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The regulation-practice gap, regulatory relationships, and quality improvement in resource-constrained health systems: Findings from a study of professional regulation for doctors and nurses in Uganda

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ABSTRACT

Background: Regulation is a core mechanism for maintaining the availability and quality of the health workforce, underpinning a WHO building block for health system improvement, but often fails in resource-constrained health systems in the Global South. This paper examines views and experiences of professional regulation for doctors and nurses/midwives in Uganda, regulatory problems and opportunities for improvement.

Methods: We conducted focus groups, 60 interviews with Ugandan national regulatory stakeholders, doctors, and nurses/midwives, and a national survey completed by 2213 Ugandan doctors and nurses/midwives.

Results: With limited resources, staff, and significant responsibilities, Ugandan health regulators were perceived as focusing on collecting fees, registering, and licensing health practitioners, rather than ensuring high-quality professional practice. While Ugandan doctors, nurses and midwives support regulation in principle, they reported limited engagement with distant regulators, who rarely noticed or addressed malpractice. However, we found one positive case where nurses described good personal relationships with a local regulator, who supported, mentored and explained to nurses what regulation and compliance meant in practice, and here nurses viewed regulation as working well. Thus, we explain how regulatory relationships can bridge the geographical gap between regulators and health professionals and the interpretive gap between written standards and practice.

Conclusion: Improving relationships between regulators and regulated health workers holds potential to address the regulation-practice gap, which is generally undermining regulation and professionals' practice in resource-constrained countries in the Global South. However, regulatory relationships must be supported by adequate resources and transparent mechanisms to prevent local-level regulatory capture, politics, and corruption.

1. Background

Regulation is a key mechanism for ensuring the quality and availability of the health workforce, which is one of the pillars within the World Health Organisation's (WHO) building blocks for a resilient health system, and is central to achieving universal health coverage (Organization, 2007; Manyazewal, 2017; Bloom et al., 2025). However, research suggests that in the Global South, regulation in resource-constrained health systems generally (Akhtar, 2011; Sheikh et al., 2013; Wafula et al., 2013; Hamill et al., 2021; Nxumalo et al.,

List of abbreviations: ACN, Assistant Commissioner for Nursing; AHP, Allied Health Professionals; INGO, International Non-Government Organisation; MakSPH, Makerere University School of Public Health; REC, Research Ethics Committee; UMDPC, Uganda Medical and Dental Practitioners Council; UMA, Uganda Medical Association; UNMC, Uganda Nurses and Midwives Council; UNMU, Uganda Nurses and Midwives Union.

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2018; Cleary et al., 2013), and regulation of health practitioners specifically (Fujita et al., 2019; Mayra et al., 2021; Keshri et al., 2020; Dejene et al., 2019; Clarke et al., 2016; McGivern et al., 2024; Badr et al., 2024; Mahat et al., 2023; Leslie et al., 2023; WHO, 2016, 2024; Hipgrave and Hort, 2014), are often problematic, poorly implemented, and weakly enforced.

A 2024 WHO report on 'health practitioner regulation' (Badr et al., 2024; WHO, 2024) detailed regulatory challenges particularly facing resource-limited countries in the Global South: inadequacies in regulatory design, and/or implementation; limited enforcement capacity; corruption; lack of transparency and accountability; discrepancies between regulatory bodies' official functions and the roles they perform in practice; low political support; self-interested capture of regulatory bodies; information asymmetries and unequal power relations between health practitioners and the public.

Thus, regulation may fail due to poor 'contextual fit' between how it is designed and written 'on paper' and the lived circumstances in which regulation is enacted (Soderlund, 2000), where 'pragmatic local norms can override formal regulatory provisions for health practitioners' [17: 596]. These issues highlight 'the problem of the gap' (De Herdt and Oliver de Sardan, 2015) between officially prescribed and lived practices, as well as a 'regulation-practice gap' (Badr et al., 2024; WHO, 2024), which has been noted in resource-limited health systems in the Global South (Amon et al., 2024; Ramsey et al., 2024; Mbuthia et al., 2023, 2021; Zhao et al., 2024).

We therefore need, first, to better understand how regulation is enacted and experienced in practice in frontline contexts (McGivern et al., 2024; Badr et al., 2024; Mahat et al., 2023; Leslie et al., 2023; WHO, 2016, 2024) and, second, to develop mechanisms that bridge the gap between regulators and practice. One potential way to address these problems, supported by research conducted in high-income countries (McGivern and Fischer, 2012; McGivern et al., 2015; Huising and Silbey, 2011) and resource-constrained health systems in the Global South (Akhtar, 2011; Wafula et al., 2013; Tama et al., 2022), as well as theories of regulation, is to improve the relationships between regulators and those they regulate.

Two theories have emerged to explain effective regulation. First, 'responsive regulation' theory explains the key role of regulators in persuading regulatees to accept and voluntarily comply with regulations (Ayres and Braithwaite, 1992), which depends on the regulator-regulatee relationship and dialogue, thereby enhancing understanding, trust, and belief in the legitimacy of the regulation (Tyler, 2006; May, 2004). While persuasion is more likely to produce compliance than punishment for noncompliance (May, 2004), some regulated entities may still refuse to comply voluntarily. Therefore, regulators depend upon relationships with those they regulate to determine levels of compliance, identify who is complying, and when they need to threaten to or punish noncompliance (Ayres and Braithwaite, 1992).

Second, 'relational regulation' theory similarly highlights the importance of a regulator-regulatee dialogue. Relational regulators explain regulations to those they regulate, which enhances regulatees' understanding of what regulation and compliance mean in practice. Relational regulators also listen to regulatees' views and experiences of enacting and attempting to comply with regulation, which helps regulators develop standards that reflect good practice. Accordingly, this two-way regulatory dialogue narrows the 'interpretive gap' between written standards and practice, making regulation easier to comply with and more likely to address problems that regulatees experience. Relational regulation theory proposes that regulators are pragmatic, acknowledging the impossibility of perfect compliance, and instead focus on ensuring that regulated practices are sufficiently close to compliance to be safe and effective (Huising and Silbey, 2011).

Thus, both responsive regulation (Ayres and Braithwaite, 1992) and relational regulation (Huising and Silbey, 2011) theories highlight the importance of relationships between regulators and the regulated. Relationships enable responsive regulators to assess levels of compliance and balance punishment and persuasion to maximise compliance. For relational regulators, the onus of relationships is on helping regulators develop regulatory standards that reflect practice, while pragmatically accepting an interpretive gap between written standards and practice, and thus focusing on ensuring sufficient rather than perfect compliance.

