Gender differences in informal payments for healthcare: Evidence from 36 African Countries

Dr Selina Rajan, MSc[1], Ms Cornelia Santoso MSc[2], Dr Mohammed Abba-Aji[3] MSc, Prof David Stuckler[4] PhD, Prof Martin McKee[1] DSc., Dr Eleanor Hutchinson[1] PhD., Dr Obinna Onwujekwe[5] PhD., Dr Dina Balabanova[1] PhD.

[1]Department of Health Services Research and Policy, London School of Hygiene & Tropical Medicine, London, UK
[2] Faculty of Public Health, University of Debrecen, Hungary
[3] Nigerian Air Force, Abuja, Nigeria
[4] Bocconi University, Milan, Italy
[5]Health Policy Research Group, Department of Pharmacology and Therapeutics, University of Nigeria Nsukka (Enugu campus), Enugu, Nigeria.

Correspondence to:

Dr Martin McKee, Department of Health Services Research and Policy, London School of Hygiene & Tropical Medicine, 15-17 Tavistock Place, Kings Cross, London WC1H 9SH, UK

Email: martin.mckee@lshtm.ac.uk

Tel: 07970 986272

ORCID IDs:

Selina Rajan: 0000-0001-5989-2582

Cornelia Santoso: 0000-0002-5534-4404

Mohammed Abba-Aji : 0000-0002-0395-4446

David Stuckler: 0000-0002-1288-8401

Martin McKee: 0000-0002-0121-9683

Eleanor Hutchinson: 0000-0002-9718-2407

Obinna Onwujekwe: 0000-0002-1214-4285

Dina Balabanova: 0000-0001-7163-3428

Word count: 3825

Keywords: Informal payments; Bribes; Gender; Africa; Low- and Middle-Income Countries; Healthcare; Afrobarometer

Abbreviated Title:

Gender differences in Informal Payments for Healthcare in African Countries

Key Messages:

1. There is little evidence about the role of gender in paying informally for healthcare in African countries
2. Using survey data from 36 African countries, we found that men were 23% [95% CI 13%-34%]) more likely to pay informally for healthcare than women, irrespective of age, educational attainment, employment, urban/rural residence and indicators of poverty.
3. The disparities we identified were greatest in countries with the greatest gender inequality.
4. Achieving Universal Healthcare Coverage in African countries will depend on understanding the gendered aspects of informal payments in healthcare, which reduce access to care, and have detrimental impacts on health.

Ethical Approval:

No ethical approval was required as this is publicly available data

Funding:

None

Conflicts of Interest:

The authors declare no conflicts of interest

Is there a gender bias in who pays bribes for healthcare in sub-Saharan Africa? Evidence from 34 African Countries, 2016-18

Abstract:

Informal payments are widespread in many healthcare systems and can impede access to healthcare and thwart progress to achieving Universal Health Coverage, a major element of the health-related Sustainable Development Goals. Gender may be an important driver in determining who pays informally for care, but few studies have examined this, particularly in low- and middle-income countries. Our study aimed to examine gender disparities in paying informally for healthcare in Africa. We used Afrobarometer Round 7 survey data collected between September 2016 and August 2018 from 34 African countries. The final sample was 44,715 adults. We used multiple logistic regression to evaluate associations between gender and paying informally to obtain healthcare. Our results show that 12% of women and 14% of men reported paying informally for healthcare. Men were more likely to pay informally for healthcare than women in African countries (OR 1.22 [95% CI 1.13-1.31]), irrespective of age,

residential location, educational attainment, employment status, occupation, and indicators of poverty. To make meaningful progress towards improving Universal Healthcare Coverage in African countries, we must improve our understanding of the gendered aspects of informal payments in healthcare, which can act as both a barrier to accessing care and a determinant of poor health.

Introduction

Bribes for healthcare, more commonly referred to as 'informal payments', pose a major barrier to achieving Universal Health Coverage and are pervasive in many countries (Vian, 2008; Onwujekwe *et al.*, 2019). Their practice varies considerably across the world, ranging from a low of 3% of health service users reporting that they make informal payments in Peru to as high as 96% in Pakistan (Lewis, 2007). Informal payments for healthcare are especially prevalent in Africa. One recent study found that 27% of health workers in Tanzania had engaged in informal payment (Binyaruka *et al.*, 2021). These informal payments are not just small sums but can account for up to 10% to 45% of all out-of-pocket spending on healthcare in low-income countries (Onwujekwe *et al.*, 2010) and can be one major source of catastrophic health expenditure (when health spending exceeds 30% of household income) (Binyaruka *et al.*, 2021).

