BMJ Open Quality

How does QI work? A trust-building framework in African healthcare: primary evidence from Kenya and Malawi

Mary B Adam [1,2] Naomi Wambui Makobu [3] Kedar Mate [4,5] Tod Newman [6] Angela Joy Donelson [7]

To cite: Adam MB, Makobu NW, Mate K, *et al*. How does QI work? A trust-building framework in African healthcare: primary evidence from Kenya and Malawi. *BMJ Open Quality* 2025;**14**:e003330. doi:10.1136/bmjoq-2025-003330

► Additional supplemental material is published online only. To view, please visit the journal online (https://doi.org/10.1136/bmjoq-2025-003330).

Received 17 January 2025
Accepted 5 May 2025

[1]Head of Research AIC Kijabe Hospital, Kijabe, Kenya
[2]Africa Consortium for Quality Improvement Research in Frontline Healthcare (ACQUIRE), Nairobi, Kenya
[3]Maternal Newborn Community Health, AIC Kijabe Hospital, Kijabe, Kenya
[4]Institute for Healthcare Improvement, Cambridge, Massachusetts, USA
[5]Medicine, Weill Cornell Medical School, New York, New York, USA
[6]Santa Cruz River Analytics, Tucson, Arizona, USA
[7]Donelson Consulting, Tucson, Arizona, USA

Correspondence to
Dr Mary B Adam;
mary.b.adam@gmail.com

ABSTRACT

Trust is fundamental to the effective functioning of healthcare systems, influencing access, utilisation and adherence to evidence-based practices. While quality improvement (QI) processes are widely recognised for addressing technical challenges, their role in fostering trust and relationships within health systems remains underexplored. This study examines the relationship dynamics in QI teams and how trust-building frameworks align with adaptive processes in healthcare settings. We conducted a qualitative study involving 30 healthcare workers from six African countries, recruited through the Africa Consortium for Quality Improvement in Frontline Healthcare. Data were collected through semistructured interviews, transcribed and analysed using both inductive and deductive methods. Deductive analysis was guided by a published trust-building framework, while insights from a large language model were incorporated in addition to a traditional analysis to provide an unbiased perspective. Results identified three theoretically described dimensions of trust-building within QI teams: common goals, self-interest and gratitude/indebtedness. Common goals fostered teamwork, multidisciplinary collaboration and effective communication, while self-interest motivated personal and professional growth. Gratitude and recognition reinforced team cohesion and sustained motivation. Participants highlighted the importance of trust in achieving project success, noting that robust relationships within teams correlated with improved outcomes. The study underscores the dual nature of QI processes, which simultaneously address technical improvements and adaptive challenges, including trust and relationship-building. Trust-building, framed as an iterative process of aligning common goals, recognising contributions and addressing individual interests, complements technical QI methodologies like Plan-Do-Study-Act cycles. These findings support expanding QI frameworks to emphasise relational dynamics, contributing to more sustainable and impactful healthcare improvements. Further research should continue to explore the adaptive dimensions of QI, integrating recent research on culturally relevant frameworks prioritising kindness in healthcare systems, to enhance trust and collaboration within healthcare systems.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Trust plays an essential role in the functioning of the health system

WHAT THIS STUDY ADDS

⇒ The tools to build trust are embedded within quality improvement (QI) healthcare change management methods, aligning with Deming's System of Profound Knowledge, particularly its psychological dimension, which can be adapted to the African context.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ QI processes demonstrate trust increases in iterative cycles as team members share common goals, devolve power, share responsibility and accountability, and express appreciation for the new test of change ideas and hard work.

INTRODUCTION

Trust matters, especially in healthcare. The role trust plays in the functioning of the health system has received substantial attention.[1–7] There is broad agreement that trusting relationships are a key ingredient to effective healthcare.[8] Trust supports health systems to be more efficient and effective.[3 9 10] Cultivating trust may also support one's access to care as well as utilisation of and adherence to evidence-based guidelines.[10] Health partnerships and collaboration, increasingly necessary in the context of complex health systems, all rely on trust for effective and sustainable engagement.[11 12]

Healthcare is no longer simply a single important relationship between a provider and a patient. Healthcare is a complex web of relationships, relationships between patients and providers, as well as relationships between healthcare providers and organisations, and relationships between communities and healthcare facilities. Trust matters across

the entire web of relationships that make up the health system, whether macrolevel or microlevel.[13–15] That is because a health system at its core is all about the people: the people who need care and the people who provide care. As Gilson notes, "Health systems are inherently relational and so many of the most critical challenges for health systems are relationship problems".[8] This makes building trust among the most important tasks for today's healthcare organisations.[16 17]

Healthcare workers (HCWs) want to build trust, with patients, within their healthcare teams, within their institutions and to build trust between communities and the health system that serves them. Healthcare leaders and managers want to build trust within their organisation. Yet, they often are unsure how to do it. HCWs are perplexed by the systems' complexity and unfamiliar with methods to build trust. Trust has been implicitly assumed in the past, and the task of building trust has not been part of the HCW curriculum content. Trust building is a different skill set than Advanced Cardiac Life Support, and for many HCWs trying to build trust seems overwhelming, especially in the face of a general decreasing of trust across all types of institutions[18] and given the current state of HCW burnout.[19] But trust can be built.[20–24] That makes knowing how to build trust one of the most crucial challenges facing modern healthcare.