Some research (Akhtar, 2011; Wafula et al., 2013) has suggested that responsive regulation may be helpful in resource-constrained health systems in the Global South. Similarly, other studies (Fortnam et al., 2024; Reid et al., 2024) have shown that relational dialogue bridges formal health system governance and lived practice, thereby improving health system regulation. However, such dialogue requires expertise, time, and resources, which are limited in many health systems in the Global South (Tama et al., 2022; Chege et al., 2022). Yet research examining regulatory relationships in these settings remains limited.

Furthermore, in many African countries, workarounds, improvisation, and practical norms that deviate from official, professional, and regulatory norms, standards, and rules are commonplace, creating 'the problem of the gap' (De Herdt and Oliver de Sardan, 2015). Some improvisation, workarounds and practical norms are necessary to maintain public services without sufficient resources to meet official standards or in the face of circumstances not officially prescribed, while others are just harmful (De Herdt and Oliver de Sardan, 2015; Livingston, 2012; Nzinga et al., 2019; De Sardan, 1999). For example, corruption, nepotism, and absenteeism have been reported as commonplace in many health systems in the Global South (Hutchinson et al., 2020). Yet the impact of local relationships and practical norms is often invisible and misunderstood from a distance (Nxumalo et al., 2018; Cleary et al., 2013). For example, being ethical and professional by reporting or refusing to participate in corruption or malpractice can have significant personal and relational costs, such as being ostracised and retaliated against (De Herdt and Oliver de Sardan, 2015; De Sardan, 1999).

Thus, noncompliance may be accidental, justifiable, or intentionally harmful, requiring different regulatory responses (Ayres and Braithwaite, 1992; May, 2004). Some health professionals lack understanding of how to comply with regulatory standards, so they need education and support. In other cases, compliance with official standards may not be possible due to resource constraints, so regulators may need to moderate standards to reflect and clarify what constitutes good enough professional practice on the frontline. Other health workers may deliberately not comply with regulations, making 'amoral calculations' about the costs and benefits of compliance or noncompliance (Kagan, 1989), despite knowing their actions are harmful. For example, they may decide that the benefits of corruption or malpractice outweigh the costs of compliance. In such cases, regulators need to threaten or impose more punishment for noncompliance.

So, how do regulators and regulated healthcare workers experience and understand regulation and compliance in complex, resource-constrained contexts involving ambiguous practical norms and a regulation-practice gap? Is improving relationships between regulators and regulated health professionals a feasible means of enhancing regulation and health systems in resource-constrained countries? To address these questions, we need to examine experiences of regulation in frontline settings (Akhtar, 2011; Wafula et al., 2013; Nxumalo et al., 2018; McGivern and Fischer, 2012; Hutchinson et al., 2020). Accordingly, we conducted research (in 2019–2021) on professional regulation for doctors and nurses/midwives in the resource-constrained Ugandan health system.

2. Research context

Uganda is a low-income East African country with a resource-constrained health system, in which poor general regulation has historically compromised health care quality (WHO, 2017). Uganda's health system is decentralized to district level (Chen et al., 2021), but the regulation of Ugandan healthcare professionals is centralized,

conducted by regulators with offices in the Ugandan capital, Kampala, supported more recently by digitised online systems. Thus, professional regulation operates in a complex hybrid context, which impacts regulation and health system performance (Chen et al., 2021) and needs to be studied in both central/national and district-level research sites.

In 2023/24, Uganda had 9388 registered medical and dental practitioners and 119,132 registered nurses and midwives,[1] which equates to 0.2 physicians and 2.3 nurses per 1000 population (2022 figures).[2] The Uganda Medical and Dental Practitioners Council (UMDPC) regulates doctors, and the Uganda Nurses and Midwives Council (UNMC) regulates nurses/midwives in Uganda. UMDPC and UNMC are statutory governmental bodies, respectively responsible for overseeing the practice and training of medicine and nursing/midwifery. Professional associations, including the Uganda Medical Association (UMA) and the Uganda Nurses and Midwives Union (UNMU), collaborate with these regulators to develop standards that govern the practice of health practitioners.

Doctors renew their medical licences annually by providing a copy of a previous medical licence, registration certification or certificate of good standing from a regulator in another country, evidence of continuing professional development, and paying a licencing fee. In 2019, the UMDPC introduced an online registration and licensing system for doctors, with financial support from the World Bank Group.[3] Nurses/midwives renew nursing licences every three years by providing a copy of a previous nursing licence, certificates demonstrating appropriate education and training, and paying a licence fee. UNMC introduced an online registration and licensure system in November 2022, and by April 2024, 42,323 nurses and midwives had used it, with 27,146 doing so to obtain or renew their licences.[4] We therefore note that at the time we collected data (in 2019–21), online registration and licensing had just been introduced for doctors and had yet to be introduced for nurses/midwives.

3. Methods

This paper draws on data collected in Uganda from 2019 to 2021 as part of a wider mixed-methods study of the regulation of health practitioners in Kenya and Uganda [authors' anonymised references], employing a comparative case study design (Miles et al., 2013). The wider study examined views and experiences of professional regulation among national regulatory stakeholders and frontline doctors and nurses/midwives in rural and urban settings.

We purposefully sampled and interviewed doctors and nurses/midwives, as medicine and nursing/midwifery represent the two primary professions working in the Ugandan and Kenyan health systems. We also sampled doctors and nurses/midwives in one rural/remote and one central/urban district in each country to explore geographic differences in views and experiences of regulation. We conducted district selection in consultation with key health sector leaders, who provided oversight and guidance on this study as part of project advisory boards, including representatives from Ministries of Health. However, some contextual differences are inevitable and have been observed, particularly in urban-rural infrastructural development, the socioeconomic status of locals and health workers, as well as caseloads at the health facilities. With over 130 Ugandan districts, there are limits to the generalizability of findings from the two selected Ugandan districts we studied.

In this paper, we focus on Ugandan data because across the two professions and four geographic settings we studied in Kenya and Uganda, we found only one setting in which regulation was described as effective: a local nursing regulatory office in one Ugandan district. Drawing on Ugandan data provides a parsimonious way of richly and deeply illustrating and analysing the only example of effective regulation and the contrasting broader context in which professional regulation was generally seen as ineffective. By providing country-specific findings, we also aim to guide improvements in regulatory policy and programmes in Uganda.

Interviews conducted in Uganda involved national-level regulatory stakeholders (including from the Uganda Ministry of Health, health professional regulators and professional associations). We then interviewed 21 Ugandan doctors and 29 Ugandan nurses/midwives; 27 were recruited from hospitals in the two districts, while two doctors worked for a national military hospital and an international non-governmental organisation. We asked semi-structured interview questions about their views and experiences of regulation in the Ugandan health systems.

