






Awareness and usability of community and facility-based health sector client feedback mechanism in Tanzania public health system. A mixed methods study

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ABSTRACT

Background: Client feedback systems are increasingly becoming important in person-centered health care. The systems provide opportunities to the public to interact with the health care providers and policymakers, present their concerns related to the performance of the health care system in order to improve the quality, equity, and responsiveness in the provision of services, hence increase social accountability. This study aimed to assess the situation of client feedback systems in Tanzania, focusing on the awareness and usability of existing facility- and community-based feedback platforms from the client's perspective.

Methods: The study employed a concurrent mixed-method design using both quantitative and qualitative methods. Quantitatively, surveys were administered in July 2023 to 1009 clients who received either inpatient or outpatient services from 109 health care facilities in 20 councils across 10 regions of Tanzania mainland to gather structured data on satisfaction levels, perceptions of feedback mechanisms, and suggestions for improvement. Qualitative data were collected through Focus group Discussion (FGD) to get in-depth healthcare workers and or clients' perspectives and experiences. These methods provided nuanced information, contextual insights, and a deeper understanding of the client feedback process. Combining these approaches yielded a comprehensive, multi-dimensional view of the client feedback mechanism landscape. We used Generalized Linear Mixed Model and thematic analysis for quantitative and qualitative data respectively.

Results: Our findings revealed that, the majority of the clients were aware of their right to provide feedback (79.78 %), and in particular familiar with the suggestion box (82.95 %) followed by phone calls (34.49), nevertheless most of them never provided feedback (67.3 %). Phone calls (83.75) and SMS (44.10 %) were the most preferred platforms to provide feedback. Comparatively, clients attending higher level health facilities, clients who visited facilities 4–5 times or more, those who received services for 45–60 min or more and those who were aware of existence of client feedback system than their counterparts were significantly more likely to

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provide feedback. Moreover, in qualitative findings availability of real time feedback, authenticity, user-friendliness of the system, digitalization, clarity in referral pathway and information use to support decisions and quality improvement was important factors to enhance usability.

Conclusions: Improving the usability of client feedback system is essential to attain person-centered health care and advance universal health coverage. The majority of the clients attending health care facilities are aware of their right to provide feedback, nevertheless, most of them never provide feedback. Our study, have shed light on the need to invest on user friendly systems through co-creation and digitalization in order to improve client feedback systems in Tanzania. Moreover, the need to promote the use of available feedback systems and information generated to support decision making and quality improvement is critical for success.

Background

Client feedback systems are increasingly becoming important in person-centered health care (Wong et al., 2020). The systems provide opportunities to the public to interact with the health care providers and policymakers, and present their concerns related to the performance of the health care system to improve the quality, equity, and responsiveness in the provision of services, hence increasing social accountability. (Lodenstein et al., 2017). Providing feedback on the experience of patients and addressing the identified gaps will improve the performance of the health care system in meeting the needs of the clients. (Berger et al., 2020; Isangula et al. 2023; Nejatian et al., 2024). A robust quality improvement (QI) approach relies on effective client feedback systems, which facilitate the monitoring of healthcare delivery from the client's perspective (Gowda et al., 2020; Huque et al., 2021). These systems not only provide actionable insights into clients' satisfaction and perceptions of service quality but also promote person-centered health care which is essential to advance universal health coverage. (World Health Organization 2018a; World Health Organization 2018b; Tomaselli et al., 2020). Client feedback systems are aimed at ensuring that the voice of the clients is considered in improving the health care system (Huque et al., 2021; Mirzoev et al., 2021). The power asymmetry that exists in the client (patient)-doctor relationship can be balanced by empowering clients through the client feedback systems. Empowered clients can help in improving the quality of services as often clients can identify issues that the management is not aware of but are vital for improving their experiences with the services being provided (Bombard et al., 2018). Patient feedback is also considered integral to patient safety and in enhancing professional development (Baines et al., 2019).

Client centered services require the clients to have a voice in the healthcare system. The Institute of Medicine recognizes client (patient)-centered services as among the six domains of quality of care (Tzelepis et al., 2015). Response to feedback provided by the clients helps in improving the quality of services but also responsiveness to the services being provided (Mirzoev et al., 2021).

Globally, existing evidence attests to the existence of manual and digital feedback systems (Huque et al., 2021). While the former is commonly practiced in many countries, the latter is at an infant stage especially in the low- and middle-income countries (LMICs). Typically, client feedback has been provided via paper and pen through suggestion boxes, exit interviews or via hotlines. Literature shows mixed findings with regards to their feasibility and effectiveness; In some studies, digital tools have been shown to be effective in identifying gaps to improve service quality (Giles et al., 2017; Tendo-Bugondo et al., 2023). Important facilitators include organization support, positive belief from health care workers and co-creation during system development (Wong et al., 2020; Soresi et al., 2025). In other study in Tanzania (Isangula et al., 2023), suggestion boxes were reported ineffective in many facilities, with concerns about non-user friendliness and lack of responsiveness. Moreover, in Bangladesh (Huque et al., 2021) identified lack of documented processes and guidelines, awareness and inadequate integration of feedback systems as limited factors for successful implementation of client feedback systems. In Tanzania healthcare system, multiple client feedback systems have been initiated. The systems range

from manual to digital client feedback systems. Manual feedback systems through suggestion boxes are mostly used in all public health care facilities nationwide (Isangula et al., 2023). The management of suggestion boxes is usually by an independent person, apart from facility staff who oversees the facility. The boxes are periodically opened and feedback shared to the facility management for actions. Other manual feedback systems include complaint desks, Village/Mtaa assembly, health facilities meetings and the utilizations of Community Health Care Workers (CHWs) to share feedback from the community to the facilities. Recently the Afya Maoni and Mama na Mwana digital client feedback systems (UNICEF, 2022) have been deployed to improve client feedback on Reproductive and Child Health (RCH) services in dispensaries, health centers, district and regional referral hospitals. Mama na Mwana is envisioned to become in the future a holistic client feedback mechanism for health services in Tanzania mainland. Mama na Mwana is hosted by the Ministry of Health server and cover 17 regions to date. Clients register through sending the keyword "mama" or "maoni" to 15077 then the system generates questions to the client depending on the service selected for feedback. Responses are sent to an integration service in Government of Tanzania Health Operations Information Management System (GOTHOMIS), and the formatted data is sent through to District Health Information System (DHIS2) and integrated Monitoring and Evaluation System (iMES) where dashboards are generated for use at different levels of the health system. Other systems include phone calls or SMS. In order to guide systematically the implementation of feedback system nationwide, the country has developed a national guide for complaints, compliments, and suggestions management (CCSM) in 2018 (MoHCDGEC, 2018). Despite these achievements elsewhere in the low- and middle-income settings, there is scant information in understanding the comprehensive picture of the client feedback systems. The current study aims to assess the current situation of the client feedback systems in Tanzania; specifically, to understand awareness and usability of existing facility and community-based client feedback platform from the client perspective.

