BMJ Open

The determinants and outcomes of good provider communication: a cross-sectional study in seven African countries

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To cite: Larson E, Leslie HH, Kruk ME. The determinants and outcomes of good provider communication: a cross-sectional study in seven African countries. *BMJ Open* 2017;**7**:e014888. doi:10.1136/bmjopen-2016-014888

► Prepublication history and additional material are available. To view these files please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2016-014888).

Received 26 October 2016
Revised 25 April 2017
Accepted 18 May 2017

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ABSTRACT

Objectives To determine the extent of provider communication, predictors of good communication and the association between provider communication and patient outcomes, such as patient satisfaction, in seven sub-Saharan African countries.

Design Cross-sectional, multicountry study.

Setting Data from recent Service Provision Assessment (SPA) surveys from seven countries in sub-Saharan Africa. SPA surveys include assessment of facility inputs and processes as well as interviews with caretakers of sick children. These data included 3898 facilities and 4627 providers.

Participants 16 352 caregivers visiting the facility for their sick children.

Primary and secondary outcome measures We developed an index of four recommended provider communication items for a sick child assessment based on WHO guidelines. We assessed potential predictors of provider communication and considered whether better provider communication was associated with intent to return to the facility for care.

Results The average score of the composite indicator of provider communication was low, at 35% (SD 26.9). Fifty-four per cent of caregivers reported that they were told the child's diagnosis, and only 10% reported that they were counselled on feeding for the child. Caregivers' educational attainment and provider preservice education and training in integrated management of childhood illness were associated with better communication. Private facilities and facilities with better infrastructure received higher communication scores. Caretakers reporting better communication were significantly more likely to state intent to return to the facility (relative risk: 1.19, 95% CI 1.16 to 1.22).

Conclusions There are major deficiencies in communication during sick child visits. These are associated with lower provider education as well as less well-equipped facilities. Poor communication, in turn, is linked to lower satisfaction and intention to return to facility among caregivers of sick children. Countries should test strategies for enhancing quality of communication in their efforts to improve health outcomes and patient experience.

Strengths and limitations of this study

- This study combines data from health facility surveys with reports from patients on their experience. This unique combination allows us to assess the association between communication and characteristics of health facilities, providers and patient populations.
- In addition to empirically assessing extent and predictors of communication, this analysis is able to look at outcomes related to future behaviours, including satisfaction with the health system and intent to return to the facility for future care.
- This is a large, multicountry study that assesses communication across different levels of healthcare and in many settings. However, a limitation of this study is that it is cross-sectional and cannot determine causality in assessed relationships.

INTRODUCTION

Healthcare utilisation has increased in many low-income and middle-income countries (LMICs) in the past decade as a result of national and international focus on improving access to services.[1] However, such gains in utilisation are not always matched by improvements in health outcomes, which are still disproportionately poor in LMIC.[2] This may be due to the low quality of healthcare patients receive once they reach the health system.[3 4]

Measures of the quality of healthcare are typically analysed in three domains: infrastructure, process and outcome.[5] The process of care can be further divided into technical quality of clinical care and patient experience or interpersonal quality.[6] Technical quality refers to the application of clinical medicine to a specific health problem, while patient experience measures focus on responsiveness of the health system to the patient's non-health needs. The WHO's 2000 World Health Report and subsequent theoretical work have defined the following eight domains of patient experience: dignity, autonomy, confidentiality, communication, choice of provider, timely attention, quality of basic amenities and social support.[7 8]

Provider communication is a particularly important component of patient experience. Strong communication between providers and patients may enable patients to disclose relevant information and to adhere to prescribed treatment.[8 9] There is evidence in high-income countries that strong provider communication is associated with measures of technical quality.[9 10] In addition, better provider–patient communication is associated with better perceived and objectively measured patient health outcomes.[11 12]

Despite growing evidence of the influence of patient–provider communication on caregiver behaviours and health outcomes in high-income settings, the quality and impact of provider communication in LMIC is not as well documented. The different structure of the healthcare system and distinct social contexts warrant caution in assuming that the relationships found in one environment will be reflected in the other.[13]

Understanding the determinants and outcomes of patient communication is essential in LMIC, which bear a disproportionate burden of childhood morbidity and mortality and stand to gain the most from improvement in provider–patient communication if the link between communication and outcomes is found to be strong.[2 14] We therefore had two objectives for this analysis. First, we described provider communication and its predictors during visits for sick children in health facilities across seven sub-Saharan African countries. Second, we quantified the association between provider communication and key outcomes of a healthcare visit: caregivers' satisfaction with and impressions of the visit, caregivers' intent to return to the facility if the child does not improve completely and caregivers' recommendation of the facility to family and friends.