Informal payments are a source of many persistent health-system problems. First, they can deter access to necessary healthcare. When faced with the prospect of a costly informal payment, impoverished people may forego healthcare altogether (Khodamoradi *et al.*, 2018)(Dasgupta *et al.*, 2015). Second, they undermine the health system goal of financial protection, increasing the risk of catastrophic expenditure (Habibov, Auchynnikava and Luo, 2019). Third, informal payments can cause substantial inefficiencies in healthcare planning and delivery. They create perverse incentives for healthcare providers who receive these payments to focus their efforts on services and patients from whom they may be more likely to extract them (Khodamoradi *et al.*, 2018). Fourth, they also may lead providers to slow or delay care so as to create waitlists or other delays which increase patient's willingness to make an informal

payment to accelerate access. Finally, in settings where informal payments are widespread, patients express lower satisfaction and trust in their health system (Habibov, 2016)(Amiri *et al.*, 2019).

In order to begin to address the deeply embedded cultural practices of informal payments, it is important to understand who is more likely to make them and why. There is evidence emerging that individual patient characteristics, and especially gender, play an important role. One recent systematic review of factors affecting informal patient payments found that female, higher educated and employed persons, and those with higher income or ability to pay were more likely to make informal payments (Meskarpour Amiri et al., 2019). However, most of the included studies were based on European populations. In Asia, in contrast, a recent study of the 2020 *Global Corruption Barometer Asia* found that men who were more likely than women to make informal payments for health services (Transparency International, 2020). Substantial gaps remain in understanding who is more likely to make such payments in low- and middle-income countries, especially from African nations. One study using 2014-2015 Afrobarometer data examined the association between paying a bribe and difficulties accessing care, but did not look at gender differences (Hsiao, Vogt and Quentin, 2019).

Two further issues have limited the research to understand who makes informal payments. One is that potentially relevant research conflates the terms informal and out-of-pocket payments, even though the latter frequently include formal or regulated payments (Pourtaleb *et al.*, 2020). The challenge to differentiate informal payments from out-of-pocket payments may also due to patients' lack of awareness of their legal rights and legal ambiguity (Chereches *et al.*, 2013). Patients may perceive that such payments are part of the formal charges (Bredenkamp,

Mendola and Gragnolati, 2011). Another is that informal payments are, by their nature, difficult to observe. Patients who do make them may be reluctant to report doing so, reflecting perceptions of corruption (Schaaf and Topp, 2019). Those patients exposed to their effects, such as forgoing care, will not have made them in the first place. Moreover, informal payment may be normalised that the respondents did not mention it in a general household survey (Schaaf and Topp, 2019).

It is unclear whether men are more likely than women to make informal payments in the African context. The question of whether there is such a gender bias is important to resolve. Increasingly there are calls for greater gender analyse of health systems, reflecting a recognition that the experience of seeking health care is gendered and reflects societal power differentials and social norms (Theobald et al., 2017).

In this paper we test the hypothesis that in Africa, similar to Asia, men will be more likely to engage in informal payments. Conceptually, doctors and healthcare providers may target men as they could be perceived to have greater decision-making power and disposable income (supplier-driven). Alternatively, men may be more likely to push aggressively to access care and not accept longer wait times, themselves initiating the informal payment (demand-driven). Hence, we estimate the scale of any association between payments and gender in an unadjusted model before adjusting for other characteristics for which we have relevant data, including education, employment status, occupation, poverty status and age.

In this paper, we take a first step to address this gap by test a male gender bias in informal payments to obtain health care in 34 African countries.