We also draw upon qualitative data collected during two online/in-person focus groups, comprising separate groups of 9 Ugandan nurses/midwives and 12 Ugandan doctors, including doctors and nurses representing professional associations and unions. We presented our research findings from Ugandan districts to these focus groups to validate whether they reflected the general experiences of doctors and nurses/midwives, and to discuss ideas for regulatory improvement. Focus group discussions elicited further data describing participants' views and experiences of the regulation of health practitioners. Interviews and focus groups were digitally recorded and transcribed verbatim. Ugandan and British researchers conducted interviews and focus groups. We analysed transcripts for researcher effects to see whether researchers' nationalities and experiences influenced respondents in different ways, but we did not find significant differences. Table 1 summarises those we interviewed.

We also draw on data from an online/paper-based survey (conducted in April-June 2021) that was open to all doctors, nurses/midwives, medical and nursing interns and students in Kenya and Uganda. The survey opted for a convenience sample, aiming to reach as many participants as possible. The survey was widely publicised and distributed, with assistance from the Uganda Medical Association and the Uganda Nurses and Midwives Union, via email lists for Ugandan doctors and nurses/midwives, as well as social media (e.g., Twitter and WhatsApp groups for nurses and doctors). We also distributed paper copies of the survey questionnaire to doctors and nurses in rural counties/districts, where internet access was limited, to ensure responses from rural areas.

The survey collected a total of 3466 responses, including 2213 from Uganda (340 doctors, 1268 nurses/midwives, 265 medical or nursing interns, and 340 medical or nursing students in Uganda). The survey explored views and experiences of being regulated as a health practitioner. It drew on measures validated in previous survey-based research on professional regulation (authors' anonymised reference) and new questions testing the generalizability of key themes emerging from interview data. Survey participants responded to statements (e.g., 'Regulation has a positive effect on my professional practice') on the Likert scale (1 =strongly disagree to 5 = strongly agree) and demographic questions (e.g., about country, profession, age), showing variations in responses by characteristics. Below, we present survey results by professional group to illustrate the generalizability and variations within professional groups in relation to key themes discussed in the paper.

We thematically coded (Braun and Clark, 2006) qualitative interview and focus group data. During the first round of data coding, we identified key empirical themes, including perceptions that regulators are too remote and only interested in collecting fees; ineffective regulation and poor compliance; and the need for a better understanding of regulation and professional standards. We compared these themes

[1] https://library.health.go.ug/monitoring-and-evaluation/annual-quarterly-performance-reports/annual-health-sector-performance-8

[2] https://data.worldbank.org/indicator/SH.MED.NUMW.P3?locations=UG-KE

[3] https://africa-health.com/news/achest-develops-online-platform-registration-and-licensing-for-health-professionals/#:~:text=One%20only%20needs%20to%20create,delivery%20in%20the%20health%20sector.

[4] https://unmu.ug/wp-content/uploads/2024/06/Abstract-2024-online-version-2.pdf

Table 1
Research participants.

Profession	Remote District interviews	Central District interviews	National interviews	Focus groups	Total
Doctors	4	3	2	12	21
Nurses/midwives	12	8		9	29
National regulatory stakeholders			10		10
Total	**16**	**11**	**12**	**21**	**60**

between the two professions (nursing/midwifery and nursing), districts, and levels of analysis (national and local) to test their generalisability.

We iteratively theorised (Miles et al., 2013) our findings using theory about responsive and relational regulation and regulatory dialogue (Akhtar, 2011; Huising and Silbey, 2011; Ayres and Braithwaite, 1992; Black, 2002; May and Wood, 2003), which, before our empirical research, we had identified as candidate theories (alongside other theories) that might explain findings. Analysing our empirical findings, we hypothesised that a lack of engagement between regulators and healthcare practitioners was one mechanism underlying the regulatory problems described. The positive case of nursing regulation in one Ugandan district provided further support for different levels and types of relational engagement between regulators and regulated health professionals explaining our findings in Uganda.

Finally, we reflect on how the research team may have impacted research findings. Most authors have experience in conducting research and/or clinical practice in the resource-limited health systems in Uganda and/or Kenya. The majority of authors are either Ugandan or Kenyan nationals, while others are from the United Kingdom. We formed an 'insider-outsider' research team (Louis and Bartunek, 1992), using diverse knowledge and experience to design, implement, analyse, and interpret the research, with insider-outsider dialogue stimulating diverse interpretations of research findings, as well as reflexivity about potential biases affecting them.

4. Results

4.1. General experiences of regulation as a health practitioner

In Uganda, bodies regulating health practitioners have a significant and wide-ranging responsibility but few staff and resources, as interviewees described:

> "The staff of the [Uganda Nursing and Midwives] Council are 23, but only two… on government payroll… The Council is not supported much by government… depend so much on revenue from registration licensure." (Regulatory representative, Uganda)

> "We've had challenges. We're understaffed; we didn't have enough resources…. [if] you are limited, you have about 15 staff countrywide, you can't survive." (Ugandan regulator)

> "The UMDPC is poorly funded… employs a few people who are usually overwhelmed with work." (Doctor, Ugandan focus group)

These regulators therefore focused on ensuring health practitioners paid licence fees, held valid licences, and were listed on professional registers, rather than engaging with them or regulating the standard of practice and behaviour, which undermined health practitioners' perceptions of their legitimacy and functionality. As Senior Doctor 3 (Military hospital) noted:

> "Regulators simply collect revenue… the only time you interface with the registration body is when they need the fee… If a patient complains of malpractice, nobody is interested… Regulatory bodies are not functional; they are not looking at professionalism or quality of service."

Interviewees complained about the time it took for the UNMC to register "nurses who finished their internship two years back but don't have the licences yet." (Graduate nurse intern (Mbuthia et al., 2023), Central District). During this time, nurses were unable to work, earn money or gain clinical experience, and may even forget what they had learned at nursing school, as Nurse 14 (Remote District) described: "Seated [waiting] for two years… A person who relaxes for a long time tends to forget things." Again, such experiences undermined health practitioners' perceptions of regulators' legitimacy and competence.

Other than registering and renewing their professional licences, Ugandan doctors and nurses then had little contact with regulators. Nurse 2b (Remote District) commented: "Since I started working here, I have never seen [UNMC] in more than ten years." Likewise, a doctor (focus group discussion) commented: "Leaving medical school, I was required to pay my provisional licence fees at the UMDPC… I've never heard from them again."