Methods

Study settings and design

This comprehensive study on client feedback mechanisms was carried out across 10 regions (Dodoma, Kigoma, Mwanza, Simiyu, Mbeya, Iringa, Morogoro, Tanga, Dar es Salaam and Lindi) encompassing 20 councils in Tanzania mainland. The selection of 9 regions was randomly while ensuring zonal representation as described in other studies in Tanzania (Kengia et al., 2023; Kagoma et al., 2024), while Dar es Salaam was chosen purposeful due to its uniqueness in terms of population density and diversity. By including regions from various geographical locations and demographic profiles, the study sought to obtain a nationally representative understanding of client feedback systems on a national scale. The regions covered in the study spanned rural, urban, and peri-urban areas and covered all facility levels including dispensaries, health centers, council hospitals, regional referral hospitals, and tertiary hospitals allowing for insights into the unique challenges and strengths faced in different contexts and levels of care. This approach

aims to provide a comprehensive overview that can inform the development of targeted strategies and interventions to improve client feedback mechanisms, while also contributing to a deeper understanding of these mechanisms across the country.

The study employed a concurrent mixed method design that involves collecting and analyzing both quantitative and qualitative data simultaneously, merge the data, and use the results to understand a research problem [Creswell and Clark \(2017\)](#). In the quantitative component of the study, surveys were administered to clients to gather structured data on satisfaction levels, perceptions of feedback mechanisms, and suggestions for improvement. Qualitative data were collected through Focus Group Discussion (FGD) to get in-depth clients' perspectives and experiences. These methods provided nuanced information, contextual insights, and a deeper understanding of the client feedback process. Combining these approaches yielded a comprehensive, multi-dimensional view of the client feedback systems in Tanzania.

Sampling and sample size

The study employed a multistage sampling approach. 10 geographically dispersed regions were selected out of 26 regions in 9 zones of mainland Tanzania in order to ensure regional representation. 9 regions were randomly selected from 8 zones of Tanzania. In 7 zones 1 region was taken per zone while in Lake zone 2 regions were selected due to the number of regions relative to other zones. Moreover, Dar es Salaam was chosen alone as a separate zone due to its population size and diversity. Within each selected region, councils were also chosen randomly to capture urban, peri-urban, and rural contexts. Finally, health facilities within these councils were stratified by level (dispensaries, health centers, council hospitals, regional referral hospitals, and tertiary hospitals), and a random sampling technique was used to select facilities from each level. This approach ensured representation across different levels of care and geographic contexts.

The calculated minimum sample size for quantitative data was 384 clients as has been obtained from Cochran formulae, by using Standard normal deviation of 1.96 corresponding to 95 % confidence interval (Z), Estimated proportion of for quality of health service (50 %) for maximum sample size (P), and Marginal error is 0.05 (e). In this study, although the calculated minimum sample size was 384, we collected data from 1009 participants to enhance the reliability and generalizability of the results. This decision is supported by the Law of Large Numbers, which ensures the sample means approximates the population mean as sample size increases, and by the need to reduce sampling error, improve precision, and enable subgroup analysis. Furthermore, a larger sample accounts for potential non-responses or unusable data while ensuring the findings remain robust and representative of the population. On the qualitative side, purposeful sampling was employed to gather clients' perspectives through focus group discussions (FGDs). The purposive sampling approach was implemented by recruiting clients who received either outpatient or inpatient services from selected public health facilities across urban and rural settings. Facilities were chosen based on their geographical diversity, volume of clients and operational implementation of client feedback mechanisms. The participants were selected to include those who were present during the day of FGD taking into consideration gender representation, leaders of the health facilities governing committees and community health workers. These qualitative insights complemented the quantitative findings, providing a comprehensive understanding of the client feedback systems in Tanzania.

Data collection and management

Survey design

A research team comprised with five experts with backgrounds in health services research developed the surveys questionnaires for the client and health facility staff based on literature on client's feedback

and their experience with Tanzania's health system. The survey questions for the clients addressed four areas: 1) awareness on client feedback system; 2) experience on using client feedback tools; 3) usability and acceptability of client feedback tools; and; 4) factors that hinder the utilization of client feedback tools (Additional File 1). Moreover, the survey questions for the health facility staff (Additional File 2) explore the following topics: 1) availability of feedback management approaches or systems; 2) feedback handling processes in the facility; 3) factors that hinder the utilization of client feedback approaches or systems; and 4) satisfaction and recommendations for improving. Responses were either binary (yes/no), selecting from a list, or a 5-point Likert scale. The survey was written in English and translated into Swahili. We pilot-tested the survey with healthcare workers and clients in Dodoma and revised any unclear questions.

Quantitative data collection

Surveys were conducted in person by independent, trained research assistants using a Swahili version of the survey on tablets with Open Data Kit software. Research assistants randomly selected clients who were accessing either outpatient or inpatient services, explained the study and invited their participation. We did not collect any identifiers, and no incentives were offered for completing the survey. Electronic data quality checks were conducted daily to ensure data quality and completeness.

Qualitative data collection

Interviews were conducted in English and Swahili by independent trained research assistants using a semi-structured interview guide. The interviews explored 1) knowledge on client feedback mechanisms in health facilities; 2) existing approaches of client feedback across health facilities; 3) challenges faced by clients in accessing and using the client feedback approaches; 4) accessibility of feedback platform; 5) client feedback approaches and problem solving towards quality improvement; 6) user friendliness of available client feedback mechanism and 7) cost associated with managing the client's feedback mechanism (Additional File 3). The interview protocol was developed in English and translated into Swahili. Interviews were approximately 30 min long and conducted in a private space. Interviews were audio recorded and transcribed verbatim. No participant declined to speak with us or ended the interview prematurely. Transcripts were reviewed for accuracy and uploaded to NVivo V.11 (QSR International, Melbourne, Australia) for coding.