Materials and Methods

Afrobarometer Countries

We used data from the Afrobarometer surveys (Afrobarometer, 2019), which are national public attitude surveys conducted by a pan-African independent research collaboration studying corruption, democracy, governance, and the economy. We used data from round 7, conducted between September 2016 and August 2018 in 34 African countries. Using the World Bank classification, 13 countries were low-income and 16 countries were lower-middle income. They had a wide range of health systems but all face shortages, to varying degrees, of money, health workers, facilities, and medicines, with what exists often distributed very unequally. In 18 of the 34 countries, more than 30% of total healthcare expenditure was financed out of pocket in 2017. This ranged from 3% in Botswana, where government general healthcare expenditure in the same year was $366 per capita, to 76% in Cameroon and 77% in Nigeria, where the corresponding figures were $2 and $11 respectively (The World Bank, 2017b)(The World Bank, 2017a). In 21 of the 34 countries, more than half of respondents also reported that corruption was increasing in their country. This view is borne out by other assessments, where on a scale from 0 (highly corrupt) to 100 (very clean), all countries, except for Cabo Verde, Botswana, and Namibia, scored less than 50 (Transparency International, 2017).

Sampling and Procedures

The Afrobarometer survey uses a stratified, multistage cluster probability sample to obtain representative cross-sectional samples of all citizens of voting age in each country. The sample was first stratified based on the main sub-national government unit and by location (urban or

rural). In rural areas in some countries, secondary sampling units (SSUs) were first drawn before randomly choosing primary sampling units (PSU). Following the random selection of sampling start points, households were then randomly selected. Within household, individuals were randomly chosen, and the interviewer alternated between interviewing a man and a woman to ensure gender balance in the sample (Afrobarometer, 2021). The surveys include standardized instruments designed to capture information about demographics, socioeconomic factors, informal payment in various sectors, and experience and opinions of corruption, enabling cross-country comparisons. Informed consent was obtained from all participants. The data are publicly available, so ethical approval was not required for this analysis.

Outcome Measures:

The outcome in this analysis was whether respondents had paid informally in exchange for healthcare in public facilities. We considered responses to two questions. First, respondents were asked: "In the past 12 months have you had contact with a public clinic or hospital?" to which respondents could answer 'yes' or 'no'. Those who answered 'yes' were subsequently asked: "How often, if ever, did you have to pay a bribe, give a gift, or do a favour for a health worker or clinic or hospital staff in order to get the medical care you needed?" to which the possible responses were 'never'; 'once or twice'; 'a few times'; 'often' and 'don't know'. We classified those who answered either 'once or twice'; 'a few times' or 'often' as having paid a bribe in the past 12 months and those who answered 'never' as not having paid a bribe.

Independent Variables:

Our main independent variable is gender (male or female). The covariates used in our study included age, residential location (rural or urban), educational attainment (none/primary school

or secondary/post-secondary school), employment status, occupation, and socio-economic status. Employment status was determined based on the question of having a job paying a cash income. Those answering 'yes' were classified as employed, while those answering 'no' as unemployed. Occupation was categorised into none/informal sector (never had a job, student, housewife/homemaker, agriculture/farming/fishing/forestry, trader/hawker/vendor, retail/shop, unskilled manual worker, others) and formal sector (skilled manual worker, clerical/secretarial, supervisor/foreman/senior manager, security services, mid-level professional, upper-level professional).

Socioeconomic status was measured using the Lived Poverty Index (LPI), which was been used in previous Afrobarometer studies (Hsiao, Vogt and Quentin, 2019). This measure seeks to avoid the simplicity of a single composite measure based on education or employment, and instead aims to capture people's ability to obtain the basic necessities of life in the past year. Respondents were asked: "Over the past year, how often, if ever, have you or your family gone without enough food, water, cooking fuel, cash income". The possible answers were 'Never', 'Once or twice', 'Several times', 'Many times' and 'Always', which were each scored 0, 1, 2, 3, and 4, respectively. A deprivation index is then calculated from the mean of these responses, with values ranging from 0 (no lived poverty) to 4 (constant absence of all basic necessities). In categorical analyses, we grouped individuals with LPI of 2 or less as having a low LPI, and all others as having a high LPI.

Conceptual Framework

There are a series of potential confounders and mediators to be aware of when seeking to identify gender bias; gender is known to correlate with social class, such as educational

attainment, employment status, occupation, and poverty, which in turn could affect the likelihood of making informal payments. Here we seek to identify an overall 'gender bias', and then identify whether this persists after correcting for these potential confounding factors (which plausibly could also act as mediators)(Zeng *et al.*, 2014)(Mutchler, Roldán and Li, 2021)(Kankeu and Ventelou, 2016).