Health practitioners "up country" - meaning those in rural areas far from the Ugandan capital city of Kampala, where regulators' offices were based - also complained that renewing their professional licences involved taking time off work, travel and accommodation expenses, as Medical Director 7 (Remote District) described:

> "Regulators are not easily accessible to the health workers… being in Kampala. That distance is cumbersome and leaving "up country" to Kampala to have your practising license renewed, it is not simple… it means you are giving that person time off [work] for two days."

Interviewees noted that regulators rarely visited remote health facilities, so were unaware of the challenges they faced: "Councils never get time to come and visit up-country. The challenges we are getting as health workers; they are not aware." (Medical Director 7, Remote District); "We're here suffering… professionalism is dying because those guys [UNMC] are not coming out of their offices" (Nurse 2c, Remote District).

Due to limited contact with regulators, health practitioners lacked understanding of what regulation meant in practice and how it could enhance clinical practice: "We don't have any guidance… We need to see [regulators] helping [health care] facilities. Let them come down to this earth" (Nurse 2a, Remote District). Lack of engagement between professionals and regulators is problematic as it undermines professionals' understanding and perceptions of regulatory legitimacy, as a senior doctor (4, Central District) described:

> "My personal experience is of cracked engagement on the part of health workers because the opportunities to interface with [regulators] are not usually frequent, especially for us who are up-country… we remain highly out of the picture. We haven't had any direct engagement [with regulators]… Health workers don't see how they are relevant… What does it mean to be regulated by these people?"

In our survey, only about a third of Ugandan doctors (35 %) and nurses (30 %) agreed, 'I have had sufficient contact with staff from my regulator in the last year' and almost half of Ugandan doctors (46 %) and nurses (42 %) agreed 'my regulator is just interested in collecting registration and licence fees.'

Thus, due to a lack of engagement and interface with regulators, Ugandan doctors and nurses suggested that regulation had little impact on professional practice. Instead, good practice was seen as dependent on health practitioners' professionalism inculcated during medical and nursing school, as Senior Doctor 3 (Military hospital) described:

> "No regulatory body, nobody monitors. There is no consequence for doing wrong. Most of us [doctors] are driven by the oath and medical training that tends to train you to care, look after patients, and do the right thing. But even if you don't do the right thing, the consequences are not there… That engrains that feeling among health workers that nothing will happen to them even if [patients] complain."

Similarly, Nurse 11 (Remote District) commented: "Regulations… are not enough… People are not doing what they are supposed to do… We nurses lose our manners when we are in practice… [In] nursing school [tutors] are very strict… but after qualifying, I think [nurses] lack follow-up."

In our survey, the majority of Ugandan doctors (58 %) and almost half of Ugandan nurses (47 %) had 'witnessed medical or nursing negligence where I work'. About two-thirds of Ugandan doctors (63 %) and nurses/midwives (67 %) reported having 'had concerns about a professional colleague's ability to do their job', yet only 8 % of them 'reported the concerning colleague to their professional regulator'. Almost half of Ugandan doctors (47 %) and nurses (49 %) agreed 'sanctions my regulator can impose deter malpractice', but many Ugandan doctors (38 %) and almost half of nurses/midwives (49 %) said 'my regulator does not deal effectively with malpractice'. Perceptions that professional regulators are failing to address malpractice may explain the low levels of reporting of negligence.

Instead, interviews described serious malpractice, like "extorting money" from patients (Senior Doctor 25, Central District), being reported to senior hospital managers. Minor malpractice, including "absenteeism or late coming" (Medical Director 7, Remote District) and treating patients poorly, was commonly addressed locally by senior health practitioners or hospital 'disciplinary committee' meetings. Nurse 9 (Principal Nursing Officer, Remote District) noted: "In case someone misbehaves, we have a disciplinary committee; it sits whenever there is a problem. We also talk to them… about what is right… We also refer to higher powers [regulators], if necessary, but most of the time we just handle it." Thus, malpractice was typically addressed by a locally constituted group of health practitioners, who considered each case of malpractice on an individual basis.

Doctor 26 (NGO) suggested that health facilities handled professional malpractice and negligence internally to avoid bringing negative attention: "Facilities don't want to be in the limelight for that negligence, so usually find a way of dealing with it internally." However, Doctor 3 (Military hospital), suggested that health workers often protected one another, even where malpractice had occurred: "Your own fraternity will defend you because of the image of the profession… nobody is held accountable… we are locked into protecting each other even when wrong has been done." Thus, there is a need for transparency to increase the likelihood that health practitioners hold one another accountable for malpractice.

Interviewees also described a difference between formal written regulatory standards and frontline compliance due to working in resource-constrained settings. A representative of the Uganda Medical Association argued that when: "You're starting with improvisation that demolishes the regulatory framework because, first and foremost, you're not following the guidelines as prescribed." (Medical Association representative)

In our survey, nearly all Ugandan doctors (87 %) and nurses/midwives (92 %) agree that 'In principle, regulation is a good idea'. Most Ugandan doctors (80 %) and nurses/midwives (82 %) also agree that 'Regulation has a positive effect on my professional practice'. However, almost half of Ugandan doctors (46 %) and nurses (43 %) said that 'At times, I am unable to comply with some regulatory standards.' These findings raise questions about how regulators can determine whether health practitioners are complying with the intent of regulation or develop regulatory standards suitable for local resource-constrained contexts and improvised practice when they are far removed from the frontline.

Indeed, many interviewees indicated a desire to interface with and be guided by professional regulators. For example, Doctor 10 (Remote District) contrasted their experience of their professional regulator [UMDPC) with the Health Monitoring Unit (a national regulator, which operates in parallel to health professional regulators and is responsible for monitoring health care and investigating malpractice), which had visited the district where the doctor worked:

> "[Health Monitoring Unit] are doing a good job, at least they come… monitor… You feel they have guided… They are rough … [but] they are helpful. If you compare it with the Medical Council [UMDPC], at least we have interfaced with them [Health Monitoring Unit] at work. But for the other one [UMDPC], no." (Doctor 10, Remote District)

Similarly, Doctor 15 (Remote District) commented that being regulated by an effective regulator led health workers to be 'more careful': "Health workers… know in case of any neglect it can backfire and get repercussions; it has actually helped to maintain health in Uganda… [Health Monitoring Unit] have done more good; at least health workers are more careful about their work."

In summary, Ugandan doctors, nurses, and midwives generally perceived regulators as remote, unaware of problems affecting health practitioners, and focused on collecting fees, licensing, and registering health practitioners, rather than regulating the quality of professional practice or preventing malpractice. They also describe a large regulatory gap between written professional standards and frontline practice, which some interviewees suggested involved 'improvised' care due to resource limitations. Where poor health professional practice was addressed, this was commonly done by health practitioners and managers locally, without the awareness or involvement of national-level regulators.