To maintain data quality and integrity, a rigorous Data Quality Assurance (DQA) process was implemented throughout the study. The DQA involved regular checks and monitoring at various stages, including during data collection, data entry, and data analysis. Field Supervisors conducted regular data review in the data collection system, phone calls with sampled respondents and quality control assessments to ensure adherence to standardized protocols and procedures. Additionally, Research assistants underwent thorough training to enter the collected data accurately and efficiently into the ODK platform. Data cleaning and validation procedures were carried out to identify and address any inconsistencies or errors.

Data analysis

a) Variable and their measurements

The dependent of this study (Ever providing feedback) was captured by asking clients if they ever provide feedback at the facilities, those respondents who reported never provides feedback were coded zero (0) while those who reported to provide feedback at least once were coded one (1). Independent variables of this study include variables related to accessibility of client feedback systems. Other independent variables

were social demographic of clients such as age, gender, marital status, education level, type of facility client served, number of visits in last twelve months, time spent to reach at health facilities and time consumed to get services.

b) Quantitative data analysis

We employed fundamental descriptive statistics, including frequency and percentages, to describe both the sample and the clients' characteristics. Given that the outcome variable had two possible responses (0 =Never provided feedback, 1=Providing feedback). To identify factors associated with clients' likelihood of providing feedback, we fitted a Generalized Linear Mixed Model (GLMM) with a binary logistic link function. This model was appropriate given by binary nature of the outcome and the hierarchical structure of the data, where individual clients were nested within health facilities. The inclusion of random intercept for each facility accounted for potential clustering effects and unobserved facility-level heterogeneity. The general form of the logistic mixed model is given by:

$$\log\left(\frac{P(Y = 1)}{1 - P(Y = 1)}\right) = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k + \epsilon_j$$

Where $P(Y = 1)$ is the probability that a client ever provided feedback X_i are set of fixed-effect predictor variables, β_i are their corresponding coefficients and ϵ_j represents the random effect associated with the j^{th} facilities. The model results are reported as regression parameters and standard errors, which indicate the direction and strength of the relationship between each predictor and the likelihood of feedback provision. A positive estimate suggests higher likelihood, whereas a negative estimate indicates a lower likelihood of providing feedback relative to the reference category. All analysis was performed using SAS version 9.4, and statistical significance was assessed at the 5 % level.

Qualitative data analysis and procedures

We employed a thematic analysis approach to analyze the in-depth interviews (IDIs) and focus group discussions (FGDs). The collected data were transcribed, coded, and categorized into themes using an inductive approach to identify key patterns and insights on awareness and usability of community and facility-based health sector Client Feedback. The analysis focused on participants' self-reported awareness and experiences.

Ethical considerations

Our research protocol was approved by the National Health Research Ethics Review Sub-Committee in Tanzania with Ref. No: NIMR/HQ/R.8a/Vol.IX/4326]. Approval for field visits in regions and councils was requested and granted by the President's Office Regional Administration and Local Government, Regional Secretariat, and Local Government Authorities (PORALG). Prior to administering the survey or interview participants gave written and informed consent. Participants were informed that their involvement in the study was voluntary and could withdraw at any time for any reason and were provided with the opportunity to ask questions.

Results

1) Background information and participant characteristics

Table 1 provides information about the clients' who received outpatient or inpatient services demographics. Most clients, almost 68 %, were female. Their ages ranged from 18 to 80 years, with an average age of 34.13 ± 12.72 . Among them, 41.43 % were between 21 and 30 years old, 24.28 % were aged 31–40, and 12.69 % were between 42 and 50 years old. When it comes to education, a large proportion of clients in this study had a primary level of education, accounting for

Table 1

Social demographic characteristics of clients who received outpatient or inpatient services (n = 1009).

Variable	Frequency	Percent
Age		
≤ 20	94	9.32
21–30	418	41.43
31–40	245	24.28
41–50	128	12.69
51 +	124	12.29
Sex		
Male	323	32.01
Female	686	67.99
Current marital status		
Married	754	74.73
Single	255	25.27
Education level		
None	100	9.91
Primary	497	49.26
Secondary	298	29.53
Post-secondary	114	11.30
Type of Health Facility		
Dispensary	174	17.24
Health center	357	35.38
Council Hospital	246	24.38
Regional R hospital	176	17.44
Tertiary Hospital	56	5.55
Number of visits in last 12 months		
1	230	22.79
2–3	335	33.20
4–5	218	21.61
> 5	226	22.40
Time to reach the health facility in minutes		
≤ 15	289	28.64
16–30	361	35.78
31–45	70	6.94
45–60	158	15.66
61 +	131	12.98
Time to get services in minutes		
≤ 15	220	21.80
16–30	238	23.59
31–45	70	6.94
45–60	150	14.87
61 +	331	32.80

49.26 %. Following that, 29.53 % had secondary education, 11.30 % had post-secondary education, and 9.91 % had no formal education. With respect to the healthcare facilities, more than half of the respondents were from health centers (35.38 %) and council hospitals (24.38 %). Additionally, 17.44 % were selected from regional hospitals, 17.24 % from dispensaries, and 5.55 % from tertiary hospitals. Regarding the frequency of visits in the last twelve months, 22.79 % visited once, 33.20 % visited 2–3 times, 21.61 % visited 4–5 times, and 22.40 % visited more than five times. Most clients (about 28.64 %) took 15 min or less to reach the healthcare facility, while 12.98 % took more than an hour to arrive. Concerning the time spent waiting to receive services, 32.80 % of clients reported waiting for more than an hour to receive service (refer to Table).

Clients were assessed for their awareness regarding their right to provide feedback on the services they received at healthcare facilities. The results showed that most clients, 79.78 %, were aware of this right, while 20.22 % were not aware (see Table 1). In terms of familiarity with feedback systems, many clients, approximately 82.95 %, were familiar with the suggestion box, and 34.49 % were aware of the option to provide feedback via phone calls. Other well-known platforms included complaint desks (16.35 %), village meetings (15.06 %), social media (6.54 %), and the "Mama na Mwana" program (3.47 %). When it comes to the sources from which clients learned about client feedback mechanisms, a significant proportion, more than half (58.47 %), learned about them through notices displayed on facility noticeboards, while 31.32 % were informed by healthcare workers. Furthermore, in terms of their preferred methods for using digital client feedback platforms,

phone calls (83.75 %) and SMS (44.10 %) were the most favored means of communication (Table 1)Table 2.