METHODS

Data collection and survey design

This analysis uses data from the Service Provision Assessment (SPA) surveys, which are conducted by the Demographic and Health Survey Programme.[15] These health facility-based surveys have been completed over the past 10 years in seven countries in sub-Saharan Africa (Kenya (2010), Malawi (2013), Namibia (2009), Rwanda (2007), Senegal (2012–2014), Tanzania (2015) and Uganda (2007)). The SPA surveys include assessment of facility inputs and processes and health worker interviews as well as direct clinical observations and client exit interviews (sample sizes presented in online supplementary appendix 1). This analysis focuses on data from client exit interviews for visits for sick children. Additional covariates are drawn from the surveys of facility inputs and processes and health worker interviews.

SPA survey selection follows a two-stage design. Except in Rwanda, Namibia and Malawi, where a census of all or nearly all facilities was conducted, each country's health facilities were randomly sampled after stratifying by type of facility (eg, hospital or health centre) and managing authority. Hospitals tend to be oversampled in SPA surveys. Within each health facility, patients were selected using systematic sampling. The anticipated number of patients to be seen on the day of data collection was divided by 15 to determine the interval length needed to sample 15 patients from the facility.[15] Survey weights are assigned to each child to account for both the facility and patient stages of sampling such that the weighted sample should be representative of the population of all clients seeking care. We scaled weights within each country to maintain the sample size.[15] Health workers observed providing care were interviewed about their education and training; sampling weights were similarly calculated to ensure a representative sample of healthcare providers.

Informed consent was collected from the facility in-charge as well as each individual respondent before continuing with the interview.[16]

Measurement of provider communication

We used the 2014 WHO guidelines for the integrated management of childhood illness (IMCI)[17] to identify essential elements of provider communication during sick child visits. The primary requirements of provider communication in the IMCI guidelines are clear statement of the child's diagnosis and of the recommended treatment and follow-up plan. To capture these elements, we defined four indicators of quality communication: provider told the caregiver the child's illness, told the caregiver the symptoms that would indicate a need for immediate return to the facility, scheduled or discussed a return visit, and counselled the caretaker on feeding the child (the caregiver responded that the provider counselled them on either feeding solid foods or giving fluids during this illness). These indicators were assessed using the caretakers' recall of this communication following the clinical consultation. We excluded three indicators that addressed communication of medication for the child, as these indicators may in some cases be endogenous with provision of good technical quality (provision of an appropriate treatment plan). We calculated communication quality as the proportion of the four items performed for each visit.

Covariates

To identify determinants of good communication, we selected predictors identified using recent literature and shown on our conceptual framework (figure 1).[18–20] At the patient level, these included both the caregiver and child's sociodemographic characteristics as well as whether the caregiver paid for the visit and whether the caregiver was part of a prepayment plan, such as insurance. In order to capture potentially different treatment by the child's presenting illness, we assessed the reasons for the child's visit as stated by the caregiver (fever, cough, diarrhoea, vomiting, feeding problems, sleeping problems and convulsions). At the provider level, we assessed providers' education (both number of years of preservice education and whether they had

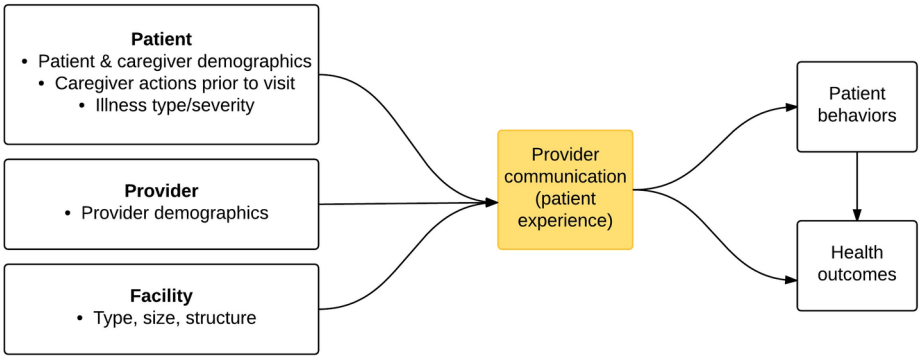

Figure 1 Conceptual framework of the relationship between patient-level, provider-level and facility-level characteristics with communication, patient behaviours and outcomes.