A small but growing body of evidence points to trust-building relationships as being present within the adaptive processes of quality improvement (QI).[25 26] QI processes appear to work at both a technical level and at a relationship level, simultaneously addressing technical and adaptive challenges present in healthcare. Successful QI teams see changes in their relationships as well as changes in care processes and outcomes. While QI is a technical skill with specific scientific methodologies, it is also an adaptive process, one that addresses how people relate to each other.

QI as a people-centred, adaptive process is reflected both in Deming's enduring System of Profound Knowledge as well as the emergent healthcare literature on kindness. Deming's System of Profound Knowledge is defined as an integrated framework comprising appreciation for a system, knowledge of variation, theory of knowledge, and psychology.[27] We believe Deming's 'lens' is especially relevant for understanding the psychological dimension of human behaviour within health systems. Deming recognised that technical improvements cannot succeed without addressing human factors such as motivation, relationships and trust. The PDSA (Plan-Do-Study-Act) cycles, fundamental to QI methodology, provide not only a framework for testing technical changes but also create iterative opportunities for relationship development and trust-building among team members. Moreover, recent research uncovers that relationship development is rooted in kindness, as it informs successful intergroup relationships. Kindness in healthcare systems, according to Greco *et al*, represents "intentional acts that benefit others and foster relational connection" with specific applications to patient care, staff relationships and organisational practices.[28] These become especially important within systems such as in African healthcare settings. Values of kindness and belonging—forming the foundations for trust—are central to Ubuntu, an African philosophical concept meaning "I am because we are," which emphasises humaneness, caring, community and mutual respect.[29] The psychological dimension of Deming's framework complements this emerging research, suggesting QI initiatives benefit from relationship-focused and culturally resonant approaches.

A deliberate focus on the adaptive dimensions of QI (relationships and trust building) could bring additional evidence to the value proposition for QI. While there is substantial evidence of the measurable value in terms of QI's technical process improvements, exploration of additional benefits that are the result of growing trusting relationships would add to the value proposition of investing in QI at both an individual and institutional level.

To date, few studies track the adaptive side of QI. This dual function of PDSA cycles—simultaneously driving technical improvement and adaptive relationship change—represents a powerful but underexplored aspect of QI in healthcare settings.

We want to see if HCWs who have done specific projects in QI voice aspects of their experience that reflect the people processes, the adaptive side of QI and if the theoretical elements of trust-building frameworks are present. This also becomes important to validating our theory of change, outlined in our most recent Africa Consortium for Quality Improvement in Frontline Healthcare (ACQUIRE) annual report, which seeks to demonstrate how the lens of Deming's System of Profound Knowledge is essential to understanding how psychological dimensions of improvement work create agency for those working within the healthcare system.[30]

METHODS

Study design

In-depth qualitative study design using semistructured interviews with individuals who had completed unrelated QI projects within their respective institutions.

Participant recruitment and selection

HCWs were recruited from the ACQUIRE partner institutions using email lists generated from ACQUIRE activities, including a September 2023 continent-wide storytelling contest where HCWs were invited to share their own stories doing QI projects in institutions within Africa. ACQUIRE's educational mission is to support QI practice across the continent. Using this database ensured broad exposure to QI work being done in the African context.

Patient and public involvement

None.

Data collection procedures

Data were collected through in-depth interviews done in English—the language of professional study and/or the workplace language. The research team developed an interview guide (online supplemental file 1) that included questions about successful and unsuccessful QI projects in which they had participated. Interviews were conducted in person (n=5) or on the electronic meeting platform (n=25) by NWM. The interviewer, a community health practitioner with a degree in Health Systems Management, was known to about 7 of the 30 interviewed due to her previous work in their hospital or work with ACQUIRE. All interviews were recorded with the participant's consent to ensure accuracy in data capture and later transcribed. Data collection continued past saturation with about 10 interviews yielding no new codes.

Data analysis

Data analysis was performed in separate steps by a five-person multidisciplinary and international team. Two researchers had extensive experience in QI in the African context (MBA and NWM) and one globally (KM). Two members were physicians (MBA and KM); two had PhDs in social science domains (MBA and AJD); two were employed in frontline healthcare in Kenya (MBA and NWM); one had advanced engineering degrees with a focus on digital signal processing (TN). Three were female, including the primary interviewer (MBA, NWM and AJD). The team had qualitative research experience using traditional analysis methods (MBA, NWM and AJD) and also experimented with the evaluation of insights from an AI large language model (LLM) that was prompted with text extracted from a betweenness-centrality process executed on the research dataset (TN), and application to research data set (TN and AJD). Combining traditional and artificial intelligence (AI) methods of analysis was felt to potentially provide a richer understanding of the data set. The value of the LLM insights is that they were blind to the QI process and were useful in examining the strength of the findings in a methodologically agnostic way absent human bias.

In step 1, traditional inductive methods were used. (These data are reported in a separate manuscript.) Two researchers (NWM and MBA) reviewed several transcripts and generated codes based on initial impressions using a constant comparative and iterative process to arrive at an initial inductive coding structure. Using the qualitative software Dedoose, NWM independently applied the final coding structure to all the transcripts, and this was reviewed with MBA and later AJD.