4.2. Positive experiences of local nursing regulation

While Ugandan doctors and nurses were generally negative about regulation, nurses in the Central District were positive, providing a counter case we can learn from. Here, the UNMC had established a local 'Coordination Centre', which integrated the regulation and management of nurses in the district and broader region. The Coordination Centre was based in a regional referral hospital and run by the hospital's head nurse (Assistant Commissioner for Nursing; ACN), who combined responsibilities for hospital management and the regulation of local nurses in a single role. The ACN had significant experience in nursing and administration, as well as a master's degree in public administration, making them knowledgeable about nursing, regulations, and management.

Nurses in the Central District described the Coordination Centre as having improved regulation in several ways. First, it enabled renewal of licences locally, reducing the geographical distance between nurses and their regulator. Head Nurse 5 (Central District) noted: "Instead of nurses and midwives moving to Kampala to the centre, they bring their documents here, and then I take them to… the Council to renew their licenses." Having a local regulatory office resolved nurses' difficulties renewing their licences. Nurse in Charge 22 (Central District) similarly noted: "Once registration was brought to this hospital, there's now no problem."

Second, the regulation coordinator and district hospital nurse managers working under them actively supervised, mentored, counselled, and trained local nurses to follow regulatory codes of conduct, ethics, and professionalism. Head Nurse 5 (Central District) noted they: "Supervise and mentor, or even remind them [nurses] about professionalism, because others [nurses] will look at it [nursing] as just getting a salary… they've not really embraced professionalism."

Third, since the UNMC had established the Coordination Centre, Central District was better connected to UNMC through frequent visits from UNMC officers: "Lately they [UNMC] are coming so frequently; this

year they came twice. They just talk to us; they gather all the nurses… tell them what they do as our regulatory body." (Nurse In Charge 6, Central District). Thus, through more regular interactions with regulators, nurses in the central district enhanced their understanding of how and why they should comply with regulations. Connection between UNMC and the local regulation coordinator also helped address local problems: "Here the ACN is connected to the [Nursing] Council… So, the ACN can forward [problems to UNMC, who] … then come to the ground… come up with solutions" (Nurse In Charge 22, Central District). We note that this connection might also have been helped by the Central District's proximity to the main UNMC offices in the Ugandan capital city.

Finally, nurses described how their local regulator personally represented regulation and having a respected senior nurse mentoring and supervising nurses in a local regulatory leadership role increased compliance with regulatory standards, which would otherwise be unknown or too abstract:

> "I really don't have a lot of information about [UNMC], but we have the ACN who is in charge of all the nurses. So, if anything goes wrong, you go to the ACN… [Nurses don't comply with regulations when] leaders are not there, that's human nature, but having such leaders in place helps to ensure they have complied." (Graduate Nurse Intern, Central District)

We acknowledge that contextual factors in the Central District, including its relative affluence, proximity to the Ugandan capital, and the ACN's local personal credibility and standing may have influenced the perceived efficacy of this UNMC office. Nonetheless, we argue that having this local regulator, with good relationships with local health professionals, helped bridge the regulation-practice gap, enhancing regulatory engagement, views and experiences of regulation, which contrasted with the generally held negative views of healthcare regulation in Uganda.

Indeed, other Ugandan health practitioners called for the establishment of regional professional regulatory officers. For example, Medical Director 7 (Remote District) noted: "It's high time the [Medical] Council establishes regional offices… There is no need of going to the headquarters… The Council needs to decentralize the operations… it should be easier for us to go to these regional offices to assess our issues." Likewise, a Doctor in the Ugandan medical focus group commented: "The [Ugandan Medical] Council could do better if they utilized the Allied Health Professionals Council model of decentralizing services."

However, decentralisation and developing local regulatory offices also risk regulation being undermined by politics, corruption and nepotism at the local level, as interviewees described:

> "Districts' recruitment was decentralized, its District Service Commission will get someone [into a health practitioner role], a relative, but the person is not trained." (Nursing Council representative)

> "We have failed to sanction [malpractice]… because that nurse or midwife is a relative to the senior nursing officer here. It's all corruption." (Nurse in Charge 8, Remote District)

Accordingly, the development of local regulatory offices would need to be accompanied by transparency mechanisms that link to national-level health professional regulators, thereby reducing the risk of local-level corruption and political interference.

5. Discussion

Achieving high-quality, universal health coverage depends on having a sufficient, well-trained, and motivated health workforce (WHO, 2016), which is one key building block for health system improvement, as identified by the WHO (Organization, 2007; Manyazewal, 2017). Yet, in many resource-limited countries in the Global South, health practitioners are poorly and/or irregularly paid, and lack the necessary resources to deliver high-quality care, leading to demotivation (Hipgrave and Hort, 2014; Mbuthia et al., 2023, 2021; Zhao et al., 2024; Effa et al., 2021; Willis-Shattuck et al., 2008; Koon, 2021; Nyawira et al., 2022), absenteeism, corruption, nepotism, and malpractice (De Herdt and Oliver de Sardan, 2015; Hutchinson et al., 2020; Onwujekwe et al., 2019; Naher et al., 2022).

Professional regulation is a mechanism for preventing and addressing these issues and underpins health system improvement (Organization, 2007; Manyazewal, 2017; Bloom et al., 2025). However, research also suggests that regulation in health systems is generally poorly implemented and weakly enforced in resource-limited countries in the Global South (Akhtar, 2011; Sheikh et al., 2013; Wafula et al., 2013; Hamill et al., 2021; Nxumalo et al., 2018; Cleary et al., 2013), and specifically for health practitioners (Fujita et al., 2019; Mayra et al., 2021; Keshri et al., 2020; Dejene et al., 2019; Clarke et al., 2016; McGivern et al., 2024; Badr et al., 2024; Mahat et al., 2023; Leslie et al., 2023; WHO, 2016, 2024; Hipgrave and Hort, 2014), with little impact on professional practice.

Echoing the literature on health practitioner regulation (Badr et al., 2024; WHO, 2024), our empirical research on Ugandan doctors' and midwives/nurses' views and experiences of professional regulation highlights a problematic 'regulation-practice gap' undermining practice on the clinical frontline (Amon et al., 2024; Ramsey et al., 2024; Mbuthia et al., 2023, 2021; Zhao et al., 2024). Ugandan doctors in both districts, and nurses in one district, perceived regulators as remote, unaware of problems affecting health workers, and focused on collecting fees, licencing and registering health practitioners rather than regulating standards of professionalism, quality, and preventing malpractice. Our data also highlight an interpretive gap between written regulatory standards and often improvised professional practice in resource-constrained health systems. Thus, a regulatory-practice gap exists in terms of both the geographical distance between central regulators and regulated health professionals, as well as an interpretive gap between written regulatory standards and complex, lived frontline practice (Badr et al., 2024; Mahat et al., 2023; WHO, 2024; Soderlund, 2000).

