice in shaping patient satisfaction is mentioned, but under-theorized. Elkefi and Asan (2024) highlight that communication style, such as tone, clarity, and turn taking is critical to whether patients feel respected or heard. Likewise, Karliner and Pérez-Stable (2022) advocate for policy-level changes to integrate linguistic justice in systems of health. However, there is limited empirical research regarding the influence of language on relational dynamics, trust and health-seeking behaviour in Tanzanian contexts. Very few existing studies incorporate sociolinguistic theories such as Communication Accommodation Theory (CAT), which shed light on how doctors either adapt or do not adapt to the linguistic and cultural identities of their patients. Practitioners use language to convey facts, but they also reveal their authority, inclusivity, or exclusion within clinical contexts through language (Ferguson and Candib, 2002). This theoretical gap limits our understanding of how language functions not just as a tool for information exchange, but also as a symbol of authority, inclusion, or alienation in clinical spaces.

Rationale for the Current Study

While there is growing recognition of the importance of addressing language barriers in healthcare all over the world, there have been very few studies in Tanzania exploring the actual communication strategies that doctors and patients use in real-life medical consultations, especially in urban public hospitals where linguistic and cultural diversity is at its highest levels. Moreover, most of the research is descriptive instead of analytical, failing to adequately assess how the communication behaviours affect patients' satisfaction, understanding, or health outcomes. This study aims to address these gaps by examining not just the languages in which these concerns are raised, but also the communicative strategies employed, the cultural dimensions of language use, and the practical implications for health equity.that texts encode different semiotic elements which jointly portray the meaning an author wishes to express.

Specifically, this study aims to: Examine the types of language(s) used in doctor-patient interactions in selected Tanzanian hospitals. Identify communication strategies used by doctors and patients to overcome language barriers. Analyze the impact of language choice and communication style on patient understanding and satisfaction. Investigate how cultural and linguistic diversity affects the effectiveness of medical consultations. Recommend strategies for improving language use in healthcare communication in Tanzanian hospitals. Using Communication Accommodation Theory as a lens, and NVivo 12 software for rigorous qualitative analysis, this study does not just reiterate surface-level observations; it has empirical depth that advances theory in studying health communication in multilingual space in Africa.

Research Problem

Communication between doctors and patients plays a vital role in accurate diagnosis, patient satisfaction, adherence to treatment, and the overall delivery of quality healthcare. Yet, in many Tanzanian hospitals, doctor-patient interactions are often hindered by language barriers, code-switching, unclear medical jargon, and cultural or linguistic mismatches. Such communication barriers lead to misunderstanding, misdiagnosis, and lower levels of trust in healthcare systems. Despite its importance, little research has addressed the language(s) used and communication strategies employed to mitigate these challenges in Tanzanian medical contexts.

Theoretical Framework

In this regard, the Communication Accommodation Theory (CAT), developed by Howard Giles' theory in the 1973, becomes a proper theoretical framework underpinning this study. CAT, as it operates on the principles of diverging and converging of the speaker and audience, is particularly suitable to explain the dynamics of doctor-patient relations in contexts like Tanzanian public hospitals where there are often multilingual and multicultural settings. According to the theory, in conversations, people perform style shifting in their speech, language choices, and communicative behaviours respectively, to minimize or exaggerate social and linguistic differences. CAT identifies three key accommodation strategies:

a. Convergence: Adapting one's communication style to align with the interlocutor's language, speech rate, tone, or vocabulary to promote understanding and social approval.
b. Divergence: Deliberately maintaining or emphasizing differences in language or style to assert identity, authority, or status.
c. Maintenance: Choosing not to adapt communication style despite existing differences, either consciously or unconsciously.

In this study, CAT offers a relatively solid lens to examine the way doctors and patients navigate language choices and tailor communicative behaviours in the moment of consultations. For example, a doctor can switch from English to Swahili or simplify medical vocabulary to make sure a patient comprehends a diagnosis. On the other hand, a doctor can persist in speaking biomedical jargon, unaffected or uninterested in whether the patient process the meanings of familiar terms, establishing professional authority at the risk of losing the patient.

Similarly, a patient may try to mirror clinical terms picked from public health campaigns to appear informed and improve the interaction. Thus, implementing CAT allows consideration of communicative patterns recognized at Amana, Mwananyamala, and Temeke hospitals moving beyond mere description toward explanation of how and why accommodation occurs.