Statistical Analysis:

We present the proportions of men and women in each country who had contact with public health facilities in the last year and the proportions of those individuals who reported paying a bribe in order to obtain it. In subsequent analyses, we consider only individuals who had contact with healthcare in the past year.

First, we examined gender-specific relationships between paying informally for healthcare (including offering a bribe or a gift or doing a favour) and age (18-26, 27-34, 35-46, >46), urban/rural residence, educational attainment (less than secondary or at least secondary), employment status (unemployed or employed), occupation (informal or formal sector), and socioeconomic deprivation, using chi-squared tests.

Second, we modelled associations between gender and paying informally for healthcare using logistic regression. We sequentially introduced potential confounding factors into the model, starting with age alone as it is considered as the most important confounder. In final models, we also included other confounders and/or mediators including residential location, educational attainment, employment status, occupation, and LPI. We present odds ratios (OR) for the overall Afrobarometer sample and country-specific associations. Additionally, we

corrected for country fixed effects to adjust for time-invariant factors, such as culture, which could confound the gender-informal payment association.

All analyses were conducted in Stata, version 14.0. For descriptive statistics, survey-adjusted methods were used to account for the complex sampling design and sampling probability weights within and across countries (Afrobarometer, 2021).

Results

Baseline Characteristics:

There were 45,823 individuals included in the Afrobarometer dataset, of whom we excluded 1,108 who had missing data for variables in this study. Table 1 shows the final sample, which included 44,715 individuals from 34 African countries, with equal proportions of men and women, of whom 56% resided in rural areas and 44% in urban areas. Women and men were equally represented in each country and had overall mean (SD) age of 36 (14) and 39 (SD 16) respectively. Men had higher educational attainment, with 57% having at least secondary level education, compared to 47% of women. Men had better employment status (41% being employed and 26% working in formal sector) compared to women (27% being employed and 12% working in formal sector). Men were as equal as women to report having gone without basic amenities many times or more during the past year (18% in men vs 19% in women).

Contact with Health Services:

A total of 27,343 (61%) participants reported having utilised a public clinic or hospital in the previous year. Table 1 shows that healthcare utilisation was more common among those with lower education ($p<0.001$), working in informal sector ($p<0.001$), residing in rural area

(p<0.001), or living with poverty (p<0.001). Table 2 further reveals the proportion of women and men utilising a public clinic or hospital in overall population and in most countries individually. Overall, the proportion of women utilising a public clinic or hospital (64%) was higher than the proportion of men utilising a public clinic or hospital (58%, p<0.001). Utilisation of health services among women was most common in Malawi (85%) and least common in Tunisia (38%), while utilisation of health services among men was most common in Niger (77%) and least common in Nigeria (39%).

Paying Informally for Healthcare

Table 2 shows that 12% of women and 14% of men reported paying informally for healthcare. These proportions ranged from 1% to 50% of men and women in all countries. Paying informally was most common in Sierra Leone, where over 50% of respondents used healthcare of whom 50% paid for it informally. In 21 out of 36 countries, a greater proportion of men paid informally for healthcare than women. These differences were greatest in Tunisia (7% women vs 15% men), followed by Cote D'Ivoire (13% women vs 20% men) and Benin (9% women vs 15% men). Conversely, we also observed the reversed trend in some countries, with a higher proportion of women paying informally for care than men, such as in Gambia (9% vs 7%), Liberia (45% vs 40%), Madagascar (21% vs 20%), Sudan (13% vs 11%), and Zambia (5% vs 3%). Among women, the tendency to pay informally for healthcare was greater in younger (p<0.001), urban (p=0.045) and more deprived individuals (p<0.001). Meanwhile, among men, the tendency to pay informally for healthcare was greater in younger (p<0.001), higher educated (p=0.034), urban (p=0.008) and more deprived individuals (p<0.001) (Appendix Table 1).