In step 2: Transcripts were also coded using a deductive process based on preset themes used a published trust-building framework[23] that has been linked to behaviour change processes in community health QI teams.[31] Two researchers (NWM and MBA) reviewed several transcripts and generated codes based on initial impressions using a constant comparative and iterative process to arrive at an initial inductive coding structure. Using the qualitative software Dedoose, NWM independently applied the final coding structure to all the transcripts, and this was reviewed with MBA and later AJD. After coding was completed and themes generated, these data were compared with the AI deductive coding structure developed by a member of the research team (TN) who was completely blind to any content or QI processes in healthcare.

RESULTS

40 participants were recruited from 6 African countries who had participated in a quality QI storytelling competition, where they shared their experiences on projects they had led in their respective countries. The recruitment took place in February of 2024 via email inviting them to participate in one-on-one interviews for data collection (table 1).

Participants were recruited from six African countries, with the majority (26 out of 30) coming from Kenya and Malawi. While our sampling strategy aimed for continental representation, data collection was ultimately guided by thematic saturation within the framework of Deming's lens of human behaviour within his Theory of Profound Knowledge[27] rather than geographic quotas. After approximately 20 interviews, primarily from Kenya and Malawi, no new codes emerged in the analysis related to the psychological dimensions of QI (online supplemental file 2-coding tree). The additional 10 interviews, including those from Cameroon, Ethiopia, Ghana and Zimbabwe (with one participant each), confirmed saturation of the trust-building themes without yielding novel insights. The consistency of themes across all six countries suggests the identified trust-building mechanisms

Table 1 Professional characteristics of participants- N=30

Profession	Kenya	Malawi	Cameroon	Ethiopia	Ghana	Zimbabwe
Physician	4	0	1	1	0	0
Nurse	5	7	0	0	0	1
Non-Clinical Managers (security, finance, lab and biomedical engineering)	4	0	0	0	1	0
Non-Clinical Staff	6	0	0	0	0	0

may have pan-African relevance, though further research with larger samples from additional countries would be needed in future research for confirmation.

Our analytical approach was informed by both Western QI frameworks and sensitivity to kindness, drawing from indigenous African philosophical concepts of Ubuntu. This dual perspective allowed us to examine how trust operates within healthcare teams while remaining attentive to cultural contexts that influence relationship formation.

The population for this study included the full spectrum of HCW: front-line, both clinical and non-clinical workers, leaders and management. 30 participants, representing 6 countries, were available for the one-on-one interviews that took place either physically or on Zoom. Ten participants who were invited did not make it to the interviews due to their busy schedules or unstable internet connections on the day of the interview. Interviews lasted about 25 min.

Main themes were derived from the theoretical framework for trust building in health systems: common goal, self-interest and gratitude/indebtedness. Data were subjected to both an inductive and deductive analysis, and the full results of inductive work are reported elsewhere.

When the researchers applied the trust-building theoretical framework, the coded text aligned and corresponded to the framework, both with the traditional deductive analysis and with the LLM analysis using knowledge graphs (online supplemental file 3). This convergence of findings from traditional analysis and the LLM methodology (theoretically agnostic and naive to QI methods and processes) reduces the potential for bias sometimes present in qualitative analysis and confirms the robustness of the findings. The results of both analyses are presented together (table 2).

Common goals

Common goal is seen as QI improvement teams work towards a set goal. The goal was set by a team lead, the institution or collectively as a team to be achieved within a stipulated period. Teams put in effort, time and resources so as to achieve the desired outcome. In most cases, the common goal was aimed at improved patient care.

Common goals emerged as a fundamental trust-building dimension where teams collectively worked towards defined objectives. This dimension manifested through four subthemes demonstrating how shared purposes foster trust within QI initiatives.

Subtheme: teamwork and collaboration

This subtheme represents how team cohesion creates an environment where trust can develop. Structured collaboration around specific QI tools establishes a foundation for trust through inclusive participation, as illustrated in the three exemplary quotes below.

> having a plan involving the whole team in it. Part of the plan is for us, we had a fishbone. Yeah, so we identified what we needed to put in by including the staff, the patients, the policies, equipment, processes. So we had like, this is what you're working on. (Male Psych support technician-Kenya)

> OK, this project was a success just because we had dedicated staff members, like we had teamwork. If I say teamwork in our facility, we have like only for maternity we have about 45 staff members. So to say team work that means that all the staff members, we participating. (female nurse, Malawi)

> We didn't have inside fights, we didn't have struggles in between us. (female nurse, Malawi)

Subtheme: working with multidisciplinary teams

This subtheme demonstrates how cross-departmental engagement bridges professional silos. The quote below exemplifies how integration of diverse expertise across traditional boundaries strengthens trust through improved collective outcomes.

> For me, I think Teamwork was actually for me. That aspect of psychosocial team or the part who deals with the clients more. the pharmacy team, the data team the Clinical, Nursing. and part of the lab. Yes. So, when these psychosocial team included other

Table 2 Themes and subthemes

Trust dimension	Sub-themes
1. Common Goals	a. Teamwork and Collaboration b. Working with Multidisciplinary Teams c. Communication and Involvement d. Task Allocation and Planning
2. Self-Interests	a. Skill Development and Learning b. Personal and Professional Growth c. Improved Decision Making d. Organisational Benefits
3. Gratitude/Indebtedness	a. Recognition and Celebration b. Sense of Achievement and Pride c. Appreciation for Support and Guidance d. Motivation and Positive Feedback

departments working, these go along, improving the retention of our clients. Yeah. What came in hand it helped us. So as a person, I think teamwork is really important. (Male Psych support technician-Kenya)

Subtheme: communication and involvement

Effective communication as a subtheme serves as a critical mechanism for translating common goals into trustworthy relationships. The quote below highlights how consistent communication throughout decision-making creates conditions for trust across hierarchical levels.