received recent, in the past 1–2 years, IMCI-related training), providers' cadre (doctor or clinical officer versus nurse versus other), how long they have worked as a clinician, and whether the provider is a manager. At the facility level, we looked at whether the facility had received recent supportive supervision, the level of infrastructure available (an index of 22 items including water and electricity), the level of management support (an index of 7 items including whether quality assurance activities are routinely carried out), whether the facility was public or private, and the level of the facility (comparing hospitals with non-hospitals).

We assessed the relation between communication and outcomes related to the caregivers' experience: caregiver satisfaction, caregivers' intent to return to the facility, caregivers' recommendation of the facility, and caregivers' perception of whether there were problems with the care provided. Caregivers were asked to rate their satisfaction with the services received on a three-level scale (very satisfied, more or less satisfied or not satisfied). We dichotomised the variable as 'very satisfied' versus 'not very satisfied'. Caregivers were also asked what they would do if the child did not get completely better or became worse. We coded caregivers' responses as either 'return to this facility' or 'not return', where not returning could include going to another facility, another health worker, a traditional healer or just waiting (eg, do not see a healthcare provider.) Caregivers were also asked whether they would recommend this facility to a friend of family member. Finally, caregivers were asked whether certain aspects of care were major, minor or no problem for them. We dichotomised these responses into either 'problem' or 'no problem'.

Data analysis

We first explored the level and potential predictors of provider communication in the seven countries. We calculated descriptive statistics of the population-averaged indicators of interest using data weighted to represent the health system in each country. We screened each potential indicator in a linear regression of provider communication, controlling for country and clustering at the provider level. We retained all covariates significant at $p \leq 0.05$, removing those that were highly correlated with other retained predictors.

We then assessed the predictors of communication using generalised hierarchical linear regression models. Hierarchical models were selected because they enable assessment of the association of both patient-level and provider-level or facility-level characteristics with the communication index as well as calculation of the variation in the outcome attributable to the client versus provider. The first model included only country fixed effects, the second model added individual-level elements and the third model included individual-level, provider-level and facility-level elements with country fixed effects. We used the MIXED command with the MLE option in Stata 14.1 for all models. We included a random intercept for provider and calculated the intraclass correlation coefficient (ICC). The ICC is interpreted as the proportion of the total variation in the outcome that is due to provider-level variation.

While the SPA surveys aim to collect data from multiple patient visits for each provider, this is not always the case. Over the seven countries surveyed, there were 559 providers (4%) where only one child visit was observed. For these providers, the contribution at the child level cannot be calculated; we corrected for this by preventing the stratum from contributing to the variance at the child level.

The second part of our analysis assessed the association between provider communication and patient outcomes using generalised estimating equations. We calculated risk ratios using a log link, exchangeable correlation structure and robust sandwich estimator to account for clustering at the provider level. A fixed effect for country was included in the unadjusted models. Adjusted models controlled for potential confounders at the patient level, provider level and facility level; these covariates were selected because of their theorised association with both provider communication and the outcomes of interest.

All analyses were conducted using Stata 14.1. The institutional review board at the Harvard T.H. Chan School of Public Health determined this analysis to be exempt from human subjects review.

Table 1 Client, provider and facility characteristics for outpatient visits for sick children in seven sub-Saharan African countries