The use of client feedback tools was assessed, and results are presented in Table 3. It was observed that a bit over half of the clients involved in this study 552(54.71 %) had complaints regarding the services provided in the health facilities. among them, 329 respondents provided feedback on the health facilities. More than half of the respondents (60.16 %) reported that clients do not provide feedback because they are not sure of the confidentiality of the information they provide, other complaints reported that,the client feedback process is complex, Clients are too busy to provide feedback, healthcare workers do not value client feedback, the feedback (especially for complaints) provided could be used against them and Clients are concerned that their feedback will not be taken seriously (see Table 3).

Among 1009 clients who were involved in this study 32.61 % of them reported that they ever provided feedback through the client feedback system existing in the facilities while most of them never provided feedback (Fig. 1)

Factors associated with the use of client feedback system platforms

As described in the methodology section, a Generalized Linear Mixed Model (GLMM) was employed to examine the factors associated with the use of client feedback systems, accounting for the facility as a random effect. The fixed effects of the independent variables are summarized in Table 4, while the parameter estimates are presented in Table 5. The analysis revealed that the use of client feedback platforms was significantly associated with several factors: the respondent's sex ($F_{(1846)}=4.31, P = 0.0381$), Education level ($F_{(3846)}=4.31, P = 0.014$), Number of visits in the last 12 months ($F_{(3846)}=4.31, P = 0.0278$), and the time taken to receive services in minutes ($F_{(4846)}=4.31,$

Table 2
Awareness of client feedback system.

Variable	Frequency	Percent
Being aware that clients are expected to provide feedback on services received at the health facility		
No	204	20.22
Yes	805	79.78
Client feedback systems clients know		
Mama na Mwana	35	3.47
Afya Maoni	9	0.89
Waja	7	0.69
Suggestion boxes	837	82.95
Complaint desks	165	16.35
Village/Mtaa meetings	152	15.06
SMS including WhatsApp messages	28	2.78
Phone calls	348	34.49
Health facility meetings	28	2.78
Social Media platforms e.g., Twitter, FB	66	6.54
Other	209	20.71
Learn about the client feedback tools /platforms		
From a health worker	316	31.32
From a client	146	14.47
Noticeboard at the facility	590	58.47
Social media	67	6.64
A colleague	17	1.68
Others	215	21.31
Ways preferred to use digital client feedback platforms		
Over the phone (phone call)	845	83.75
Through an SMS	445	44.10
Online via the Government website	124	12.29
Through a mobile app	151	14.97
Via email	118	11.69
Online via social media	197	19.52
Other	100	9.91
How accessible are different client feedback approaches or platforms		
Accessible	781	77.40
Not accessible	228	22.60

Table 3
The use of client feedback tools.

Variable	No n (%)	Yes n (%)
Have any complaints or compliments regarding the services provided in this health facility	457(45.29)	552(54.71)
Ever provided feedback for the services you received in a health facility	680(67.39)	329(32.61)
Clients do not provide feedback because they are not sure of the confidentiality of the information, they provide	402(39.84)	607(60.16)
Clients worry that the feedback (especially for complaints) provided could be used against them	405(40.14)	604(59.86)
Clients are concerned that their feedback will not be taken seriously	329(32.61)	680(67.39)
Clients are concerned that healthcare workers do not value client feedback	356(35.28)	653(64.72)
Many people lack awareness of client feedback systems	207(20.52)	802(79.48)
The client feedback process is complex	466(46.18)	543(53.82)
Clients are too busy to provide feedback	426(42.22)	583(57.78)

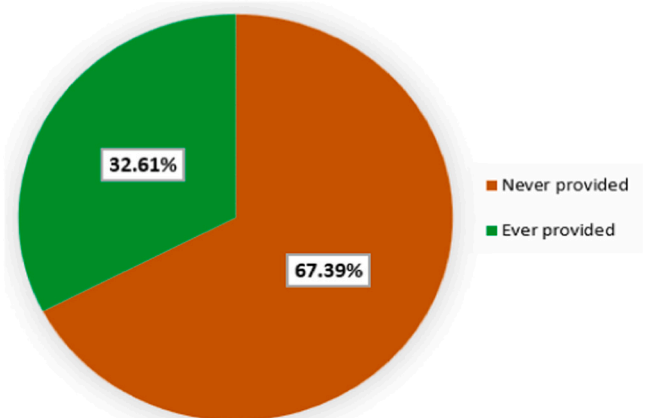


Fig. 1. The use of client feedback system.

Table 4
Type III Tests of Fixed Effects.

Effect	Num DF	Den DF	F Value	P-value
Age	4	846	1.08	0.3671
Sex	1	846	4.31	0.0381
Education	3	846	3.56	0.014
Facility	4	846	1.62	0.1662
Number of visits in the last 12 months	3	846	3.05	0.0278
Time to get services in minutes	4	846	5.35	0.0003
Clients doubt the seriousness of their feedback	1	846	1.53	0.2169
Client apprehension about healthcare workers not valuing their feedback	1	846	0.08	0.7793

$P = 0.0003$). The age of respondents was not associated with the use of client feedback systems (Table 4).

Table 5 presents parameter estimates, standard error, t and p values from the Generalized Linear Mixed Model which shows the magnitude and direction of factors associated with the use of client feedback system platforms. Regarding sex, male respondents were significantly more likely to provide feedback as compared to female ($\beta=0.321, p = 0.0381$). Compared to those clients who had no formal education, those respondents who had secondary and those who had post-secondary education level were significantly more likely to provide feedback ($\beta=0.5866, p = 0.0363$) and ($\beta=0.9318, p = 0.0043$) respectively. With respect to facility type, results showed that clients from health centers were significantly more likely to provide feedback as

Table 5
Parameter Estimates from the Generalized Linear Mixed Model for factors associated with the use of client feedback system platforms.