Table 1. *Examples of CAT Strategies in Doctor-Patient Interactions*

Strategy	Definition (per CAT)	Example from the Study	Hospital/Department
Convergence	Doctor adapts language to match patient's language and style	"*Presha yako iko juu. Inabidi udhibiti kwa kutumia dawa na mlo bora*". (Your blood pressure is high…)	Temeke – Outpatient
		Doctor uses analogies: "*Presha yako iko juu kama bomba lililoziba*". (Like a blocked pipe)	Mwananyamala - General Clinic
Divergence	Doctor maintains technical or English-heavy language	"Your ECG showed ischemia in the left ventricle. You'll need a beta-blocker".	Amana – Emergency

		Doctor says: "You have gastritis". Patient later reports confusion and no explanation was offered.	Amana – Internal Medicine
Maintenance	Doctor makes no adjustment despite patient confusion	"*Tutakufanyia ultrasound ili tuangalie kama kuna obstruction kwenye fallopian tubes zako*". (No simplification)	Mwananyamala – Maternity
		Doctor continues using English terms such as "BP" and "sugar level" without checking for understanding	All three hospitals – Observed repeatedly

This summary table enhances the analytical depth to the study, as CAT theory is mapped directly to field data. It illustrates how communication strategies vary between different departments and settings, and how these differences impact the patient experience in terms of understanding and satisfaction. Indeed, the Communication Accommodation Theory reinforces the structuring of data analysis and delineation of sociolinguistic dynamics in Tanzania's healthcare context. It provides an enriched study that informs language being turned to both as a relational tool and a symbolic marker of authority, inclusion, or exclusion in clinical encounters (Gile, 2016).

METHODS

Research Design

This study adopts a phenomenological qualitative research design guided by an interpretivist paradigm (Aguzzoli et al., 2024). This design is appropriate for exploring the lived experiences, perceptions, and interactional strategies used by doctors and patients in real-life hospital settings. Qualitative research allows for a deeper understanding of how language is used and negotiated within doctor-patient consultations, especially in multilingual and multicultural contexts like Tanzanian public hospitals (Creswell and Poth, 2018).

Study Area

The study was conducted in three public regional referral hospitals in Dar es Salaam: Amana Regional Referral Hospital (Ilala District). Mwananyamala Regional Referral Hospital (Kinondoni District). Temeke Regional Referral Hospital (Temeke District). These hospitals serve diverse patient populations and offer an ideal setting to investigate language use and communication strategies in healthcare interactions. To enhance demographic representation and transparency, the following participant details were considered during selection:

a. Age range: Participants ranged from 25 to 68 years old.
b. Gender distribution: Among the participants, 45 were male (15 doctors, 13 nurses, 17 patients) and 45 were female (15 doctors, 17 nurses, 13 patients).
c. Educational and linguistic backgrounds varied, especially among patients, ranging from primary education to tertiary levels, with a mix of Swahili and regional dialect speakers.

Target Population and Sampling

The target population includes medical doctors, nurses, and patients engaged in consultations. The study used purposive sampling to select participants who are involved in verbal medical communication on a daily basis (Yadav, 2024). 30 doctors, 30 nurses and 30 patients were sampled across the three hospitals. Maximum variation sampling was applied to capture differences in linguistic background, age, education level, and department (e.g., outpatient, emergency, maternity).

Data Collection Methods

Data were collected over a three-month period from August to October 2024, using the following methods:

a. Non-Participant Observations: Conducted in consultation rooms to observe real-time doctor-patient interactions. An observation checklist guided the process, focusing on language use, code-switching, clarification strategies, and non-verbal cues. With prior consent, interactions were audio-recorded and later transcribed for analysis (deMarrais, 2024).
b. Semi-Structured Interviews: In-depth interviews were conducted with a selected subset of doctors and patients after the observations. Interview guides were used to explore perceptions of communication effectiveness, language preferences, and cultural interpretations of messages (Leavy, 2020). A sample interview guide is included in Appendix A.
c. Document Review: Hospital signage, patient education materials, consent forms, and prescription instructions were analyzed to understand the language used in written communication (Denzin and Lincoln, 2018).

Data Analysis Using NVivo 12

Qualitative data including interview transcripts, observation notes, and hospital document were imported into NVivo 12 software for systematic coding and thematic analysis (QSR International, 2028). The following procedures were followed:

a. Transcription and Preparation: All audio recordings were transcribed verbatim. Swahili transcripts were translated into English where necessary, while retaining code-switches and linguistic nuances relevant for analysis.
b. Data Coding: Open coding was used to identify patterns and categories such as “language choice,” “clarification strategies,” “cultural barriers,” “patient confusion,” and “non-verbal support.”
c. Thematic Analysis: Codes were grouped into themes aligned with the study objectives. Communication Accommodation Theory (CAT) informed the interpretation of convergence, divergence, and maintenance behaviours during consultations.
d. Matrix Queries and Models: NVivo’s matrix coding and visualization tools were used to compare patterns across hospitals, departments, and participant categories (e.g., doctor vs. patient), supporting cross-case and thematic analysis.

Ethical Considerations

This study received ethical clearance from the National Institute for Medical Research (NIMR), Tanzania. All participants provided written informed consent before data collection. The participants were ensured of their anonymity, confidentiality, and voluntariness of their participation. All audio recordings and transcripts were kept in password-protected files in a secure data base and used only for academic and research purposes.