Table 3 shows the overall and country-specific analyses of the associations between gender and making informal payments for healthcare. Overall, men were more likely to bribe for healthcare than women (OR 1.21 [95% CI 1.13-1.30]), after adjustment for age (model 1) . Further adjustments for residential location, educational attainment, employment status, occupation, and LPI did not markedly alter these estimates (OR 1.22 [95% CI 1.13-1.31]) (model 2). In country-specific analyses, the increased tendency for men to pay informally was notable in Benin (OR 1.99 [95% CI 1.18-3.34], Cabo Verde (OR 2.66 [95% CI 1.20-5.90], Cote d'Ivoire (OR 2.07 [95% CI 1.25-3.44]), Ghana (OR 1.69 [95% CI 1.13-2.53]), Lesotho (OR 2.52 [95% CI 1.24-5.11]), and Tunisia (OR 2.37 [95% CI 1.22-4.64]) (model 2).

Robustness Checks:

We performed a series of robustness checks, as reported in the Appendix Table 2-4. First, we developed two new models to test the influence of country-level characteristics on making informal payments for healthcare. The first model included log GDP per capita (logged to reflect positive skew) and health expenditure (% of GDP) of the countries as covariates, while the second model included country dummies to absorb the country-level unobserved characteristics (Habibov, Auchynnikava and Luo, 2019). As shown in the Appendix Table 2 (model 2 and 3), none of the results was changed.

Second, as an alternative of using LPI for the socio-economic status variable, we constructed a wealth index using principal component analysis (PCA), based on the following information: the possession of a radio, television, mobile phone, computer, bank account, motorcycle or car, the availability of electricity, and about the location of toilet or latrine and the source of water for household use. Only the first principal component was used. We categorized the index into five

quintiles, where the 1st quintile represented the poorest group, and the 5th quintile represented the richest group. As shown in the Appendix Table 2 (model 4), using wealth quintile as the socio-economic status variable did not change our results.

Third, we developed a heckprobit model to test for the potential systematic self-selection bias. Indeed, poverty may deter people from seeking healthcare if they know they will need to make an informal payment. However, poverty is also known to associate with greater healthcare needs, which could despite inability to pay increase the likelihood of seeking care (also known as the 'inverse care law'). The heckprobit selection model was employed as it could account for sample censoring (since survey respondents were only asked if they paid a bribe if they had actually visited a healthcare provider). Again, all results remained consistent and there was no indication that the factors that predisposed people to use healthcare confounded the relation between being male and a higher likelihood of making informal payments (ρ = -0.97, p-value = 0.29).

Fourth, we conducted multicollinearity test to determine the presence of multicollinearity among the independent variables. We found no multicollinearity as none of the variables had a variance inflation factor (VIF)>10 (Appendix Table 4).

Discussion

This paper investigated the relationships between gender and informal payments in the public healthcare sector in Africa. Using data from the Afrobarometer surveys from 34 African countries, we found that male healthcare users were more likely to pay a bribe for healthcare in a public facility than women, even after adjusting for multiple potential confounding socio-demographic factors and country fixed effects.

Study Limitations

As with any observational study, our analysis has several limitations. First, sample sizes in some countries were relatively small, limiting power to detect differences between and within countries. Secondly, we cannot exclude the possibility of differential responses to our main question, given its sensitivity. However, reassuringly, a rigorous study designed to identify reticence to answer sensitive questions about corruption in Nigeria, a related and a similarly sensitive topic, found no gender differences (Clausen, Kraay and Murrell, 2011). In addition, of the 1,101 individuals that we excluded due to missing values, there were fairly equal proportions of men (51%) and women (49%). A review of experiences of studying corruption and informal payments in Anglophone West Africa also rarely identified obstacles to data collection (Onwujekwe *et al.*, 2019), perhaps due to the widespread nature of the phenomena spanning different sectors. Third, we were only able to look at monetary payments, gifts, or favours and while women are especially vulnerable to demands for sexual favours, they may be less inclined to report them. Fourth, we were unable to examine whether inability to pay was a barrier to the use of the health system. There is a need for further qualitative research to explore the reasons for the disparities in informal payments between men and women in different health systems and social contexts. Fifth, our study was only limited to health service users of public facilities. Future studies exploring this topic in both private and public facilities will enrich the information. Sixth, our study was not able to differentiate the purpose or motivation of making informal payments (expressing gratitude vs getting better-quality services). Information on the timing of the transaction is required to distinguish the nature of payments (Lewis, 2006). Lastly, there was no information collected by the survey on who

initiated and received the informal payments. Despite these limitations, our study was among the few to explore the existence of gender bias in making informal payments for healthcare, especially in African nations.