Effect	Estimate	S. Error	t Value	P-value
Intercept	-2.1615	0.4483	-4.82	<.0001
Age				
≤20	1			
21–30	0.04771	0.2661	0.18	0.8577
31–40	0.04497	0.2833	0.16	0.8739
41–50	0.1392	0.3186	0.44	0.6622
51+	0.4953	0.316	1.57	0.1175
Sex				
Male	0.321	0.1545	2.08	0.0381
Female	1			
Education level				
None	1			
Primary	0.3041	0.2607	1.17	0.2437
Secondary	0.5866	0.2798	2.1	0.0363
Post-secondary	0.9318	0.3254	2.86	0.0043
Type of Health Facility				
Dispensary	1			
Health center	0.5763	0.236	2.44	0.0148
Council Hospital	0.3782	0.2617	1.45	0.1487
Regional R hospital	0.3838	0.2865	1.34	0.1808
Tertiary Hospital	0.6467	0.2497	2.59	0.0129
Number of visits in last 12 months				
1	1			
2–3	0.1972	0.2015	0.98	0.328
4–5	0.4972	0.2182	2.28	0.023
> 5	0.5743	0.219	2.62	0.0089
Time waited to get services in minutes				
≤ 15				
16–30	-0.1809	0.2268	-0.8	0.4252
31–45	0.3538	0.3156	1.12	0.2625
45–60	0.7729	0.2391	3.23	0.0013
61 +	0.484	0.2084	2.32	0.0204
Clients doubt the seriousness of their feedback				
Yes	-0.2745	0.2221	-1.24	0.2169
No	1			
Client apprehension about healthcare workers not valuing their feedback				
Yes	-0.06038	0.2154	-0.28	0.7793
No	1			

compared to clients from dispensaries ($\beta=0.5763$, $p = 0.0148$), the same as in tertiary hospitals, clients from tertiary hospitals were significantly more likely to provide feedback as compared to those from dispensaries ($\beta=0.6467$, $p = 0.0129$). Regarding the number of visits in the last twelve months, those clients who visited facilities 4–5 times were significantly more likely to provide feedback on those facilities as compared to those who visited at once ($\beta = 0.4972$, $p = 0.023$), furthermore, clients who visited the facility more than five times were significantly more likely to provide feedback as compared to those who visited the facility at once ($\beta=0.5743$, $p = 0.0089$). About time to get services (the duration clients waited from the time of arrival at the facility to the time they were attended to by a provider) was revealed that clients who received services for 45–60 min (duration of the client-provider interaction or the procedure itself) were significantly more likely to provide feedback as compared to those who received services within 15 min ($\beta = 0.5743$, $p = 0.0089$), clients who waited for services for 45–60 min and those who waited for more than an hour were significantly more likely to provide feedback as compared to those who received services within 15 min ($\beta = 0.484$, $p = 0.0204$), and ($\beta = 0.484$, $p = 0.0204$) respectively (Table 5).

Qualitative findings

Three themes emerged after analysis of FGDs in relation to awareness

of the client feedback systems in the health system: the awareness that clients have to provide feedback on services provided in health facilities, the role of clients in the client feedback system, and types of client feedback systems that exist

Awareness that clients have to provide feedback on services provided in health facilities

The findings indicate a general lack of awareness and opportunities on the different options for the clients to provide feedback on the services they receive in health facilities. When compared between urban and rural settings, awareness of the provision of feedback was higher in urban settings where digitalized systems were also coming into the picture as simplified methods of client feedback mechanisms. A report from one FGD indicated that:

“There are challenges that if community members do not get the needed services, they report to village leaders and a follow up is made, but they could have provided feedback themselves instantly at the health facility and their issue could be addressed” (Healthcare worker, Male)

Another FGD participant reported that

“We need to advocate more for digitalized client feedback systems so as to increase awareness to the clients as well as to the health care providers” (Healthcare Worker, Female)

Roles of clients in the client feedback system

Analysis of FGDs pointed to the fact that stakeholders in the client feedback system must understand their roles to function well. Roles of the clients in the system included: launching complaints, suggestions and compliments and following up implementation of their feedback to create accountability in the health care systems. Some participants, in the FGDs, indicated that the clients must know their rights so that they may be able to provide feedback.

“Although our main duty (as clients) is to launch our problems with the services, but we need first to know our rights and rights of those who provide services” (Client, female)

In addition, participants indicated that the supply side have roles in the functionality of the clients feedback system and include: 1) linking client needs with the services provided in the health system, 2) collecting, keeping records and analyzing the complaints, compliments and suggestions, 3) channeling complaints and suggestions to decision making bodies 4) setting budgets to address the complaints and suggestions, 5) communication (referral) and mediation between different levels of the healthcare system 6) Identifying and addressing the complaints drivers timely. One participant in the FGD said:

“I have a lot of responsibilities one of them being to revive client’s complaints, either as a result of poor instructions based on the services, we provide, especially, in the area of social welfare” (Healthcare worker, male)

Types of client feedback systems that exist

Participants in the KIIs reported a range of client feedback mechanisms in health facilities and at the community level ranging from active (such as in person, mobile phone calls, community meetings) to passive approaches (such as suggestion boxes and register books)

Of the types mentioned, small number uses digital systems. The suggestion box and telephone use were commonly mentioned across facility levels.

“To me face to face method mostly used for complains even though few suggestions might be received through this method but I’m sure

complaining are the most feedbacks received through this method. We have two approaches here the first one is written approach in which clients put their feedback into suggestion box and the second one is through phone calls. Based on our timetable here we open suggestion box in every Friday". (Healthcare worker, Male)

Face-to face meeting may limit provision of feedbacks by clients, Phone calls or SMS could reduce fear from the clients to present their feedback to the health facility.

"But when we meet face to face, some clients fear presenting complaints. They worry about returning the next day. Pregnant women and mothers use 'Mama na Mwana' to give feedback via mobile phone". (Healthcare worker, female)

Usability of client feedback system

Regarding the added value and usability of client feedback, participants in FGDs agreed that the system adds value as it serves as an eye for the quality of health services in a given health facility. However, they had reservations about the usability of the information from the client feedback system, especially when;

- 1) The feedback is not real time as in suggestion boxes
- 2) The feedback is non-synthesized
- 3) The feedback provided has doubtful authenticity
- 4) The system is not user friendly
- 5) The system has a clear referral system to other levels

Most of clients using healthcare services report that they have feedback to provide based on their experience. However, utilization of current feedback systems is low, implying that the design of these systems does not meet the needs of clients. As a result, their voices are often not heard, even when they have feedback to provide. This is particularly true for women who are less likely to provide feedback than men.

In such cases, it is difficult to make both instant and long-term decisions. To ease the usability of the information collected from client feedback systems, there is a need for real time feedback, easiness in synthesis of information (how well feedback is organized and communicated for effective use by the health system), proof of authenticity of information and having a system that is user-friendly and can provide referrals for difficult issues. The current system could add more value if the challenges highlighted above are solved. Participants in FGDs casted doubts about whether in the current system, the feedback collected is actually used to make decisions related to quality improvement as some complaints are repetitive and no solutions are available.

"The system should not only be used to collect information, but the information should be synthesized and actions (solutions) be implemented (Client, female)".