Our data also suggest that where poor professional practice is addressed, this is usually done by health workers and managers locally, reflecting the wider literature and research on regulation in resource-constrained countries in the Global South. Here, health professionals are more likely to understand the context, improvisation, and practical norms that influence professional practice, and differentiate between accidental or necessary noncompliance and deliberate, consciously harmful malpractice, which require different responses, such as education, support, or punishment (Ayres and Braithwaite, 1992; May, 2004). Professionalism, inculcated during clinical training, therefore has a significant bearing on health workers' practices and behaviours. Yet research (Akhtar, 2011; Fujita et al., 2019; Keshri et al., 2020; McGivern et al., 2024; Reynolds et al., 2013) raises questions about whether and how professionalism and ethics are being adequately taught to new health practitioners.

Our empirical research highlighted one positive case, where health professionals viewed regulation positively—a local nursing regulatory office in the Central District, against the backdrop of generally weak regulation and resulting negative attitudes by healthcare workers. Here, nurses described regulation as functioning well, with problems being reported to and addressed by their professional regulator, and nurses being locally supervised and mentored in ways that maintained their professionalism.

Descriptions of this local nursing regulatory office reflect research showing relational dialogue helping bridge the gap between formal governance mechanisms and informal practices, leading to improvements in the health system (Fortnam et al., 2024; Reid et al., 2024), and ideas about 'relational regulation' (Huising and Silbey, 2011). The senior nurse running the office personally helped local nurses/midwives interpret what regulations and compliance meant in practice and

arranged visits from UNMC representatives to facilitate this. She also listened to local nurses and midwives, understood their concerns, addressed issues affecting them, or ensured that the UNMC did so, so nurses perceived their professional regulation as legitimate and valuable. Thus, the local nursing regulator embodied and represented helpful and legitimate regulation, personally transcending the geographical distance and interpretive gap between regulators and health practitioners unfamiliar with their rules. While we were unable to evaluate these nurses' levels of compliance, research and theory (Ayres and Braithwaite, 1992; Tyler, 2006; May, 2004; May and Wood, 2003) suggests that understanding and believing in the legitimacy of regulation increases compliance.

However, our positive findings in the Central District may be limited in terms of generalizability. Relational regulation here depended on the exceptional leadership, relational skills, and personal credibility of its local regulator, which may be lacking in other settings. The Central District is relatively well-resourced, making it more likely to attract and retain a high-calibre regulatory leader and provide the necessary resources to regulate effectively.

Proximity to national regulators in the Ugandan capital, Kampala, may also have contributed to the relational regulation in the Central District, as regulators can travel between Kampala and the Central District within a day, facilitating personal regulatory relationships. By contrast, health professionals we interviewed in the Remote District, far from Kampala, were scathing about their lack of engagement with regulators and regulation more generally.

Interviewees expressed concerns about local-level politics, nepotism, corruption, and regulatory capture, which align with the broader literature on regulation in resource-constrained countries in the Global South (Badr et al., 2024; WHO, 2024; De Herdt and Oliver de Sardan, 2015; Hutchinson et al., 2020; Onwujekwe et al., 2019; Naher et al., 2022). Reporting corruption or malpractice can have significant personal and relational costs at the local level, which is why malpractice often remains unaddressed. At the same time, ambiguity around the interpretation of regulations can increase scope for corruption (De Herdt and Oliver de Sardan, 2015; De Sardan, 1999). Local regulatory offices and regulatory relationships therefore need to be subject to transparency, social accountability and governance by national regulators (including professional regulators and Uganda's Health Monitoring Unit). These national regulators also need to support local regulators, and enable them to draw on national regulators' power to address malpractice.

As Ugandan health regulators have begun to digitise regulatory administration and health practitioner data, this could provide transparency and free up their regulatory staff and resources to develop, support and govern local regulatory offices. Initially, local regulatory offices might be established at the regional or sub-regional level in Uganda, based in local health facilities, with a small number of local staff, at a relatively low cost. Different professional regulators might share office space to save costs and facilitate support and shared learning between professional regulators. Local regulatory staff could combine regulatory roles with other local managerial or professional roles also focused on improving professional practice (like the nursing regulator in the Central District). However, local regulators require training, central regulatory support, and dedicated time and resources to implement local regulations effectively. They also need local professional credibility and motivation to improve clinical practice through professional regulation.

We summarise our model in Fig. 1. Here we show the 'regulation-practice gap' between centralised regulators, along with their written standards and formal regulatory rules, and frontline health professional practice, affected by resource constraints, corruption, and practical norms, including necessary improvisation and harmful malpractice. The regulatory practice gap encompasses both a geographical gap between central regulators and frontline health professionals, as well as an interpretive gap between written standards and frontline practice. We show relational regulation (involving dialogue, trust and engagement) bridging the regulation practice gap, which requires resources and transparency mechanisms to prevent local corruption.

Our study examined professional regulation for only two health practitioner groups in two districts of Uganda. However, perceptions of weak professional regulation were generalised across Kenya in our broader study (authors' anonymised reference). We therefore need more research on regulation at the frontline of health service delivery in resource-constrained countries in the Global South, as well as for other health professional groups, to test the generalisability of our findings. This research could address several key questions: What similarities and differences exist between regulatory relationships in different countries and between different regulators and health professionals, and with what effects? How does geographical proximity between regulators and regulated health workers impact regulation and regulatory relationships? How can regulators close the research-practice gap, get closer to professional practice, and develop standards that better reflect practice on the frontline? What role do levels of regulators' and health systems' resources play, and how might these be produced and used? What constitutes effective regulatory leadership, and how does this impact regulation at the national and local levels? How do politics and corruption impact regulation, and how might accountability and transparency mechanisms mitigate these problems?