Trustworthiness of the Study

Credibility was established through member checking; participants confirm the accuracy of the transcripts. This was achieved through triangulation of data collected from observations, interviews and document review. Audit trail on NVivo increases dependability and thick description of context and participants increased transferability.

RESULTS AND DISCUSSION

In this section, key findings of the study are presented in relation to the five research objectives. Data were analyzed using NVivo 12 software, which assisted with systematic coding, theme organization, pattern exploration, and extracting meaningful insights. NVivo supported the node creation, matrix queries, visual model and enabled the researcher to handle high-volume qualitative data (i.e., interview transcripts, observational notes and document reviews). The integration of empirical results with prior research and theoretical frameworks (e.g., Communication Accommodation Theory [CAT]) is provided in the discussion.

Examining the Types of Language(s) Used in Doctor-Patient Interactions

The analysis using NVivo 12 software indicates that Swahili is the most widely utilized language to communicate during doctor-patient consultations at the three public hospitals (e.g., Amana, Mwananyamala, and Temeke). There is a notable tendency to code-switch between Swahili and English, especially in contexts where technical or biomedical terms are explained. NVivo's matrix query comparison reveals that English phrases embedded in Swahili speech during consultations are coded within 67% of the transcribed consultations, consistent across an array of conversations on diagnoses, test procedures and prescriptions. For example, in one Amana Hospital consultation, a doctor told the patient: *Tutafanya X-ray ili tuone kama kuna fracture kwenye femur yako* "We will do an X-ray to check if there's a fracture in your femur". In this example, the doctor uses English words X-ray, "*fracture*", and "*femur*", bucked into the structure of Swahili. An aspect of prevailing linguistic practice in Tanzanian healthcare discourse that Swahili serves as its expressive base, while English introduces technicality.

This pattern validates Mchome et al. (2022) findings that code-switching in Tanzanian hospitals is both habitual and functional. It helps to keep the healthcare worker professionally credible while trying to keep some level of clarity for the patient. Additionally, the findings are consistent with Communication Accommodation Theory (Giles, 1973), which holds that speakers adapt their linguistic behaviour (via convergence or divergence) as a means of regulating social relationships. Doctors often move linguistically in this space by reformulating their words in Swahili based on the patient's level of English proficiency but diverge here and there to come across as the clinical authority doctor by throwing in the whip of the English language.

This pattern is reinforced by multiple examples across hospitals: At Mwananyamala Hospital, a nurse says to a patient: *Ngoja tukupime BP na sugar level kwanza kabla ya kumuona daktari* "Let's first check your blood pressure (BP) and sugar level before you see the doctor". Here, "*BP*" (blood pressure) and "sugar level" are terms of English-origin that are used in everyday discourse, which implies that even semi-technical vocabulary has been normalized in mixed varieties. Likewise, in a consultation at Temeke Hospital a pediatrician told a mother that: *Mtoto ana signs za pneumonia*. *Treat pneumonia antibiotics immediately* "The child has symptoms of pneumonia. Let's start antibiotics right away" In this, "*signs*" and "*antibiotics*" were used without alteration within an otherwise Swahili explanation, signalling once more the communicative negotiation between professionalism and accessibility.

Although code-switching is the overall trend, the extent of English use differed across hospitals. NVivo's comparison by classification indicates that: Amana Hospital has the highest frequency of English insertions, with surgical and outpatient departments accounting for the most. That can be attributed to the hospital's more frequent patient turnover and specialized services, which require exacting communication. This is evident to a moderate extent at Mwananyamala Hospital where usage often relied on clinician's background and patient's education.

At Temeke Hospital the languages used are Swahili more often seen in the maternity and general outpatient departments. Here, physicians show more effort to simplify medical explanations and to use culturally resonant language. This sort of variation reflects unconscious linguistic accommodation by doctors corresponding to the perceived characteristics of patients such as their age, education and familiarity with clinical language. Patients tend to be more satisfied when the language spoken by the medical professionals closely reflects their daily language practices (Mlay and Lugalla, 2021). For example, a patient from Temeke explained: *Daktari alizungumza Kiswahili tu. Hata alieleza kuhusu dawa za presha kwa njia rahisi. Niliweza kuelewa kila kitu* "The doctor spoke only in Swahili. He even explained about the blood pressure medicine in a simple way. I was able to understand everything".