- 6) Factors influencing usability of client feedback system

Four themes emerged with regards to factors that influence usability of client feedback systems;

User-friendliness, Lack of referral system, Absence of real-time feedback, Doubts on authenticity

User-friendliness

Reports from study participants indicated that the existing client feedback are not user friendly. For example, participants in FGDs had the following to say

"Pens and pieces of papers are not available most of the time, of which these are the useful tool for those who use suggestion box. Clients most likely excluded are Those with disability" (Client, Male)

Lack of referral system of client feedback

Participants also indicate that there is no clear referral system for client feedback, as some clients would prefer their complaints for example are referred to next level if not well addressed at one level of the health system "What I can say is that the system lacks a referral system to different levels" (Client, female)

Absence of Realtime feedback

Most of the feedback is provided from client complaints and suggestions are implemented late to actually address the issues that were reported to be problematic

"For instance, calls add value since it enables quick response to challenges compared to feedback box which take long time" (Client, male)

Doubts on the authenticity of feedback

While various feedback mechanisms exist, some are limited in their ability to facilitate meaningful engagement and actionable insights. These deficiencies can hinder the effective use of feedback in decision-making as echoed by a healthcare worker and a client respectively;

"Some information provided by clients is not trusted, leading to delays in responses and follow-ups, which often reduces their effectiveness" (Healthcare worker, male)"If we just report our concerns as they are, they might be ignored. We try to make them sound more serious so they get attention." (Client, female)

Discussion

This study represents the first comprehensive assessment in the Tanzania health system for understanding awareness and usability of client feedback system. Client feedback systems need to be strengthened in the stride forward towards achieving Universal Health Coverage.

Our findings reveal that majority of the clients were aware of their right to provide feedback, and in particular familiar with the suggestion box followed by phone calls, nevertheless most of them never provided feedback. Phone calls and SMS were the most preferred platforms to provide feedback. Comparatively, clients attending higher level health facilities, clients who visited facilities 4–5 times or more, those who received services for 45–60 min or more and those who were aware of existence of client feedback system than their counterparts were significantly more likely to provide feedback. Moreover, in qualitative findings availability of real time feedback, authenticity, user-friendliness of the system, digitalization, clarity in referral pathway and information use to support decisions and quality improvement was important factors to enhance usability.

Our findings are consistent with other studies from LMICs. In particular, existence of multiple client feedback system [Mirzoev et al., (2021); Huque et al.,(2021)], and the fact that awareness, authenticity, clear line of accountability are important enabler of usability of the system [Mirzoev et al.,(2021); Huque et al.,(2021)]. Additionally similar to our findings, in a study done in India co-creation and the design of user-friendly system with possibility of availing real time interaction is critical for success [Gowda et al.,(2020)] and also digitalization may play an important role in enhancing the functionality of the current platform [Ong et al., (2020); Small et al.,(2021)].

We found that Phone calls and SMS were the most preferred client feedback platform. Online patient feedback is becoming increasingly popular worldwide Baines et al., (2021). The use of SMS and Phone calls have been shown to be important for continuous monitoring of the service quality Rubrichi et al.,(2014);Shah et al.,(2021); O'Brien et al., (2017).To meet the purpose in the healthcare system, client feedback systems should be lively, dynamic and interactive to connect

stakeholders and engage them in a sustainable loop of seamless flow of information (Gowda et al., 2020).

Digitalization has a potential to improve our system Ong et al., (2020); Small et al.,(2021). Introducing digital client systems has been a current move globally, nevertheless being sensitive to local context and organizational leadership are issues that should be considered when introducing digital systems. Tailoring digital systems to client needs and looking for alternatives for groups that are often left behind in these systems such as the elderly and people with disability, should be a priority while designing and scaling up digital systems (Abernethy et al., 2022).

Improving the usability of client feedback systems is essential for advancing person-centered health care and promoting social accountability within health systems (Huque et al., 2021; Mirzoev et al., 2021). Our findings similar to another study in Tanzania by (Isangula et.al 2023) suggest that building effective and responsive client feedback systems in Tanzania requires investment related to ensuring the availability of user-friendly client feedback systems. Co-creation during system design is critical for success (Gowda et al.,2020). Moreover, as noted by (Huque et al.,2021) in Bangladesh it is important to have clearly documented processes and guidelines in order to enhance understanding of the different options to present feedback and accessibility. On the other hands responsiveness of the client systems towards client expectation needs to be guaranteed (Isangula et.al.,2023), The adoption and implementation of Client service charter that provides information with regards to what the client should expect is of paramount importance during the deployment of feedback systems (Kinyenye et.al.,2020a), Furthermore, it is important to build capacity to health care providers to be able to analyze and use the information from the client feedback systems for decision-making and quality improvement (Berger et.al. 2020). Strategic investment, in lower-level primary health care facilities, is required due to low utilization of client feedback systems noted in our study, similar to another study in Tanzania (Kinyenje et al., 2022b), that showed most of Tanzania PHC facilities are not socially accountable.

Strengths and Limitations

This study has a number of strengths. It is the first comprehensive study for assessing Client feedback in Tanzania, and covers a large, representative sample using a concurrent mixed-methods approach. However, this study is limited in that the qualitative interviews may have been susceptible to social desirability bias.

Conclusions

Improving the usability of client feedback systems is essential for advancing person-centered health care and fostering social accountability within the health system. While most clients attending healthcare facilities in Tanzania are aware of their right to provide feedback, the majority do not utilize available mechanisms. Our study, have shed light on the need to invest on user friendly systems through co-creation and digitalization in order to improve client feedback systems in Tanzania.

List of abbreviations

CHMT: Council Health Management Team
FGD: Focus Group Discussion
LMIC: Low- and Middle-Income Countries
RHMT: Regional Health Management Team
UHC: Universal Health Coverage

CRedit authorship contribution statement

Eliud Eliakimu: Writing – review & editing. **Ntuli A. Kapologwe:** Conceptualization, Writing – review & editing. **Robert Smith:** Writing –

review & editing, Conceptualization. **Rashid S. Mfaume:** Writing – review & editing. **Simon Debere:** Conceptualization, Writing – review & editing. **Helga Mutasingwa:** Writing – review & editing, Conceptualization. **Charles Wilson Mahera:** Writing – review & editing. **Ally Kinyaga:** Formal analysis, Data curation. **Rugajo Paschal:** Writing – review & editing, Conceptualization. **Muzeru Marcus:** Writing – review & editing. **Pius Kagoma:** Writing – review & editing. **Rashid Mbunda:** Formal analysis, Data curation. **Paul Chaote:** Writing – review & editing. **Claud Kumalija:** Writing – review & editing, Conceptualization. **Msafiri Kabulwa:** Writing – review & editing. **Albino Kalolo:** Writing – review & editing, Methodology, Conceptualization. **Felix Sukums:** Writing – review & editing, Conceptualization. **Kengia James Tumaini:** Writing – original draft, Conceptualization, Writing – review & editing.