The Ugandan Allied Health Professionals Council has recently established ten regional regulatory offices, which interviewees reported were functioning well, making this another interesting regulatory case to research. Indeed, researching positive instances in which regulation is

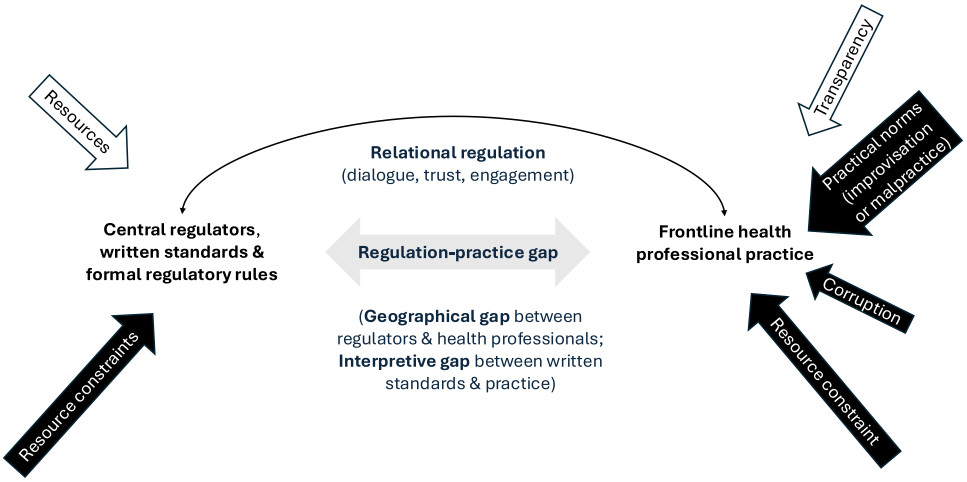

Fig. 1. Model of relational regulation.

effective could provide learning beneficial to regulators in health systems in resource-constrained countries in the Global South.

6. Conclusions

This paper examines views and experiences of professional regulation for Ugandan doctors and nurses/midwives, including those on the frontline of healthcare delivery. We found that interviewees generally perceived health care regulation as remote and ineffective in Uganda. We explain that the 'regulation practice-gap' is a key problem undermining regulation in this setting.

However, in one district, we found a local nursing regulation office, run by a senior nurse, which interviewees described as providing effective regulation. Drawing on theory about 'relational regulation' (Huising and Silbey, 2011) and this positive empirical case, we explain how developing relationships between regulators and regulated health practitioners can enhance understanding, engagement, and compliance with regulation, and address local problems. Thus, we contribute to the knowledge of health systems by explaining how relational regulation can enhance regulation and health systems by bridging the regulation-practice gap, including the geographical gap between regulators and frontline health professionals, as well as the interpretive gap between written regulations and lived practice.

However, this also depends on strong local leadership, resources, and transparency and social accountability mechanisms that prevent regulatory capture, corruption, and nepotism. Our findings suggest that policymakers may need to provide resources to establish functional local regulatory offices and foster local regulatory leadership in resource-constrained health systems in countries in the Global South, thereby enhancing regulation and the quality of health professional practice. However, further research is needed in other resource-constrained countries and on other health professions in the Global South to test our suggestions for improving health practitioner regulation. Future research may examine how regulatory relationships, proximity between regulators and the regulated, levels of resources, leadership, politics, corruption, accountability, and transparency mechanisms affect health professional regulation and health system improvement.

CRediT authorship contribution statement

Dosila Ogira: Writing – review & editing, Project administration, Data curation, Conceptualization. **Anita Musiega:** Writing – review & editing, Visualization, Validation, Methodology, Data curation, Conceptualization. **Francis Wafula:** Writing – review & editing, Visualization, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Peter Waiswa:** Investigation, Funding acquisition, Conceptualization. **Gerry McGivern:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Mike English:** Writing – review & editing, Visualization, Validation, Supervision, Resources, Methodology, Investigation, Funding acquisition, Conceptualization. **Michael J. Gill:** Writing – review & editing, Visualization, Validation, Resources, Methodology, Investigation, Conceptualization. **Tina Kiefer:** Writing – review & editing, Visualization, Validation, Supervision, Software, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Catherine Nakidde:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Formal analysis, Data curation. **Gloria Seruwagi:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Ethics approval

The research project received ethical approval in [anonymised reference]

Consent to participate

Participants were informed about the purpose of our research and who provided written consent to participate.

Consent to publish

None.

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Declaration of Competing Interest

The authors have no interest to declare.

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Data availability

The dataset that this paper is based on can be made available by the corresponding author on reasonable request.

References

Akhtar, A., 2011. Health care regulation in low & middle-income countries: a review of the literature. Health Policy Health Financ. Knowl. Hub. Work. Pap. 14.
Amon, S., et al., 2024. De facto health governance policies and practices in a decentralized setting of Ghana: implication for policy making and implementation. SSMHealth Syst. 3, 100017.
Ayres, I., Braithwaite, J., 1992. Responsive Regulation: Transcending the Deregulation Debate. Oxford University Press, New York.
Badr, E., et al., 2024. World Health Organization guidance on health practitioner regulation: an overview. J. Med. Regul. 110 (3), 5–8.
Black, J., 2002. Regulatory conversations. J. law Soc. 29 (1), 163–196.
Bloom, G., Husain, L., Ren, M., 2025. Global health governance in transition: a time for new leadership, new ideas, new partnerships. SSMHealth Syst., 100110
Braun, V., Clark, V., 2006. Using thematic analysis in psychology. Qual. Res. Psychol. 3 (2), 77–101.
Chege, T., et al., How much does effective health facility inspection cost? An analysis of the economic costs of Kenya's Joint Health Inspection innovations. 2022.
Chen, J., et al., 2021. Does decentralization of health systems translate into decentralization of authority? A decision space analysis of Ugandan healthcare facilities. Health Policy Plan. 36 (9), 1408–1417.
Clarke, D., et al., 2016. Strengthening health professions regulation in Cambodia: a rapid assessment. Hum. Resour. Health 14 (1), 1–9.
Cleary, S., Molyneux, C., Gilson, L., 2013. Resources, attitudes and culture: an understanding of the factors that influence the functioning of accountability mechanisms in primary health care settings. BMC Health Serv. Res. 13 (320).
De Herdt, T., Oliver de Sardan, J., 2015. Real Governance and Practical Norms in Sub-Saharan Africa: The game of the rules. Routledge, Abingdon.
De Sardan, J.O., 1999. A moral economy of corruption in Africa? J. Mod. Afr. Stud. 37 (1), 25–52.
Dejene, D., Yigzaw, T., Mengistu, S., 2019. Exploring health workforce regulation practices and gaps in Ethiopia: a national cross-sectional study. Glob. Health Res. Policy 4 (36).
Effa, E., et al., 2021. Human resources for health governance and leadership strategies for improving health outcomes in low-and middle-income countries: a narrative review. J. Public Health 43 (ement_1), i67–i85.
Fortnam, M., et al., 2024. Resilience in interconnected community and formal health (and connected) systems. SSMHealth Syst. 3, 100027.
Fujita, N., et al., 2019. Regulation of nursing professionals in Cambodia and Vietnam: a review of the evolution and key influences. Hum. Resour. Health 17 (1), 1–11.