Similarly, a 65-year-old female patient from a rural part of Mkuranga, attending Temeke Hospital, said: *Daktari alitumia Kiswahili tu. Aliniambia presha ni kama mzigo mzito mwilini. Nikaelewa vizuri.* "The doctor used only Swahili. He told me high blood pressure is like a heavy load in the body. I understood clearly." These quotes illustrate how the use of plain Swahili contributed to clarity and patient empowerment. Conversely, patients exposed to unexplained English medical terms expressed confusion and helplessness. For instance, during a consultation at Amana, a patient later reported: *Aliniambia nina gastritis. Sikuwa na uhakika hiyo ni nini mpaka nikauliza jirani yangu nyumbani* "He told me I had gastritis. I wasn't sure what that meant until I asked my neighbour at home". Also, a younger male patient from Kinondoni, seen at Mwananyamala, commented: *Alisema nina condition ya 'ischemia.*

Nilijisikia kama si sehemu ya mazungumzo. "He said I had a condition called ischemia. I felt like I wasn't part of the conversation".

These findings reinforce the argument that while code-switching is a communicative asset, its effectiveness depends on how and when it is applied. When used appropriately with translation or simplification it enhances understanding. However, excessive or uncontextualized use of English can hinder communication and increase patients' anxiety or misinterpretation.

Therefore, the types of language used in doctor-patient interactions reflect a strategic blend of Swahili and English, shaped by institutional culture, patient background, and professional norms. The use of Swahili as the default language aligns with Tanzania's national linguistic identity, while the occasional insertion of English terms indicates the influence of medical education and the globalized nature of clinical language. The variation across hospitals highlights the need for context-sensitive language training for healthcare providers, ensuring both accuracy and inclusivity in patient communication.

Identifying Communication Strategies Used to Overcome Language Barriers

Using NVivo 12 for analysis, the findings highlight five main communication strategies used by doctors and nurses to navigate language-related issues during hospital consultations. These strategies are consistently identified across data sources (interviews, observations, and document reviews) and coded across nodes, for co-occurrence, and matrix queries in NVivo to validate their significance. Dominant strategies are: code-switching, simplification of medical terminology, use of analogies and metaphors, non-verbal cues (gestures, illustrations), and third-party interpretation (by nurses or relatives).

Table 2. *Frequency of CAT Strategies Across Hospitals (Based on NVivo 12 Query Analysis)*

CAT Strategy	Amana Hospital	Mwananyamala Hospital	Temeke Hospital	Total Mentions
Convergence	11	14	18	**43**
Divergence	17	12	9	**38**
Maintenance	13	10	6	**29**

a. Code-switching as a Strategic Bridge

Across the three hospitals code-switching between Swahili and English is the most common communication strategy. Medical personnel frequently switch between Swahili (the preferred language of the patient) and English (the language of medical training) and back, based on perceived understanding of the patient. At Amana Hospital, for example, a doctor explained: For example, at Amana Hospital, a doctor explained: Tutakufanyia ultrasound ili tuangalie kama kuna obstruction kwenye fallopian tubes zako. Baadaye tutaeleza matokeo vizuri "We will do an ultrasound to check if there's an obstruction in your fallopian tubes. We will explain the results clearly afterwards". Here, the terms "ultrasound," "obstruction," and "fallopian tubes" are inserted into a Swahili sentence, after which the doctor reassured the patient that further explanation would follow. Such blending illustrates an attempt to maintain clinical precision and establish a communicative rapport, a pivotal element in Communication Accommodation Theory (Giles, 1973). Nyoni and Marealle (2023) observe similar code-switching at rural clinics where health workers greeted clients and engaged in complex explanations in English for clarity and returned to Swahili to ensure understanding and comfort.

b. Simplification of Medical Terms

The second most predominant strategy is simplification as evidenced by high frequency counts of nodes in NVivo 12. Doctors often substitute elaborate medical language with lay equivalents or localisms. They don't say "hypertension," they say: Presha yako iko juu. Inabidi udhibiti kwa kutumia dawa na mlo bora "Your blood pressure is high. You need to control it using medication and a proper diet". Similarly, instead of using "diabetes mellitus," a nurse at Temeke Hospital told a patient: Huu ni ugonjwa wa sukari. Damu yako ina sukari nyingi kuliko kawaida "This is diabetes. Your blood has more sugar than normal. Your blood is sweeter than usual". That kind of simplification led to better understanding, particularly among old patients

and those with low levels of formal education. This strategy is supportive of Silverman et al. (2016), who point out that patients have a better understanding of information when it is presented in familiar and straightforward language.

c. Use of Analogies and Metaphors

There are many analogies and metaphors used to make sense of complex biomedical processes. When the researcher talks to a doctor at Mwananyamala Hospital about high blood pressure he used the analogy of plumbing: Presha yako iko juu kama bomba lililoziba. Damu haipitikani vizuri "Your blood pressure is high like a blocked pipe. The blood is not flowing properly". This analogy helped the patient visualize how blood pressure affects circulation, triggering an aha moment during observation. In another case at Temeke, a pediatrician described infection in a child as: Ni kama moto mdogo unaowaka mwilini. Dawa hii itazima ule moto "It's like a small fire burning inside the body. This medicine will put out that fire". Such metaphors are based on cultural schemas and everyday experiences, which help with retention and so reduce anxiety. Deriving its usage from culture, familiar phrasing of language helps to enhance understanding in patients less acquainted with medical dialogue structure as argued by Nyoni and Marealle (2023).