> Yeah, some of the things that worked well, for us, I would say is speaking to one another communication every step of the way. And whichever decision you're trying to make in terms of goals that you're setting and achievement, you want to have communicated that operational team, because at the end of the day, you might know what needs to be done, but you're not the one who will do it, end to end, you will work with people. (Security Officer-Kenya)

> What made it successful was buying from the specific members of staff, for example, buying from management, buying from the staff themselves and the section heads from, from the departments that were that were involved, for example, finance and lean the document. So that really helped in terms of project actualization, access. Okay. Also, the visibility of in the members been the institution to be the ones who are handling the project towards actually help. (Nurse-Ghana)

> And also it improved on the documentation. And the because of that, we were able to follow through even during audits as to kind of medications were given. And the some of the indicators that we get from such kind of documentations were improved greatly (Female clinician-Kenyan)

Subtheme: task allocation and planning

The task allocation and planning subtheme demonstrates how trust can be built for common goals through clarity and equity in the distribution of responsibilities. The quote below demonstrates how structured task assignment created equity in participation.

> What worked well, was the involvement of staff members in order of the process. So we had the staffs involved with during the planning, we have people involved during the when they were working, and then we will during the evaluation. So this helped share ideas and insights on how to do what was went wrong, and how to do it better next time. So you was involved that effort to make a change. So this facilitated that the work we had doing together. And that was something successful and effective in bringing change. (Male physician Cameroon)

> So for it to be successful, we had to do task allocation on daily basis to say, who is going to do the wound care or the wound dressing like for that particular shift. So like most of them had a chance to participate. So eventually, we noticed that almost on daily basis, all the wounds were being cleaned, because we assigned someone to do that particular task. And up to now, it's one of the routines that we do in our ward. Okay. (Female nurse -Malawi)

Self-interests

Self-interest is mentioned during project details. A good number of QI projects were started by individuals. They started the projects without the influence of leadership or institutions. We see that individuals had intrinsic motivation to complete tasks and achieve results. At the end of the projects, we hear that some had learnt a lot from the QI projects regardless of their success or failure.

Self-interests emerged as a vital trust dimension where individual motivations intersect with collective objectives. When personal aspirations align with team goals, participants invest more deeply in the process, fostering sustainable trust through four key subthemes.

Subtheme: skill development and learning

This subtheme demonstrates how QI initiatives satisfy intellectual self-interests while building trust through competence acquisition. The quote below documents the transformative learning journey that functions as a trust-building mechanism.

> it was a great learning experience for me. Because at first, I didn't know what this thing like the quality improvement thing was all about. All right. But then after, like, the training, that's when I developed like an idea and the knowledge on what quality improvement like is all about. (Nurse-Zimbabwe)

> And I was the one who initiated the idea who designed the projects, and also implemented in control overlooked their projects, while implementation so it, I was fully involved, and it was my idea. (Male physician-Ethiopia)

Subtheme: personal and professional growth

This subtheme encompasses broader career advancement opportunities for fulfilment of self-interests through QI participation. The quotes below illustrate how engagement facilitated cross-cultural professional relationships that transcended hierarchical barriers.

> I worked with very senior professors, they were not from my country, most of them are not from my country. And, you know, I mean, academically or culturally, I mean, I was at a very different level, but I, it exposed me to that culture, writing culture, I mean, the courtesy, required in an international collaboration. (Nurse-Kenya)

> What made it a success, I can say is my desire as a person, I was not driven by I, I felt like I had more internal drivers to make it a success, more than I

had external motivators to make it a success. (Male physician-Ethiopia)

the end was. how do I describe something that was so successful, I felt like I had achieved something. This is the project that gave me my first peer reviewed publication, you see, I volunteered to go into the project. And I decided to write a manuscript about the project. So you can imagine it, it turned out to, it opened very many opportunities for me to be a publisher, so I published through this project. That's why I can say it was a it was a successful ending. (Nurse-Kenya)

Subtheme: improved decision-making

This subtheme shows how QI participation enhances clinical judgement, addressing self-interests related to professional competence. The last quote below articulates the understanding that failure within QI is an expected part of improvement, showing trust in the process itself.

Another thing that this project helped me it was making decision making. At first, we were just making decisions on referring a client without consulting, but after this project came up, we had another change idea which was to consult second on call before referring. Male Nurse-Kenya

It did help me as an individual, especially as a why personnel because it made me realize that we put procedures, we put SOPs, but if training is not done and targeted training, you can find the process the process is still not clear as much as it's done on paper

(Female Nurse-Kenya)

Ah, I learnt a lot about quality. I learned that one small steps, small changes can make a big difference, the importance of getting to a point where you evaluate that, I also learned that in that process, there are things that will not really work out. And it doesn't mean that it was a bad thing. No, no, no, no, no. It doesn't mean that it was a bad thing. So when you keep on rechecking, when you keep on re-evaluating it let me say it was a beautiful process. (female nurse-Ghana)

Subtheme: organisational benefits

This subtheme highlights how institutional interests align with individual QI participation. The quote below demonstrates how QI revealed pathways to institutional sustainability, building trust through recognition of organisational value.