	Weighted n or mean	% or SD
Total visits	16352	
Total providers	4627	
Total facilities	3898	
Visit level		
Caregiver's age (years)	28.1	8.2
Caregiver is female	13744	91.2%
Caregiver's education		
None	3705	22.7%
Any primary	8701	53.3%
Any secondary	3430	21.0%
Any tertiary or higher	493	3.0%
Caregiver is child's parent	14446	89.0%
Child's age (months)	20.3	15.2
Child is female	7904	48.5%
Client paid for visit	6769	41.4%
Client has insurance*	3102	19.1%
Duration of visit (min)	12.9	15.8
Reasons caregiver brought child to the facility†		
Fever	11894	73.5%
Cough	11102	68.1%
Diarrhoea	4898	30.2%
Vomit	4083	25.2%
Problems feeding	3724	23.0%
Excessive sleepiness	3516	21.7%
Convulsions	653	4.0%
Provider level		
Provider is female	7552	46.2%
Provider's years of education	15.0	2.9
Provider's years since graduation	9.9	10.0
Provider years in this facility	4.7	6.4
Provider's cadre		
Doctor or clinical officer	7480	45.8%
Nurse	6633	40.6%
Non-clinical staff	2224	13.6%
Provider is a manager	9987	61.5%
Received recent training on sick child care	6332	38.9%
Number of in-service training topics covered in past 3 years	5.0	3.4
Facility level		
Private facility	3461	21.2%
Hospital	2620	16.0%
Received supportive supervision in last 6 months	12378	76.2%
Infrastructure index‡	0.55	0.17

Data from Rwanda and Namibia are self-weighted, and in Malawi, a non-response weight is used. Data from Kenya, Senegal, Tanzania and Uganda are weighted to reflect sampling probability. For some rows, denominators differ from the total 'n' owing to missing data.
*Client has medical aid, insurance or other prepayment plan.
†Caregivers could report multiple reasons for bringing the child to the facility for services.
‡Mean proportion of 22 items including water, ambulance, electricity, phone, toilet, cleanliness, wait room, system for maintenance, sharps disposal, waste disposal, sterilised equipment storage, consumables storage, no expired medications, medication storage, medication supply, stock ledger, pourable water, soap, gloves, sharps box, surface disinfectant and hand disinfectant.

Sensitivity analyses

We conducted multiple sensitivity analyses to assess the robustness of the results to the methods used for missing data and model specification. To ensure results were not affected by missing data, we conducted multiple imputation and repeated the analysis on 20 imputed datasets (see online supplementary appendix 2). We also removed providers with a single clinical observation to better assess variation within versus between providers. Finally, we repeated the model using sampling weights accounting for the provider's probability of inclusion in the sample. Results for these final two models are presented in online supplementary appendix 3.

RESULTS

A total of 16352 outpatient visits for sick children from 3898 facilities and 4627 providers were included in this analysis (table 1 and online supplementary appendix 1 table 1). On average, children were 20 months (1.7 years) old at the time of their visit. Fever was the most common reason caretakers cited for the visit (74%). Forty-one per cent of the healthcare providers were nurses, and 16% of the visits included were at hospitals (table 1).

The average score on the composite indicator of provider communication was low, at 35%, with a SD of 26.9 percentage points. In 23% of visits, the caregiver reported that the provider did not complete any of the communication tasks, whereas 3% of caregivers reported the provider completed all communication tasks. Fifty-four per cent of caregivers reported that they were told the child's diagnosis, and only 10% reported that they were counselled on feeding or providing liquids for the child (figure 2).

While most of the variables included in the full model assessing factors contributing to provider communication had a statistically significant association with patient experience, the effect size was generally small (table 2).

On average, caregivers who had achieved tertiary education experienced provider communication that rated 4.9 percentage points better than those with no education. On the provider side, providers who had received training in selected child health topics in the past 1–2 years, providers who were managers, female providers and nurses all scored higher on the communication scale. These associations were all modest, with training having the largest association with an increase of 4.4 percentage points on the communication scale. Observations in private facilities and those that had received a supportive supervision visit were also associated with better communication scores. The patient-level and provider-level characteristics included in the model were able to account for minimal variation between providers. Most of the variation in the communication index was due to unexplained patient-level variation and random error, with 35% of variation in the full model due to provider-level effects.

The provider communication index was significantly associated with all assessed outcomes (table 3). Patients who reported a perfect score on provider communication were 1.21 times as likely to be very satisfied with their visit than patients whose provider scored 0 on the communication index (95% CI 1.17 to 1.26). There was also a strong association between provider communication and a patient's stated intent to return if the child did not get completely better: risk ratio 1.19 (95% CI 1.16 to 1.22). Adjusting for potential confounders did not change the measures of effect. The results were robust to the performed sensitivity checks (see online supplementary appendix).

DISCUSSION

Across more than 16 000 visits for sick children in seven sub-Saharan African countries, provider communication was poor. These findings from nationally representative surveys of facilities corroborate findings of inadequate provider–patient communication, low quality of technical care and poor provider effort from smaller studies in LMIC.[21–23] Additionally, there is evidence that higher communication is associated with both higher client satisfaction and intent to return to care.