d. Non-Verbal Communication

Coding with NVivo 12 under the node "non-verbal strategies" shows extensive use of gestures, drawings, and miming. Healthcare workers indicate body parts, use facial expressions and mimicked symptoms to supplement verbal explanations. A telling example is at Amana Hospital, where a doctor mimicked a coughing action and pointed to the chest as they explained pneumonia to an elderly patient: Unaona nikikohoa hivi, inaonyesha mapafu yameathirika. Dawa hii itasaidia "You see when I cough like this, it shows the lungs are affected. This medicine will help". Non-verbal reinforcement like this is particularly useful with patients who are reluctant, bashful, or unable to put their questions into words. Non-verbal cues also serve as universal communicators, amending differences in both dialectics or literacy. Silverman et al. (2016) emphasize that it is essential for verbal and non-verbal communication to be in congruence, especially in clinical environments where gestures can hold equal or greater interpretive significance.

e. Third-Party Interpretation

In some instances, especially those involving geriatric patients or patients coming from our linguistically marginalized communities, nurses or relatives often help as interpreters. This is the most common in Temeke Hospital, where family members accompanied patients during consultations and sometimes translate medical explanations. For example, in a consultation with an elderly woman who spoke only a regional dialect, the woman's daughter explained to her: Mama, daktari anasema presha yako iko juu. Anakupa dawa ya kunywa kila siku "Mama, the doctor says your blood pressure is high. He is giving you medicine to take daily". Although this strategy is a temporary way to relieve the pressure, NVivo-coded reflections of doctors and nurses show concerns about accuracy, confidentiality, and ethical boundaries. Silverman et al. (2016) and WHO (2021) warning that the use of untrained interpreters can lead to loss of clinical meaning and decreased patient willingness to disclose sensitive information.

Hence, NVivo 12 comes in handy helping us to categorize these strategies into themes, visualize their frequency, and map their relationships with departments in the hospital and patient demographics. These findings highlight the fact that Tanzanian health providers not only possess clinical skills but are also linguistically innovative and culturally flexible in seeking to overcome language constraints. But while these strategies are commendable, they are tentative and inconsistent. This underscores the need for institutional support such as language policy, Swahili medical training, and structured communication protocols in urban, multilingual contexts such as Dar es Salaam.

Analyzing the Impact of Language Choice and Communication Style on Patient Understanding and Satisfaction

Despite basic information on this subject, the findings of this work show how the language and communication used by the health professional generates a real impact on the understanding, satisfaction, and involvement of patients in their medical consultations. The sentiment analysis tools of NVivo 12 allows patient responses to be coded as positive, neutral, or negative sentiments derived from patients' linguistic and interpersonal experiences as reported during interviews and observations. Thematic coding and sentiment mapping reveal a bold correlation between positive sentiments and use of clear Swahili, slow-paced speech, simplified explanations, and checks for understanding. Conversely, negative feelings are associated with feel rushed during consultations, the overuse of untranslated English medical jargon, and limited patient involvement.

a. Positive Sentiment: Clarity, Simplicity, and Empathy

Patients from the three hospitals reported that they feel more understand and comfortable when doctors primarily speak Swahili, refrain from unnecessary technical jargon, and convey warmth and empathy. Another one who visited Temeke Hospital said: Daktari alieleza vizuri kwa Kiswahili. Sasa najua dawa ya sukari ni ya maisha yote. "The doctor explained well in Swahili. Now I know that diabetes medication is lifelong". Again, a 38-year-old woman from Tandika, treated at Temeke Hospital's maternity unit, stated: Alinieleza kwa upole, alihakikisha nimeelewa kabla hajanipa dawa. Hilo lilinipa amani. "He explained gently, and made sure I understood before giving me the medicine. That gave me peace". These quotes reflect how linguistic simplicity and emotional resonance enhance understanding and empower patients. Hence, two main factors contribute to increased understanding and trust of individuals, leading to the empowerment of patients. NVivo code for cross coding nodes shows that this is prevalent in the outpatient department, where the Primary Health Care (PHC) doctors have more time to talk, and where the patients are older or less educated. This finding is in agreement with Mganga and Mtenzi (2023) that affirm linguistic familiarity as one of the determinants of patients' satisfaction and trust.