And we actually realized that we can actually be financially sustainable as an institution, if we really focus and be intentional with what we're working on. (Quality Improvement Manager-Kenya)

Gratitude/indebtedness

Participants showed gratitude among each other when they reported that they were successful due to working in teams. Gratitude is also expressed when participants thanked their facilitators, coaches and mentors for their support during QI processes. Institutional leaders were also thanked for offering financial and moral support to teams. The institution also recognised and acknowledged the efforts made by QI teams, while some offered competitive awards.

Gratitude and indebtedness emerged as a crucial trust dimension that recognises contributions within QI teams. Consistent acknowledgement creates reciprocal obligations that strengthen trust relationships through four distinctive subthemes.

Subtheme: recognition and celebration

This subtheme encompasses formal acknowledgements that reinforce trust through validation. The quotes below show how intentional celebrations of incremental progress motivate engagement and build trust through acknowledgement.

The other thing is to appreciate the milestones every step of the way. So if you have this, this journey that will take four days when the first day ends, I celebrate the people and tell them this far, you're doing very well. And if we continue like this, we are going to achieve much we are going to achieve much hit our target on time. (Male Physician-Cameroon)

we were able to present our project in our local Kaizen Congress that was held here in in we actually emerged the second in terms of project success, (Quality Improvement Manager-Kenya)

Subtheme: sense of achievement and pride

This subtheme reflects internal satisfaction that reinforces trust through emotional investment. The quote below expresses ownership and long-term pride in tangible outcomes, illustrating how connection to results builds sustainable trust.

that was one of my best things. I, I love, you know, it's something you can still look back and say, Well, that was my baby. And I can see the growth, we still have some folders in facilities that we were supported by partners at that time. (Male Nurse-Kenya)

Subtheme: appreciation for support and guidance

This subtheme demonstrates how gratitude for mentorship creates trust through knowledge transfer. The quote below shows how institutional recognition elevated the perceived importance of QI learning, building trust through validation.

Personally, I want them saying like, we are doing a big thing. But we realized that the Department of Health was taking this thing very seriously. And they really appreciated the process. Actually, the

graduation was looking like we have done a two year course, we really felt like we have we have acquired a lot, which is true.(Female Nurse-Kenya)

Subtheme: motivation and positive feedback

This subtheme highlights how external encouragement sustains trust through continued engagement. The quote below illustrates how certification provided both motivation and validation, building trust through formal recognition.

> I think that the motivation of having a certificate and getting to the graduation was a big motivation for them. (Nurse, Malawi)

> It was actually exciting because when you're able to see your teachers or facilitators, in that, they will literally explain things, not only talk about them, but also, I think there's something good about physical teaching that makes us understand a lot and makes everything sink in very fast. (Female Records officer-Kenya)

DISCUSSION

In this study, 30 HCWs from 6 countries across multiple cadres were interviewed to draw out their common, day-to-day experiences. HCWs, while describing the practical work of doing QI projects, also describe relationships at multiple levels in the healthcare organisations. The context of these relationships and their descriptions span the web of relationships present in modern healthcare. These include relationships between patients and providers, relationships between providers and organisations, and relationships within and between teams, and relationships with hospital leadership and QI mentors. The data support the importance of relationships in QI teams and described how good relationships were correlated to successful projects and poor relationships correlated to unsuccessful ones. Healthcare is a human process. The 'how' QI teams work matters as much as the technical aspects of 'what' they do. The relationship dynamics of trust building have been underappreciated because most of our effort in QI has focused on improving specific clinical or operational processes as opposed to building relationships and commitments within and across teams. Trust is built via these relationships through a dynamic process that begins by setting and committing to achieve a common goal. The remaining steps in how trust is built are neatly framed by Adam and Donelson's theory on trust building,[23] which is described as an iterative cycle of sharing common goals, expression of gratitude for the team member's contribution, and alignment with individual team member's interests. This 'human process' cycle of trust building within teams identifies measurable elements like a common goal, self-interest and gratitude and occurs concurrently with the iterative cycles of 'technical' process change encapsulated by the PDSA cycle (figure 1).

In highlighting the relationship elements of QI, we observe how the teams navigate problem solving. In the process of developing a plan to change the current state, QI technical tools are employed and relationship changes are occurring simultaneously.

The findings from our study reveal how culturally situated expressions operate within trust-building dimensions of QI teams. Kindness is expressed through Ubuntu,[29] defined by Nzimakwe as an African philosophy emphasising that 'a person is a person through other persons', valuing collective problem-solving, sharing responsibility and celebrating achievements together. This supports the African context of healthcare QI, particularly within the PDSA cycle structure common to QI initiatives primarily from Kenya and Malawi. These findings align with Deming's emphasis on psychological factors in his System of Profound Knowledge[27] and support ACQUIRE's integrated approach to QI.[30] While our data come primarily from Kenya and Malawi, the consistency of themes across participants from all six countries suggests potential applicability throughout African healthcare contexts.