Although the average provider communication score was low in each of the countries studied at the time of data collection, it varied from 26% in Senegal (2012–2014) to a high of 49% in Uganda (2007). All seven countries are low- or lower middle-income countries and all are experiencing shortages of skilled health providers.[24] Between-country variation on the communication index did not follow trends in gross domestic product per capita, economic inequality, health spending or availability of skilled health providers.[24 25] There was some evidence of a decline in communication score by the year that the survey was conducted, which ranged from 2007 to 2015, but this cannot be distinguished from between-country contextual differences.

We found a number of client-level and provider-level factors with modest, but statistically significant associations with patients' report of provider communication. The level of reported provider communication increased with caregiver's education. Visits with caregivers who had some secondary school were rated four percentage points higher on communication than visits with caregivers who had no formal education. There are several possible reasons for this association. Educated caregivers may be more likely to initiate communication with providers or may have a higher capacity to understand providers and remember what has been communicated. Alternatively, providers may make a choice about what to communicate based on the education level of caregivers. Regardless of the aetiology for the disparity, it is important for providers to recognise it and focus on improving communication with individuals with lower education using methods

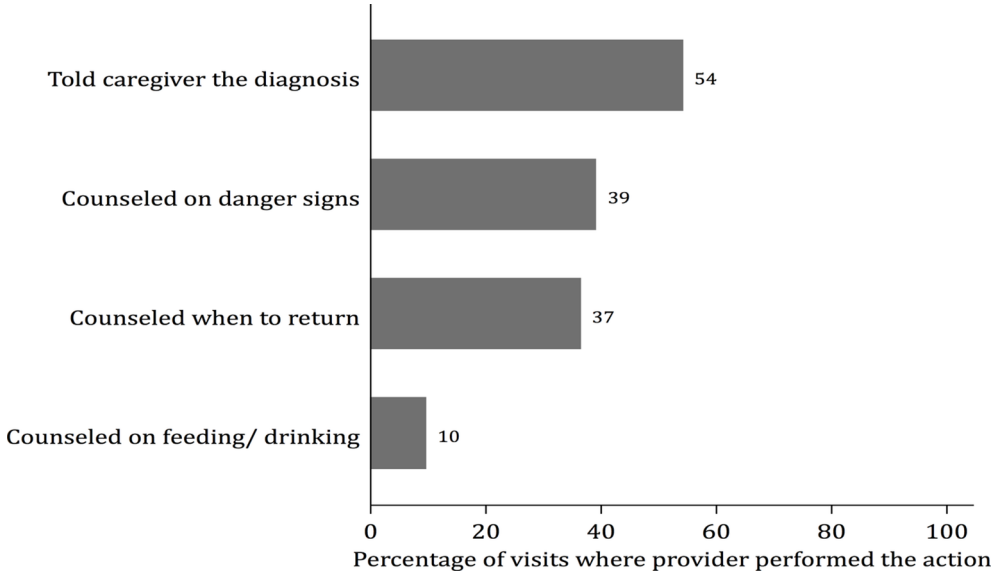

Figure 2 Frequency of provider communication across seven sub-Saharan African countries, data from patient report; n=16 352. For each indicator, values were missing from 0.2% to 0.6% of exit interviews.

Table 2 Results of the multilevel linear regression of provider communication during sick child visits in seven sub-Saharan African countries*