Hamill, H., et al., 2021. Monitoring, reporting and regulating medicine quality: tensions between theory and practice in Tanzania. BMJ Glob. Health 6, e003043.
Hipgrave, D.B., Hort, K., 2014. Dual practice by doctors working in South and East Asia: a review of its origins, scope and impact, and the options for regulation. Health Policy Plan. 29 (6), 703–716.
Huising, R., Silbey, S., 2011. Governing the gap: forging safe science through relational regulation. Regul. Gov. 5, 14–42.
Hutchinson, E., et al., 2020. Targeting anticorruption interventions at the front line: developmental governance in health systems. BMJ Glob. Health 5 (12), e003092.
Kagan, R.A., 1989. Editor's introduction: understanding regulatory enforcement. Law Policy 11 (2), 89–119.
Keshri, V.R., Sriram, V., Baru, R., 2020. Reforming the regulation of medical education, professionals and practice in India. BMJ Glob. Health.
Koon, A.D., 2021. When doctors strike: making sense of professional organizing in Kenya. J. Health Polit. Policy law 46 (4), 653–676.
Leslie, K., et al., 2023. Design, delivery and effectiveness of health practitioner regulation systems: an integrative review. Hum. Resour. Health 21 (1), 72.
Livingston, J., 2012. Improvising medicine: An African oncology ward in an emerging cancer epidemic. Duke University Press.
Louis, M., Bartunek, J., 1992. Insider/outsider research teams: collaboration across diverse perspectives. J. Manag. Inq. 1 (2), 101–110.
Mahat, A., et al., 2023. Health practitioner regulation and national health goals. Bull. World Health Organ. 101 (9), 595.
Manyazewal, T., 2017. Using the World Health Organization health system building blocks through survey of healthcare professionals to determine the performance of public healthcare facilities. Arch. Public Health 75 (1), 50.
May, P., 2004. Compliance motivations: affirmative and negative bases. Law Soc. Rev. 38 (1), 41–68.
May, P.J., Wood, R.S., 2003. At the regulatory front lines: inspectors' enforcement styles and regulatory compliance. J. Public Adm. Res. Theory 13 (2), 117–139.
Mayra, K., Padmadas, S., Matthews, Z., 2021. Challenges and needed reforms in midwifery and nursing regulatory systems in India: Implications for education and practice. PLoS One 16 (5), e0251331.
Mbuthia, D., et al., 2021. Professional identity transitions, violations and reconciliations among new nurses in low-and middle-income countries. SSMQual. Res. Health (1), 100024.
Mbuthia, D., et al., 2023. Exploring the complex realities of nursing work in Kenya and how this shapes role enactment and practice—a qualitative study. Nurs. Open.
McGivern, G., et al., 2015. Exploring and explaining the dynamics of osteopathic regulation, professionalism and compliance with standards in practice: Report for the general osteopathic council. Warwick Business School.
McGivern, G., et al., 2024. Deconcentrating regulation in low- and middle-income country health systems: a proposed ambidextrous solution to problems with professional regulation for doctors and nurses in Kenya and Uganda. Hum. Resour. Health 22 (13), 1–13.
McGivern, G., Fischer, M.D., 2012. Reactivity and reactions to regulatory transparency in medicine, psychotherapy and counselling. Soc. Sci. Med. 74 (3), 286–296.
Miles, M.B., Huberman, A.M., Saldana, J., 2013. Qualitative data analysis. Sage.
Naher, N., et al., 2022. Absenteeism among doctors in the Bangladesh health system: what are the structural drivers? SSM-Qualitative. Res. Health 2, 100089.
Nxumalo, N., et al., 2018. Accountability mechanisms and the value of relationships: experiences of front-line managers at subnational level in Kenya and South Africa. BMJ Glob. Health 3 (4), e000842.
Nyawira, L., et al., 2022. Management of human resources for health: implications for health systems efficiency in Kenya. BMC Health Serv. Res. 22 (1), 1046.
Nzinga, J., McGivern, G., English, M., 2019. Hybrid clinical-managers in Kenyan hospitals: navigating between professional, official and practical norms. J. Health Organ. Manag. 33 (2), 173–187.
Onwujekwe, O., et al., 2019. Corruption in Anglophone West Africa health systems: a systematic review of its different variants and the factors that sustain them. Health Policy Plan. 34 (7), 529–543.
Organization, W.H., Everybody's business: strengthening health systems to improve health outcomes: WHO's framework for action, in Everybody's business: strengthening health systems to improve health outcomes: WHO's framework for action. 2007.
Ramsey, K., et al., 2024. Hidden in plain sight: validating theory on how health systems enable the persistence of women's mistreatment in childbirth through a case in Tanzania. SSMHealth Syst. 3, 100026.
Reid, R.J., et al., 2024. Actioning the learning health system: an applied framework for integrating research into health systems. SSMHealth Syst. 2, 100010.
Reynolds, J., et al., 2013. A literature review: the role of the private sector in the production of nurses in India, Kenya, South Africa and Thailand. Hum. Resour. Health 11 (1), 1–12.
Sheikh, K., Saligram, P., Prasad, L., 2013. Mapping the regulatory architecture for health care delivery in mixed health systems in low-and middle-income countries. Health Policy Financ. Knowl. Hub. Work. Pap. Ser. 26.
Soderlund, N., 2000. Health sector regulation— understanding the range of responses from government. Health Policy Plan. 15, 347–348.
Tama, E., et al., 2022. What lies behind successful regulation? a qualitative evaluation of pilot implementation of Kenya's health facility inspection reforms. Int. J. Health Policy Manag. 11 (9), 1852–1862.
Tyler, T.R., 2006. Why people obey the law. Princeton University Press, Princeton.
Wafula, F., et al., 2013. Protecting the public or setting the bar too high? Understanding the causes & consequences of regulatory actions of front-line regulators & specialized drug shop operators in Kenya. Soc. Sci. Med. 97, 220–227.
WHO, 2016. Global strategy on human resources for health workforce 2030. World Health Organization.
WHO, 2017. Primary Health Care Systems (PRIMSYS): Case study from Uganda. World Health Organization, Geneva.
WHO, 2024. Health practitioner regulation: Design, reform and implementation guidance. World Health Organization.
Willis-Shattuck, M., et al., 2008. Motivation and retention of health workers in developing countries: a systematic review. BMC Health Serv. Res. 4 (8), 247.
Zhao, Y., et al., 2024. Examining liminality in professional practice, relational identities, and career prospects in resource-constrained health systems: findings from an empirical study of medical and nurse interns in Kenya. Soc. Sci. Med. 357, 117226.