The findings from this study demonstrate how Deming's lens of psychology within his System of Profound Knowledge operates in practice. As ACQUIRE has highlighted in their approach to healthcare quality,[30] technical improvement methodologies like PDSA cycles function not just as tools for process improvement but as frameworks that influence human behaviour and relationships. The three trust dimensions identified—common goals, self-interest and gratitude/indebtedness—map not only onto Deming's framework but also onto core principles of Ubuntu that Nzimakwe describes as emphasising 'humaneness, caring for one another, sharing and respect.'[29] This convergence suggests that QI methodologies might be particularly effective when they explicitly acknowledge and incorporate cultural values that promote trust-building behaviours.

While this is frequently observed in healthcare, it has rarely been reported in the literature. Intergroup relationships[32] and team processes[33] have been described. Teamwork and resilience,[34 35] as well as developing learning health systems,[35] which have been suggested to build HCW well-being, have implied the importance of relationships and people processes.

The trust literature in healthcare has been much more explicit in declaring that relationships matter.[8 36 37] However, the role of relationships in one of healthcare's most commonly implemented behaviour change approaches, QI, has gone largely unremarked. A noted QI expert stated, 'Adaptive challenges can only be addressed through changes in people's priorities, beliefs, habits and loyalties.'[38] Building trust allows HCWs to be bold enough to embrace uncertainty, face the potential failure of their plans and be resilient enough to try again. These data indicate that QI may have a role in

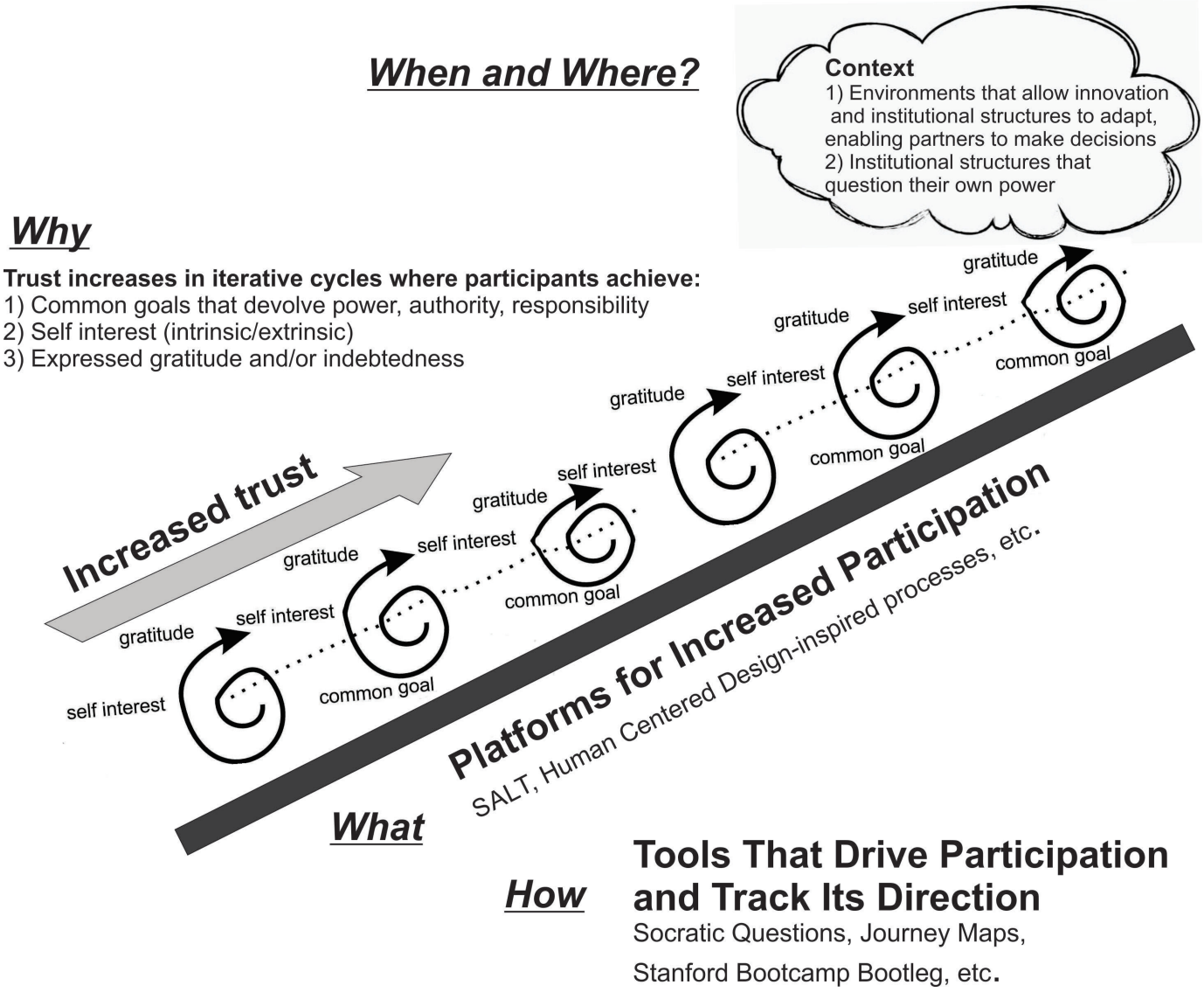

Figure 1 Trust building in quality improvement (adapted from Adam and Donelson, 2020).

simultaneously addressing both technical processes and adaptive problems like trust building in health care.[5]

Future directions/research section

Future research can expand geographic representation to the African continent to better validate how the trust-building framework manifests across diverse African healthcare contexts. Building on this initial study's findings from six countries, we hope to implement a continent-wide training and follow-up programme in the summer of 2025 that will systematically collect data from QI teams in at least 15 African countries. This expanded approach will allow for comparative analysis of whether Deming's psychological dimensions operate within different healthcare systems, cultural contexts and resource settings across the continent.