Key findings

Our study clearly demonstrated the existence of a male bias in making informal payments, but it could not explain why. Turning to the interpretation of these findings, we note there are both supply- and demand-side possibilities. On the supplier side, it could be that healthcare providers see men as the financial breadwinners and selectively target them, knowing they have more resource than women. Alternatively, on the demand side, men could be more aggressive in seeking care and as a result be willing to engage in informal practices to jump queues. Future research, ideally qualitative, would be needed to unpack these alternative possibilities which are both consistent with our empirical observations.

Our finding that men tended to pay informally for healthcare was similar to the study in Asia (Transparency International, 2020) but contrasted with those in Eastern Europe where women tended to pay more (Stepurko *et al.*, 2015). While it may be true that women may have higher medical needs (Pourtaleb et al., 2020)(Minyihun and Tessema, 2020) and thus be more likely to utilise healthcare, the question of who pays informally for healthcare is rather tied to social norms and gender disparities in decision-making power and autonomy. Women in Africa, similar to most parts of South Asia, may have less power and decision-making autonomy in healthcare (Acharya et al., 2010)(Alemayehu and Meskele, 2017) and a lower financial inclusion level than men (Moodley *et al.*, 2019). Since men control the allocation of household resources, it may also be that men make informal payments not just for their own care but for other family

or household members (Nikièma, Haddad and Potvin, 2008), a dynamic not captured by the Afrobarometer survey. In contrast, women's high participation in formal employment and financial inclusion in Eastern Europe (Moodley *et al.*, 2019) may afford them significant access to financial resources and control over the organisation and allocation of funds to pay for care for themselves and others.

Implications for policy

These findings leave many important questions unanswered. The persistence of informal payments is a major barrier to achieving universal health coverage, to which all governments have committed. Yet their scale and nature remain very poorly understood. Of course there are challenges, given that these transactions often take place in private, but this should not be an excuse for failing to understand and thus address them. The inclusion of these questions in Afrobarometer is to be commended but there is a strong case for supplementing them with more health-related questions that would illuminate the context in which they take place. These findings also reinforce the importance of applying a gendered perspective to all health-related measures as, otherwise, aggregate measures may leave important issues invisible. We do not, at this point, propose specific recommendations as these should be informed by the better understanding we call for as well as a clear understanding of context, including prevailing incentives, hierarchies, and power relationships. However, a next step should be to obtain the necessary insights.

Conclusion

Informal payments for health care are widespread in many countries. We point to the importance of taking a gendered perspective to understand their scale and nature and to develop effective measures to get rid of them.

Data Availability

The data used in this study are freely available from the Afrobarometer surveys. The survey questionnaires, manuals, sample weighting and response rates can all be sourced open-access at www.afrobarometer.org

References:

Acharya, D. R. *et al.* (2010) 'Women's autonomy in household decision-making: a demographic study in Nepal', *Reproductive Health*, 7(1), p. 15. doi: 10.1186/1742-4755-7-15.

Afrobarometer (2019) *Afrobarometer Data [Round 7], [September 2016-August 2018]*. Available at: https://afrobarometer.org/data/merged-data (Accessed: 13 August 2021).

Afrobarometer (2021) *Afrobarometer: Sampling principles and weighting*. Available at: https://afrobarometer.org/surveys-and-methods/sampling-principles (Accessed: 13 August 2021).

Alemayehu, M. and Meskele, M. (2017) 'Health care decision making autonomy of women from rural districts of Southern Ethiopia: a community based cross-sectional study', *International Journal of Women's Health*, 9, p. 213. doi: 10.2147/IJWH.S131139.

Amiri, M. M. *et al.* (2019) 'Health informal payments and their main determinants: The case of Iran':, *https://doi.org/10.1177/2010105818822594*. doi: 10.1177/2010105818822594.

Binyaruka, P. *et al.* (2021) 'Supply-side factors influencing informal payment for healthcare services in Tanzania', *Health Policy and Planning*, 36(7), pp. 1036–1044. doi: 10.1093/HEAPOL/CZAB034.

Bredenkamp, C., Mendola, M. and Gragnolati, M. (2011) 'Catastrophic and impoverishing effects of health expenditure: new evidence from the Western Balkans', *Health Policy and Planning*, 26(4), pp. 349–356. doi: 10.1093/HEAPOL/CZQ070.