	Model 1		Model 2		Model 3	
	β	95% CI	β	95% CI	β	95% CI
Visit level						
Caregiver's age			0.11	0.06 to 0.16	0.10	0.06 to 0.15
Caregiver's education						
No school			Reference		Reference	
Any primary			1.21	0.14 to 2.28	1.08	0.01 to 2.15
Any secondary			4.25	2.97 to 5.52	3.98	2.70 to 5.26
Any tertiary or higher			5.63	3.41 to 7.85	4.92	2.67 to 7.16
Caregiver is child's parent			2.35	1.02 to 3.68	2.35	1.02 to 3.67
Caregiver paid for the visit			1.78	0.67 to 2.90	0.66	−0.53 to 1.85
Caregiver has insurance			0.97	−0.33 to 2.27	0.57	−0.73 to 1.87
Duration of the visit (minutes)			0.07	0.05 to 0.10	0.07	0.05 to 0.09
Reason for visit was child vomiting			1.78	0.92 to 2.64	1.80	0.94 to 2.66
Reason for visit was fever			0.79	−0.07 to 1.65	0.93	0.07 to 1.79
Provider level						
Provider's years of education					0.38	0.15 to 0.60
Provider's years since graduation					0.05	−0.02 to 0.12
Number of years provider worked in this facility					0.05	−0.05 to 0.15
Provider's cadre						
Doctor or clinical officer					Reference	
Nurse					2.90	1.18 to 4.61
Other					−1.92	−4.49 to 0.65
Provider is a manager					2.55	1.29 to 3.81
Provider is female					1.29	0.04 to 2.54
Received training on IMCI					4.38	2.99 to 5.76
Number of in-service training topics in past year					0.00	−0.21 to 0.22
Facility level						
Private facility					3.40	1.87 to 4.92
Supportive supervision visit last 6 months					1.69	0.34 to 3.05
Infrastructure index					2.69	−1.20 to 6.57
Country						
Kenya (2010) (reference)	Reference		Reference		Reference	
Malawi (2013)	−5.14	−7.31 to 2.98	−3.48	−5.64 to 1.32	−3.69	−5.91 to 1.47
Namibia (2009)	5.67	3.06 to 8.28	4.85	2.22 to 7.48	5.13	2.35 to 7.91
Rwanda (2007)	−11.02	−13.61 to 8.42	−11.00	−13.81 to 8.20	−10.60	−13.54 to 7.67
Senegal (2012–2014)	−12.06	−14.34 to 9.77	−10.96	−13.24 to 8.67	−10.82	−13.58 to 8.06
Tanzania (2015)	0.88	−1.11 to 2.88	1.69	−0.31 to 3.70	3.02	0.98 to 5.06
Uganda (2007)	12.10	9.12 to 15.08	13.61	10.64 to 16.57	13.66	10.72 to 16.61
Random effects						
Variance between providers	252.4		239.5		225.8	
Intraclass correlation between providers (p)	0.371		0.359		0.346	
Total observations	14 985		14 985		14 985	

*The outcome, provider communication, is on a scale from 0% to 100% and is measured during exit interviews with the caregiver.
IMCI, integrated management of childhood illness.

Table 3 Associations between provider communication and caregivers' satisfaction with—and ratings of—care

	Per cent of caregivers reporting outcome by communication score		Unadjusted results*			Adjusted results†		
	Score is 0	Score is complete	RR‡	95% CI	N§	RR‡	95% CI	N§
Very satisfied with the services	73.6%	84.6%	1.21	1.17 to 1.26	13 752	1.22	1.17 to 1.26	12 774
Would recommend the facility to others	95.4%	99.2%	1.05	1.04 to 1.06	13 616	1.05	1.04 to 1.07	12 654
Would return to facility if child does not get completely better	84.5%	96.4%	1.19	1.16 to 1.22	16 294	1.20	1.17 to 1.23	14 947
No problems with:								
The ability to discus problems or concerns	85.3%	87.1%	1.11	1.09 to 1.14	16 301	1.11	1.08 to 1.13	14 952
Amount of explanation received for problem/treatment	82.4%	87.7%	1.17	1.14 to 1.20	16 282	1.17	1.14 to 1.20	14 939
Treatment by staff	89.7%	90.2%	1.06	1.04 to 1.08	16 289	1.06	1.04 to 1.08	14 938
Quality of the examination and treatment	83.8%	88.1%	1.11	1.08 to 1.15	5839	1.12	1.08 to 1.16	5168

*Adjusted for country.
†Adjusted for patient-level, provider-level and facility-level characteristics: caregiver's age, caregiver's education, caregiver's relationship to child, payment for visit, caregiver's insurance status, duration of visit, reason for visit, provider's education, time since provider graduated, time provider worked in this facility, provider's cadre, provider's managerial role, provider's sex, provider's receipt of integrated management of childhood illness training and in-service training, facility management, supportive supervision, facility infrastructure and country.
‡The exposure, provider communication, is on a scale from 0% to 100% and is measured during exit interviews with the caregiver.
§Questions on caregiver satisfaction and whether they would recommend the facility were not asked in Rwanda and Uganda. The question on quality of the examination and treatment was only asked in Kenya, Rwanda and Uganda.