A significant gap remains in process models that demonstrate how kindness operates within healthcare systems, particularly models that incorporate African philosophical concepts like Ubuntu. Greco *et al*'s review[28] revealed that current kindness research is overwhelmingly based on Western contexts, creating an opportunity to develop culturally responsive frameworks. Their definition of kindness as 'intentional acts that benefit others' in healthcare settings provides a foundation, but needs cultural contextualisation. Our trust-building model may provide a structure for understanding how kindness operates in African settings. There is an opportunity to further investigate the relationship between culturally specific expressions of kindness and trust development within QI teams.

CONCLUSIONS

QI involves technical skills and scientific methodologies. Yet, it is also an adaptive process, one that addresses how people relate to each other. When teams work towards completing action plans, not only do they change the current clinical or operational process, but they change their relationships as well. The descriptions of HCWs'

experiences functioning in QI teams map onto the reciprocity cycle for trust-building framework. QI tools have largely been understood as technical ways of introducing changes to our organisations and adapting our local ecosystems to these changes. But in addition to conveying the technical dimensions of those changes, these QI methods may allow us to build relationships that are grounded in trust, something the healthcare system desperately needs.

The intersection of trust-building frameworks with cultural concepts like Ubuntu offers a promising direction for strengthening QI implementation across African healthcare settings. By incorporating indigenous African values of communality and mutual care, healthcare teams can create environments where trust flourishes and QIs become sustainable. Our findings suggest that QI initiatives that explicitly incorporate kindness principles alongside technical methodologies may achieve greater success and sustainability, particularly when these approaches are culturally resonant. As one participant noted, QI is ultimately about 'harmony, caring and coming towards one another' to improve patient care—a statement that captures the convergence of technical improvement with the human dimensions of healthcare delivery in an African context.

X Mary B Adam @mbadam and Tod Newman @todn1992

Acknowledgements We have greatly benefited from interactions with our many colleagues across all dimensions of the health system, from community health volunteers to CEOs to other frontline providers, who have journeyed with us to examine how quality improvement processes function and how trust can be built. We also appreciate ACQUIRE for opening their networks to the research team to facilitate recruitment.

Contributors MBA is the guarantor. All authors contributed to different stages of the conceptualisation, planning and development of the manuscript AJD, NWM, TN and KM. TN did all AI-assisted modeling. Analysis of key themes and comparison of traditional and AI methodologies was done by MBA, AJD, KM and TN. Review of all data analysis and development of conclusions was done by all authors. MBA wrote the first draft and MBA, KM, AJD, NWM and TN all reviewed and edited drafts as well as approving the final draft. A secondary AI analysis of data was used as a complement to traditional analysis and this is clearly stated in the manuscript.

Funding There was no funding to support the writing of this manuscript. All research work effort was an in-kind donation from their employers. ACQUIRE provided a database of HCW and funded the purchase of Dedoose software.

Competing interests None of the authors have any competing interests. They have completed the unfiled competing interest statement from ICJME.

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

Patient consent for publication Not applicable.

Ethics approval This study involves human participants. Approval was given by the Kijabe Hospital Institutional Ethics and Scientific Review Committee (Approval No: KH/IERC/02718/0027/2022) and the National Commission for Science and Technology and Innovation, Kenya (Ref No: 671137). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request.

Author note I declare that this is an honest and accurate account of the material being presented.

ORCID iDs
Mary B Adam http://orcid.org/0000-0002-0791-4791
Naomi Wambui Makobu http://orcid.org/0009-0006-6570-8204
Kedar Mate http://orcid.org/0000-0001-7579-6697
Tod Newman http://orcid.org/0009-0007-0172-1335
Angela Joy Donelson http://orcid.org/0000-0003-3777-2971