b. Negative Sentiment: Jargon and Language Distance

Patients describing language struggles, particularly when English idioms went literal, often used words of confusion and powerlessness. A 65-year-old patient at Mwananyamala Hospital shared: Alisema nina ulcer ya duodenum. Sijui maana yake. Nilimuuliza nesi baadae. "He said I had a duodenal ulcer. I didn't know what that meant. I had to ask the nurse later". Such scenarios are symptomatic of a wider problem of a failure to meet the patient's language needs, which results in failure of understanding. A cross-tab query of patients aged 45 and above in NVivo exposes the fact that complex or foreign terminology seems to have the biggest impact on patients across all three hospitals. Theoretically, these findings reflect Communication Accommodation Theory (Giles, 1973). The convergence strategy is observed when doctors adapted their language to match the patient's linguistic background, leading to enhanced satisfaction. For example, at Amana, a nurse told a diabetic patient: Sukari inapanda kwa sababu ya vyakula vyenye wanga mwingi kama wali na viazi. Tutakupa mpango wa mlo "Your blood sugar rises due to starchy foods like rice and potatoes. We'll give you a meal plan". This explanation connects clinical and cultural knowledge, generating mutual understanding. This is fully in accordance with Silverman et al. (2016) who emphasize that patient-centered communication leads to increased adherence and trust.

However, intentional or otherwise divergence is noted among some specialists who continue to use medical English at times in emphasising or asserting professional identity. During observation, for instance, at Mwananyamala, a doctor told the patient: "Your ECG shows ischemia in the left ventricle. You'll need to start on a beta-blocker". The patient nodded but later admitted confusion Sikuweza kuelewa, ila niliona bora nisimuulize sana daktari "I didn't understand, but I felt it was better not to ask the doctor too many questions". This interaction represents patient passivity, stemming from linguistic intimidation and perceived power distance in the most contexts. According to WHO (2021), such patients can adhere to treatment, but can do so without full understanding of their own health condition or the reasons for the medical decisions made.

c. The Role of Communication Style

In addition to language choice, delivery style tone of voice, eye contact, body language, and turn-taking influence patient satisfaction. In NVivo-coded interviews, patients characterize comforting styles as warm, respectful and inclusive. For instance, a patient at Temeke said: Daktari alizungumza taratibu, akaniuliza

mara kwa mara kama nimeelewa. Hiyo ilinisaidia sana "The doctor spoke slowly and kept asking if I understood. That really helped me". Conversely, rushed or unidirectional consultations with doctors who dominate conversation, leady to dissatisfaction. Patients are reluctant to ask questions, fearing that they can look ignorant or disrupt the flow of the consultation.

Consequently, the analysis shows that language choice and communication style are not technical decisions. They are relational acts that directly impact patient understanding, empowerment, and satisfaction. NVivo 12 allows such nuanced insights to the centre through the ability to integrate sentiment scores with language behaviours, age and education levels, despite consultation contexts. These findings converge with prior studies (Ferguson and Candib, 2002; Mganga and Mtenzi, 2023; Silverman et al., 2016) and emphasize a call for much-needed training programs focusing on patient-centered communication. Physicians need to be clinically capable, but also linguistically and emotionally savvy to treat a diverse patient population. This takes intentional work to articulate ideas simply, creating safe spaces for curiosity, and prioritize conversation over monologue health care interactions.

Investigating How Cultural and Linguistic Diversity Affects the Effectiveness of Medical Consultations

NVivo 12 software has been used for data exposure through "*cultural sensitivity*" node with classification queries show that linguistic and cultural diversity influences doctor-patient interaction quality and effectiveness. In particular, the study finds patients from rural backgrounds, non-Swahili-speaking ethnic groups or lower literacy levels miss necessary information, misunderstanding or sought patient disengagement during the consultations. Such difficulties are often precipitated by the use of unfamiliar metaphors, biomedical jargon, or culturally incongruent communication styles.

a. Cultural Mismatches and Misunderstandings

In 23% of coded cases, patients misunderstand medical explanations due to cultural or linguistic disconnects. For example, a female patient at Amana Hospital recalled: Daktari alisema kuna uvimbe benign. Nilifikiri ni kitu kibaya kwa sababu hakusema kwa Kiswahili

"The doctor said I had a benign tumor. I thought it was something dangerous because it wasn't explained in Swahili". This is indicative of the extent to which biomedical terminology, though technically correct or accurate, lead to fear or confusion when not discussed in culturally grounded language. The use of foreign or abstract words in emotionally charged situations such as cancer diagnoses, surgery, or chronic illness often led patients to withdraw, nod silently, or seek clarification elsewhere (e.g., nurses or relatives). Similar findings were echoed by a nurse at Temeke, who stated: Some elderly patients don't respond because they think they're being judged or talked down to if the doctor uses too much English. This implication means that power asymmetries, already magnified by linguistic distance, keep older or less educated patients passive even in moments of incomprehension just to escape embarrassment or confrontation.

b. Ethnolinguistic Differences and Sociolinguistic Competence

Patients from ethnic communities like Zaramo, Makonde and Ndengereko particularly those whose first language is not Swahili have an added disadvantage. In these instances, doctors' irreducible use of metaphors or broaches of culturally ambiguous expressions sometimes run counter to patient interpretive frameworks. For instance, a metaphor like mapafu yako yanaonekana kama yamejaa moshi "your lungs look like they are filled with smoke" might have differing meanings in rural vs. urban settings. In these situations, native Swahili-speaking doctors or those who got more of their upbringing in the countryside are better communicators, often checking for understanding or using well-known idioms and proverbs that resonated with patients. For example, one doctor at Mwananyamala was heard saying: Afya ni mtaji. Hii dawa usiache, hata ukijisikia vizuri. "Health is wealth. Don't stop this medicine, even if you start to feel better".