that improve patient understanding. While there are many examples of successful interventions for improving patient–provider communication in high-income countries, there are few in LMIC.[26] Job aids may be one way to aid in provider communication and patient understanding, particularly among patients and caregivers with low educational attainment.[23]

Providers with fewer years of training, such as counsellors and community health workers, were less likely to provide high-quality communication. These findings highlight the importance of assessing provider communication, as well as technical care and health outcomes, when evaluating the impact of task-shifting responsibilities from doctors and nurses to staff with less training. Visits with nurses were associated with better communication than both clinical officers and non-clinically trained providers. Training on sick child care was associated with slightly better communication, which supports results from a more detailed, but smaller study on the impact of IMCI training on the quality of counselling provided in sick child visits in Mali.[27] However, the increase in communication found here was small: only four percentage points. A systematic review of randomised controlled trials of communication interventions for healthcare providers, primarily within the USA, found that communication interventions can have a positive effect on provider–patient communication, with the effect stronger for more intensive interventions.[28] Successful trainings in US programs included demonstration of communication skills, observation, constructive feedback and opportunities for clinicians to review their own responses.[26 28] While two reviews of IMCI training in LMIC found that both recent training and the length of training had little effect on the provision of technical quality indicators,[29 30] there is some evidence that training interventions focused on patient-centred communication may have positive effects on communication in SSA.[31–33] Our results combined with those from communication interventions suggest the potential for using training to improve provider–patient communication.

Most of the variation in communication was due to differences between patients and visits, rather than differences between providers, which reflect similar findings from a study on provider communication in the UK.[34] Two studies from SSA that looked at technical quality indicators found that quality variation was largely due to provider-level and facility-level differences.[35 36] These discordant findings may indicate that provider-level and facility-level factors may be a stronger barrier to high-quality technical care than to communication. Reasons why many providers were able to communicate well for some visits and not for others should be explored further so that context-specific support or training can be given to providers.

We found that higher provider communication was related to patients' satisfaction and intent to return. While the association of strong patient–provider communication with an increase in patient adherence to prescribed

treatments and recommended prevention processes has been extensively documented,[37–39] this is the first evidence we are aware of from a multicountry study in sub-Saharan Africa documenting the association between strong provider communication and patient satisfaction and planned behaviours.

This study has several limitations. First, these surveys took place between 2007 and 2015; between-country differences may reflect both contextual differences as well as changes over time. Second, these data were collected during visits when providers knew that they were being observed. It is possible that the Hawthorne effect could have affected healthcare provider behaviour, particularly because there were fewer than five patient observations for each healthcare provider.[40] However, if healthcare providers were indeed performing to the best of their capabilities during these observed visits, then it is even more concerning that the levels of quality observed were so low, as these results would represent the upper bound of care quality. Third, in many of the regions studied, multiple languages are spoken, and in some cases, the provider and caregiver may not share a common language. While language congruency is not measured in the SPA, we do not anticipate this to be an issue in the majority of clinics. Fourth, the indicators on the communication index are measured from the patient perspective, and we cannot determine if the items were not communicated by the provider or if they were communicated and not heard or understood by the patient. Understanding this difference may provide insight into which interventions would be most effective. However, from a measurement perspective, the literature defines patient experience as patient defined, and thus patient experience measures, including communication, are most accurately measured from the patient perspective.[41] Finally, the associations identified in this analysis cannot be interpreted causally.

Our findings are the first cross-country, nationally representative assessment of the predictors and outcomes of provider communication during visits for sick children. While there was variability between the countries in the level of provider communication, the general trends were consistent: provider communication was low, and improved provider communication was associated with higher patient satisfaction and higher intention to return to the same facility. It is possible that these results are generalisable to similar countries in the region.

The results highlight the importance of testing strategies that enhance clinical communication as a means for improving outcomes and patient experience in LMIC. Because communication gaps appeared to be higher for caregivers with lower education, these strategies could focus on targeting this population. Additional entry points for strategies for improving clinical communication may be in focusing on staff without strong clinical training and those in public facilities.

Contributors EL and MEK developed the study question. EL conducted all analyses and drafted the manuscript. All authors contributed to the analysis plan, revised the manuscript and approved the final version for publication.

Competing interests None declared.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement All data used in this analysis are publically available from the Demographic and Health Survey Program (http://dhsprogram.com/data/index.cfm#CP_JUMP_13446). Statistical code can be obtained from the authors on request.

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