REFERENCES

1 Grob R, Darien G, Meyers D. Why Physicians Should Trust in Patients. *JAMA* 2019;321:1347–8.
2 Wesson DE, Lucey CR, Cooper LA. Building Trust in Health Systems to Eliminate Health Disparities. *JAMA* 2019;322:111–2.
3 Lee TH, McGlynn EA, Safran DG. A Framework for Increasing Trust Between Patients and the Organizations That Care for Them. *JAMA* 2019;321:539–40.
4 Lee PV, Berwick D, Sinsky CA. Building Trust Between the Government and Clinicians: Person to Person and Organization to Organization. *JAMA* 2019;321:1763–4.
5 Bauchner H. Trust in Health Care. *JAMA* 2019;321:547.
6 Baker DW. Trust in Health Care in the Time of COVID-19. *JAMA* 2020;324:2373–5.
7 COVID-19 National Preparedness Collaborators. Pandemic preparedness and COVID-19: an exploratory analysis of infection and fatality rates, and contextual factors associated with preparedness in 177 countries, from Jan 1, 2020, to Sept 30, 2021. *Lancet* 2022;399:1489–512.
8 Gilson L. Trust and the development of health care as a social institution. *Soc Sci Med* 2003;56:1453–68.
9 Barr A. Trust and Expected Trustworthiness: Experimental Evidence From Zimbabwean Villages. *Econ J* 2003;113:614–30.
10 Ozawa S, Sripad P. How do you measure trust in the health system? A systematic review of the literature. *Soc Sci Med* 2013;91:10–4.
11 Dadwal V, Basu L, Weston CM, *et al*. How Co-Developed Are Community and Academic Partnerships? *Prog Community Health Partnersh* 2017;11:387–95.
12 Hicks S, Duran B, Wallerstein N, *et al*. Evaluating community-based participatory research to improve community-partnered science and community health. *Prog Community Health Partnersh* 2012;6:289–99.
13 Kornacki MJ, Silversin J, Chokshi DA. From Distrust to Building Trust in Clinician-Organization Relationships. *JAMA* 2019;321:1761–2.
14 Mechanic D, Schlesinger M. The impact of managed care on patients' trust in medical care and their physicians. *JAMA* 1996;275:1693–7.
15 Sklar DP, McMahon GT. Trust Between Teachers and Learners. *JAMA* 2019;321:2157–8.
16 Sinsky CA, Shanafelt TD, Ristow AM. Radical Reorientation of the US Health Care System Around Relationships: Rebalancing the Transactional Model. *Mayo Clin Proc* 2022;97:2194–205.
17 Khullar D. Building Trust in Health Care-Why, Where, and How. *JAMA* 2019;322:507–9.
18 Haerpfer C, Inglehart R, Moreno A, *et al*. World values survey: round seven – country-pooled datafile version 3.0. Madrid, Spain & Vienna, Austria JD Systems Institute & WVSA Secretariat; 2022.
19 Okello DRO, Gilson L. Exploring the influence of trust relationships on motivation in the health sector: a systematic review. *Hum Resour Health* 2015;13:16.
20 Galford R, Drapeau AS. The enemies of trust. *Harv Bus Rev* 2003;81:88–95.
21 Lewicki RJ, Bunker BB. Developing and maintaining trust in working relationships. In: Kramer RM, Tyler TR, eds. *Trust in organizations: frontiers of theory and research*. Thousand Oaks, California: Sage Publications, 1996: 114–39.

22 Nooteboom N, Six F. *Trust process in organizataions: empirical studies of the determinants and the process of trust development*. Cheltenham, United Kingdom: Edward Elgar Publishing Limited, 2003.
23 Adam MB, Donelson A. Trust is the engine of change: A conceptual model for trust building in health systems. *Syst Res Behav Sci* 2020;31:1–12.
24 Renner H-J, Makobu NW, Mbugua S, *et al*. 'I Am Now Five Steps Ahead': How Co-design Platforms Sustain Kenyan Community Health Volunteer Engagement. *Prog Community Health Partnersh* 2023;17:e9.
25 Adam MB, Minyenya-Njuguna J, Karuri Kamiru W, *et al*. Implementation research and human-centred design: how theory driven human-centred design can sustain trust in complex health systems, support measurement and drive sustained community health volunteer engagement. *Health Policy Plan* 2020;35:ii150–62.
26 Hilton KW. *Leadership in volunteer multistakeholder groups tackling complex problems*. Emerald Group Publishing Limited, 2016.
27 Batalden PB, Davidoff F. What is 'quality improvement' and how can it transform healthcare? *Qual Saf Health Care* 2007;16:2–3.
28 Greco A, Logar-Henderson C, Abimanyi-Ochom J, *et al*. Role of kindness in improving healthcare: a scoping review of current research evidence. *BMC Health Serv Res* 2025;25:1328.
29 Nzimakwe TI. Practising Ubuntu and leadership for good governance: the South African and continental dialogue. *AJPA* 2014;7:30–41.
30 ACQUIRE. ACQUIRE's big idea: healthcare without quality is unsafe. Africa Consortium for Quality Improvement in Frontline Healthcare; 2023. Available: https://acquirefrontline.org/acquires-big-idea-healthcare-without-quality-is-unsafe/ [Accessed Mar 2025].
31 Adam MB, Donelson AJ, Mbugua S, *et al*. Human centered design for rapid results: improving quality in close to the community health systems in four Kenyan villages. *BMC Proc* 2017;11:1.
32 Bartunek JM. Intergroup relationships and quality improvement in healthcare. *BMJ Qual Saf* 2011;20 Suppl 1:i62–6.
33 Jepkosgei J, English M, Adam MB, *et al*. Understanding intra- and interprofessional team and teamwork processes by exploring facility-based neonatal care in kenyan hospitals. *BMC Health Serv Res* 2022;22:636.
34 Tawfik DS, Sexton JB, Adair KC, *et al*. Context in Quality of Care: Improving Teamwork and Resilience. *Clin Perinatol* 2017;44:541–52.
35 Rosen MA, DiazGranados D, Dietz AS, *et al*. Teamwork in healthcare: Key discoveries enabling safer, high-quality care. *Am Psychol* 2018;73:433–50.
36 Gilson L. Editorial: building trust and value in health systems in low- and middle-income countries. *Soc Sci Med* 2005;61:1381–4.
37 Ikonen M, Savolainen T. Trust-communication dyad in inter-personal workplace relationships – dynamics of trust deterioration and breac. *EJKM* 2014.
38 Pronovost PJ. Navigating adaptive challenges in quality improvement. *BMJ Qual Saf* 2011;20:560–3.