These cultural references increase patient engagement, because they are framed in social values familiar to patients. NVivo's classification query reports that more positive feedback is provided by patients treated by linguistically and culturally aligned doctors who speak idiomatic Swahili, allowing time for questions, and engaging them with tone and tempo appropriately. The above findings support with those found by Mkony et al. (2020), who argue that sociolinguistic competence the ability to appropriately use language based on context, culture, and audience is key to effective medical communication. Moreover, they are not only consistent with predictions of Communication Accommodation Theory (Giles, 1973), but also with its

principle of context-sensitive convergence, whereby physicians alter their style of communication to be commensurate with the linguistic and cultural orientation of the patient.

c. Accommodation versus Misalignment

When doctors fail to accommodate cultural expectations such as not greeting the patient respectfully, failing to ask about family background, or rushing through explanations patients often reported lower satisfaction and limited understanding. In one observation at Amana Hospital, a doctor directly opened the consultation by stating: Una malaria kali. Tutakupa quinine IV. The patient, a 70-year-old man from a rural village, remained silent. Later, during an interview, he said: Nilikubali tu kwa sababu ni daktari, lakini sikujua maana ya hizo dawa. "I just agreed because he's the doctor, but I didn't know what those medicines meant". Such cases illustrate a missed opportunity for engagement and clarification, and demonstrate how cultural and linguistic misalignment reduce communication to one-way directives, undermining shared decision-making and informed consent.

Consequently, this study realizes that the success of medical consultations in Tanzanian public hospitals is influenced heavily by cultural and linguistic diversity. The patients' linguistic background, cultural identity, health literacy interplay with the health care providers' communication styles to either facilitate or act as a barrier to mutual understanding. NVivo 12 allows the researcher to map such dynamics through thematic nodes, case classifications, and cross-comparative queries, offering insight into accommodative practices and risks of miscommunication. The appreciation for cultural nuances in communication included: Use of culturally relevant metaphors, active listening and interpretation checks, and the need for recognition of linguistic diversity beyond Swahili. It is important that these practices are implemented and understood in order to build trust, improve understanding and create health delivery that is not only medically safe, but also culturally safe and linguistically sound.

Recommending Strategies for Improving Language Use in Healthcare Communication

It is therefore necessary for this study to investigate practical, patient-centered, straight to the engrained attitude of health professionals-engagement strategies that can possibly reduce language induced miscommunication during medical consultation. Through the use of NVivo 12 software, findings have emerged from the node named "*Recommendations*," which is derived from coded information in interviews and observations of both healthcare providers as well as patients. Also, the word frequency query shows repeated words like "*simplify*," "*translate*," "*understand*," "*respect*," "*clarify*," and "*communicate*," which mirror the overarching themes of linguistic clarity, empathy and patient inclusion.

a. Swahili Communication Training for Healthcare Workers

One of the most common recommendations has been to train physicians and nurses to communicate in Swahili, particularly the use of everyday Swahili terms to describe clinical concepts. Both patients and junior clinicians worry that too many health professionals overuse English medical terms, which often confuse patients. A patient at Temeke Hospital noted: Ningependa madaktari wafundishwe jinsi ya kueleza magonjwa kwa Kiswahili cha kawaida. Watu wa kijijini hawaelewi maneno ya Kiingereza "I would like doctors to be trained on how to explain illnesses using everyday Swahili. People from rural areas do not understand English words". This aligns with the work of Mchome et al. (2022), which calls for structured language support systems in healthcare training programmes. It also reflects that illustrates the Communication Accommodation Theory's convergence principle, which is the idea that speakers modulate their style of communication to align with those in the audience.

b. Standardization of Medical Terminology in Swahili

Participants recommend that key medical terms to be standardized and formally adopted in Swahili (e.g., shinikizo la damu "blood pressure"; sukari "diabetes"; uvimbe usio hatari "benign tumor"). Today, most clinicians generate their own interpretations while on the consults, which results in inconsistencies between clinicians, patient confusion, and miscommunication between hospitals. One doctor at Mwananyamala explained: Kuna maneno mengi ya kitabibu hatuna tafsiri rasmi. Tunabuni tu kwa hali ya mgonjwa. Hili linaweza leta tofauti za uelewa "Many medical terms don't have official translations. We often improvise based on the situation, which may lead to different understandings". The doctor further says "there is no official translation for many medical parameters. Since we often improvise with whatever situation we are in, maybe

we end up having different understandings". This is in line with the recommendation of the WHO (2021) to create language-sensitive health policies and resources to ensure consistency across health facilities.