Ethics approval and consent to participate

Ethical approval for conducting this study was obtained from the National Health Research Ethics Review Committee (NatHREC) in Tanzania [Ref. No: NIMR/HQ/R.8a/Vol.IX/4326]. Approval to collect data in regions and councils was requested and granted by the President's Office Regional Administration and Local Government, Regional Secretariat, and Local Government Authorities where the study was conducted. Written informed consent was obtained from each participant prior to administering the survey or interview and they were assured confidentiality and anonymity for their individual responses. Participants were informed about the voluntary nature of their participation, the right to withdraw at any time for any reason and were provided with the opportunity to ask any questions.

Consent for publication

Not applicable.

Authors contribution

JTK, SD and FS conceptualized and designed the study and drafted the manuscript. HM, RS, MM, AK, RM, PK. CK conceptualized the study and substantively revised the manuscript. PC, MK, EE, RM, NAK, PR and WCM substantively revised the manuscript. AK conceptualized and designed the study, analyzed and interpreted qualitative data, and drafted the manuscript. AKN analyzed and interpreted quantitative data and substantively revised the manuscript.

Author's information

Not applicable

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Declaration of Competing Interest

Helga Mutasingwa, Simon Debere, Robert Smith, Marcus Muzeru and Rashid Mbunda are employed by Afya Pamoja, which funded this work. Eliud Eliakimu and Msafiri Kabulwa are employee of the Ministry of Health. Wilson C. Mahera, Paul C. Chaote, Pius Kagoma, James T. Kengia, Ntuli A. Kapologwe are employed by the President's Office Regional Administration and Local Government (PO-RALG). Ally Kinyaga, Felix Sukums and Albino Kalolo have nothing to declare. The authors have had no financial relationships with any organizations that might have an interest in the submitted work in the previous three years and no other relationships or activities that could appear to have influenced the submitted work

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.ssmhs.2025.100133](https://doi.org/10.1016/j.ssmhs.2025.100133).