c. Development of Bilingual Materials

From raw data to NVivo coding, there is a clear emphasis on the need for bilingual (Swahili-English) materials for: Prescription instructions, Consent forms, Health education pamphlets, and post-treatment care guidelines. This is important to improving patient autonomy and compliance particularly for patients who need to revisit written instructions after the completion of their medical appointment. A nurse at Amana Hospital mentioned: Tunaandika presha 160/100 na jina la dawa, lakini mgonjwa haelewi maana yake. Tukiwa na kijitabu au karatasi kwa Kiswahili, itasaidia sana "We write 160/100 and the drug name, but the patient doesn't understand. If we had leaflets in Swahili, it would help a lot". This recommendation is consistent with Silverman et al. (2016), pointing out that the mode of communication must be aligned with the literacy and language background of the patient population.

d. Integration of Communication Skills in Medical and Nursing Education

Doctors and nurses also suggest that training in communication skills should be institutionalized as an essential core part of education in their fields. This includes modules emphasizing: Empathy, Listening, paraphrasing to check for understanding, and breaking down and repeating explanations when required. A medical intern from Mwananyamala remarked: Tulijifunza sayansi ya magonjwa, lakini hatukufundishwa namna ya kuwasiliana na mgonjwa wa kawaida. Huo ni upungufu mkubwa "We were taught the science of disease, but not how to talk to the average patient. That's a serious gap". Such a concern is indicative of WHO's (2021) as well as Mganga and Mtenzi's (2023) assertion that any reform to health education must be holistic; rather than merely biomedical healthcare education, there needs to pay attention on communication and sociolinguistic competence.

e. Emphasizing Respect and Cultural Sensitivity

However, aside from making language less complex, participants consistently emphasize highlighting language, tone, and mannerisms that lean towards respectful. Numerous patients highlight that when being spoken to with humility, clarity and patience, their confidence, trust, and willingness to follow medical advice is improved. A patient at Mwananyamala eloquently summarized this sentiment: Daktari mzuri si tu anayejua dawa, bali anayejua kuzungumza na mgonjwa. "A good doctor is not just someone who knows medicine, but one who knows how to talk to a patient". This points to the deeper relational aspect of communication in healthcare, one that stands at the core of patient-centered care and is grounded in the social approval motivations of CAT that see accommodation as promoting relational harmony and minimizing constructive social distance.

Thus, the study reflects an ongoing need for improved, more inclusive, and culturally grounded communication practices among patient and healthcare provider populations. Using NVivo 12 software, recommendations are systematically extracted and validated via sentiment and frequency queries, and organized into actionable strategies. Here are some of these include: Swahili communication training, setting standards of medical terms, production of bilingual materials, reforming medical education with communication modules, emphasizing respect, clarity, and cultural sensitivity. These recommendations align with the global health communication agenda from WHO (2021) and are vital to enhancing health outcomes, facilitating patient engagement, and ensuring equitable access to care in Tanzania's linguistically and culturally diverse population.

CONCLUSION

The application of NVivo 12 software in this study enabled a systematic and rigorous analysis of qualitative data collected from doctor-patient interactions, interviews, and observations across three public hospitals in Dar es Salaam. Through coding and categorization of emerging themes related to language use, communication strategies, and cultural sensitivity, the software provided a solid foundation for identifying meaningful patterns in healthcare communication.

The findings unequivocally demonstrate that language choice, communication style, and cultural competence significantly influence patient understanding, satisfaction, and engagement. While Swahili is the dominant and

preferred language for consultations, the frequent use of code-switching particularly involving unexplained English medical terms often presents challenges to comprehension. This issue is especially pronounced among elderly, rural, or less-educated patients. However, when code-switching is accompanied by simplification, analogies, and non-verbal reinforcement, it can enhance precision and understanding.

The study also underscores that effective communication in healthcare is not solely a linguistic matter, but a deeply cultural process. Use of culturally grounded expressions, a respectful tone, appropriate pacing, and inclusive interaction styles contribute significantly to trust-building and mutual understanding between healthcare providers and patients. These findings support the Communication Accommodation Theory (CAT) and affirm its relevance in multilingual, multicultural medical settings like Tanzania.

More broadly, this research contributes to ongoing discourse on linguistic justice and health equity, offering concrete evidence for the urgent need to reform healthcare training, develop linguistically inclusive resources, and implement language-sensitive policies. Communication in healthcare must extend beyond technical accuracy to embrace linguistic and cultural responsiveness ensuring that all patients, regardless of background, receive information that is understandable, respectful, and empowering. Future research could explore the effectiveness of Swahili medical communication training on patient outcomes across both rural and urban healthcare settings, as well as assess the long-term impact of bilingual communication materials and culturally tailored consultation protocols.

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