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

References

- Abernethy, A., Adams, L., Barrett, M., Bechtel, C., Brennan, P., Butte, A., Faulkner, J., Fontaine, E., Friedhoff, S., Halamka, J., Howell, M., Johnson, K., Long, P., McGraw, D., Miller, R., Lee, P., Perlin, J., Rucker, D., Sandy, L., Savage, L., Stump, L., Tang, P., Topol, E., Tuckson, R., Valdes, K., 2022. The promise of digital health: then, now, and the future. *NAM Perspect.* <https://doi.org/10.31478/202206e>.
- Baines, R., Underwood, F., O'Keeffe, K., Saunders, J., Jones, R.B., 2021. Implementing online patient feedback in a 'special measures' acute hospital: a case study using normalization process theory. *Digit. Health* 7, 1–17. <https://doi.org/10.1177/20552076211005962>.
- Baines, R., Zahra, D., Bryce, M., de Bere, S.R., Roberts, M., Archer, J., 2019. Is collecting patient feedback “a futile Exercise” in the context of recertification? *Acad. Psychiatry.* <https://doi.org/10.1007/s40596-019-01088-w>.
- Berger, S., Saut, A.M., Berrsaneti, F.T., 2020 Oct 23. Using patient feedback to drive quality improvement in hospitals: a qualitative study. *BMJ Open* 10 (10), e037641. <https://doi.org/10.1136/bmjopen-2020-037641>. PMID: 33099495; PMCID: PMC7590344.
- Bombard, Y., Baker, G.R., Orlando, E., Fancott, C., Bhatia, P., Casalino, S., Onate, K., Denis, J.-L., Pomey, M.-P., 2018. Engaging patients to improve quality of care: a systematic review. *Implement. Sci.* 13, 98. <https://doi.org/10.1186/s13012-018-0784-z>.
- Creswell, J.W., Clark, V.L.P., 2017. Sage publications. *Des. Conduct. Mixed Methods Res.*
- Giles, S.J., Reynolds, C., Heyhoe, J., Armitage, G., 2017. Developing a patient-led electronic feedback system for quality and safety within renal PatientView. *J. Ren. Care* 43 (1), 37–49. <https://doi.org/10.1111/jorc.12186>. Epub 2016 Dec 19. PMID: 27990782.
- Gowda, N., Wankar, A., Arya, S., Vikas, H., Narayanan, N., Linto, C.P., 2020. Feedback system in healthcare: the why, what and how. *Int. J. Mark. Stud.* 12, p52. <https://doi.org/10.5539/ijms.v12n1p52>.
- Gowda, N.R., Wankar, A., Arya, S.K., Vikas, H., Kollalacka, N.N., Linto, C.P., 2020. Feedback system in healthcare: the why, what and how. *ISSN 1918-719X E-ISSN. In: International Journal of Marketing Studies*, 12. Published by Canadian Center of Science and Education, pp. 1918–7203. ISSN 1918-719X E-ISSN.
- Huque, R., Al Azdi, Z., Ebenso, B., Nasreen, S., Chowdhury, A.A., Elsej, H., Mirzoev, T., 2021. Patient feedback systems at the primary level of health care centres in Bangladesh: a mixed methods study. *SAGE Open* 11, 21582440211011456. <https://doi.org/10.1177/21582440211011456>.
- Huque, R., Al Azdi, Z., Ebenso, B., Nasreen, S., Chowdhur, A.A., Elsej, H., Mirzoev, T., 2021. Patient feedback systems at the primary level of health care centres in Bangladesh: a mixed methods study. *SAGE Open* April/June 1–15. <https://doi.org/10.1177/21582440211011456>.
- Improving the quality of health services: tools and resources. Turning recommendations into practice. Geneva: World Health Organization; 2018a. Licence: CC BY-NC-SA 3.0 IGO.
- Isangula, K., Pallangyo, E.S., Ndirangu-Mugo, E., 2023. The perceived benefits and effectiveness of patient feedback systems in strengthening patient-provider relationships in rural Tanzania. *BMC Health Serv. Res.* 23 (1), 1202. <https://doi.org/10.1186/s12913-023-10198-z>. PMID: 37924107; PMCID: PMC10623771.
- Kagoma, P., Mongi, R., Kapologwe, N.A., et al., 2024. Health research evidence: its current usage in health planning, determinants and readiness to use knowledge translation tools among health planning teams in Tanzania—an exploratory mixed-methods study protocol. *BMJ Open* 14, e081517. <https://doi.org/10.1136/bmjopen-2023-081517>.
- Kengia, J.T., Kalolo, A., Barash, D., Chwa, C., Hayirli, T.C., Kapologwe, N.A., Kinyaga, A., Meara, J.G., Staffa, S.J., Zaniyal, N., Alidina, S., 2023. Research capacity, motivators and barriers to conducting research among healthcare providers in Tanzania's public health system: a mixed methods study. *Hum. Resour. Health* 21 (1), 73. <https://doi.org/10.1186/s12960-023-00858-w>. PMID: 37670321; PMCID: PMC10478476.
- Kinyenje, E.S., Yahya, T.A., Hokororo, J.C., Eliakimu, E.S., Mohamed, M.A., Degeh, M. M., et al., 2022b. Social accountability in primary health care facilities in Tanzania: results from star rating assessment. *PLOS ONE* 17 (7), e0268405. <https://doi.org/10.1371/journal.pone.0268405>.
- Lodenstein, Elsabet, Mafuta, Eric, Kpatchavi, Adolphe C., Servais, Jean, Dieleman, Marjolein, Broerse, Jacqueline E.W., Barry, Alpha Amadou Bano, Mambu, Thérèse M.N., Toonen, Jurrien, 2017. Social accountability in primary health care in west and Central Africa: exploring the role of health facility committees. *BMC Health Serv. Res.* 17, 403. <https://doi.org/10.1186/s12913-017-2344-7>.
- Mirzoev, T., Kane, S., Al Azdi, Z., Ebenso, B., Chowdhury, A.A., Huque, R., 2021. How do patient feedback systems work in low-income and middle-income countries? Insights from a realist evaluation in Bangladesh. *BMJ Glob. Health* 6, e004357. <https://doi.org/10.1136/bmjgh-2020-004357>.
- MoHCDGEC 2018. National guide for complaint, compliment and suggestion management in health facilities in Tanzania.
- Nejatian, A., Arab, M., Takian, A., Ashtarian, K., 2024. Social accountability in health system governance: a scoping review. *Iran. J. Public Health* 53 (1), 35–47. <https://doi.org/10.18502/ijph.v53i1.14681>. PMID: 38694848; PMCID: PMC11058377.
- O'Brien, L.K., Drobnick, P., Gehman, M., Hollenbeak, C., Iantosca, M.R., Luchs, S., Manning, M., Palm, S.K., Potochny, J., Ritzman, A., Tetro-Viozzi, J., Trauger, M., Armstrong, R.N., 2017. AD. Improving responsiveness to patient phone calls: a pilot study. *J. Patient Exp. 4* (3), 101–107. <https://doi.org/10.1177/2374373517706611> (journals.sagepub.com/home/jp).
- Ong, B.N., Hodgson, D., Small, N., Nahar, P., Sanders, C., 2020. Implementing a digital patient feedback system: an analysis using normalization process theory. *BMC Health Serv. Res.* 20, 387. <https://doi.org/10.1186/s12913-020-05234-1>.
- Rubrichi, S., Battistotti, Quaglini, S., 2014. Patients' involvement in e-health services quality assessment: a system for the automatic interpretation of SMS-based patients' feedback. *J. Biomed. Inform.* 51, 41–44.
- Shah, N., Ummer, O., Scott, K., Bashingwa, J.J.H., Penugonda, N., Chakraborty, A., Sahore, A., Mohan, D., LeFevre, A.E., 2021. SMS feedback system as a quality assurance mechanism: experience from a household survey in rural India. *BMJ Glob. Health* 6, e005287. <https://doi.org/10.1136/bmjgh-2021-005287>.
- Small, N., Ong, B.N., Lewis, A., Allen, D., Bagshaw, N., Nahar, P., Sanders, C., 2021. Co-designing new tools for collecting, analysing and presenting patient experience data in NHS services: working in partnership with patients and carers. *Research Involv. Engagem.* 7 (85). <https://doi.org/10.1186/s40900-021-00329-9>.
- Soresi, J., Bertilone, C., Banks, E., Marshall, T., Murray, K., Preen, D.B., 2025. Features and effectiveness of electronic audit and feedback for patient safety and quality of care in hospitals: a systematic review. *Health Inform. J.* 31 (1). <https://doi.org/10.1177/14604582251315414>. PMID: 39915942.
- Tendo-Bugondo, C., Lieke, O., Kasongo, P., Diur, B., Canagasabay, D.S., Thior, I., Milenge, P.K., Kiluba, J.C., 2023. Facilitating person-centred care: integrating an electronic client feedback tool into continuous quality improvement processes to deliver client-responsive HIV services in the democratic Republic of Congo. *J. Int AIDS Soc.* 26, e26112. <https://doi.org/10.1002/jia2.26112>. PMID: 37408447; PMCID: PMC10323317.
- Tomaselli, G., Buttigieg, S.C., Rosano, A., Cassar, M., Grima, G., 2020. Person-Centered care from a relational ethics perspective for the delivery of high quality and safe healthcare: a scoping review. *Front. Public Health* 8, 44. <https://doi.org/10.3389/fpubh.2020.00044>.
- Tzelepis, F., Sanson-Fisher, R.W., Zucca, A.C., Fradgley, E.A., 2015. Measuring the quality of patient-centered care: why patient-reported measures are critical to reliable assessment. *Patient Prefer. Adherence* 831–835. <https://doi.org/10.2147/PPA.S81975>.
- UNICEF 2022. Country Office Annual Report 2022 United Republic of Tanzania. RAM3 COAR.rdl (unicef.org) Accessed on 19/10/2022.
- Wong, E., Mavondo, F., Fisher, J., 2020. Patient feedback to improve quality of patient-centred care in public hospitals: a systematic review of the evidence. *BMC Health Serv. Res.* 20, 530. <https://doi.org/10.1186/s12913-020-05383-3>.
- World Health Organization, 2018b. *Delivering Quality Health Services: A Global Imperative for Universal Health Coverage*. Organisation for Economic Co-operation and Development, and The World Bank, Geneva. Licence: CC BY-NC-SA 3.0 IGO.