Chereches, R. M. *et al.* (2013) 'Defining informal payments in healthcare: A systematic review', *Health Policy*, 110(2–3), pp. 105–114. doi: 10.1016/J.HEALTHPOL.2013.01.010.

Clausen, B., Kraay, A. and Murrell, B. (2011) 'Does respondent reticence affect the results of corruption surveys', in *International Handbook on the Economics of Corruption*. Cheltenam, UK: Edward Elgar Publishing House, pp. 428–50.

Dasgupta, J. *et al.* (2015) 'Using Technology to Claim Rights to Free Maternal Health Care: Lessons about Impact from the My Health, My Voice Pilot Project in India', *Health and Human Rights Journal*, 17(2). Available at: https://www.hhrjournal.org/2015/12/using-technology-to-claim-rights-to-free-maternal-health-care-lessons-about-impact-from-the-my-health-my-voice-pilot-project-in-india/ (Accessed: 24 August 2021).

Habibov, N. (2016) 'Effect of corruption on healthcare satisfaction in post-soviet nations: A cross-country instrumental variable analysis of twelve countries', *Social Science & Medicine*, 152, pp. 119–124. doi: 10.1016/J.SOCSCIMED.2016.01.044.

Habibov, N., Auchynnikava, A. and Luo, R. (2019) 'Poverty Does Make Us Sick', *Annals of Global Health*, 85(1). doi: 10.5334/AOGH.2357.

Hsiao, A., Vogt, V. and Quentin, W. (2019) 'Effect of corruption on perceived difficulties in

healthcare access in sub-Saharan Africa', *PLoS ONE*. doi: 10.1371/journal.pone.0220583.

Kankeu, H. T. and Ventelou, B. (2016) 'Socioeconomic inequalities in informal payments for health care: An assessment of the "Robin Hood" hypothesis in 33 African countries', *Social Science and Medicine*, 151, pp. 173–186. doi: 10.1016/j.socscimed.2016.01.015.

Khodamoradi, A. *et al.* (2018) 'A systematic review of empirical studies on methodology and burden of informal patient payments in health systems', *The International Journal of Health Planning and Management*, 33(1), pp. e26–e37. doi: 10.1002/HPM.2464.

Lewis, M. (2006) *Governance and Corruption in Public Health Care Systems*. doi: 10.2139/ssrn.984046.

Lewis, M. (2007) 'Informal Payments And The Financing Of Health Care In Developing And Transition Countries', *Health Affairs*, 26(4), pp. 984–997. doi: 10.1377/hlthaff.26.4.984.

Meskarpour Amiri, M. *et al.* (2019) 'Factors affecting informal patient payments: a systematic literature review', *International Journal of Health Governance*, 24(2), pp. 117–132. doi: 10.1108/IJHG-01-2019-0006.

Minyihun, A. and Tessema, Z. T. (2020) 'Determinants of Access to Health Care Among Women in East African Countries: A Multilevel Analysis of Recent Demographic and Health Surveys from 2008 to 2017', *Risk Management and Healthcare Policy*, 13, p. 1803. doi: 10.2147/RMHP.S263132.

Moodley, L. *et al.* (2019) *The power of parity: Advancing women's equality in Africa*. Available at: https://www.mckinsey.com/~/media/mckinsey/featured insights/gender equality/the power of parity advancing womens equality in africa/mgi-the-power-of-parity advancing womens equality in africa.pdf (Accessed: 5 September 2021).

Mutchler, J., Roldán, N. V. and Li, Y. (2021) 'Late-life Gender Disparities in Economic Security in the Context of Geography, Race and Ethnicity, and Age: Evidence from the 2020 Elder Index', *Center for Social and Demographic Research on Aging Publications*. Available at: https://scholarworks.umb.edu/demographyofaging/52 (Accessed: 16 August 2021).

Nikièma, B., Haddad, S. and Potvin, L. (2008) 'Women Bargaining to Seek Healthcare: Norms, Domestic Practices, and Implications in Rural Burkina Faso', *World Development*, 36(4), pp. 608–624. doi: 10.1016/j.worlddev.2007.04.019.

Onwujekwe, O. *et al.* (2010) 'Informal payments for healthcare: Differences in expenditures from consumers and providers perspectives for treatment of malaria in Nigeria', *Health Policy*, 96(1), pp. 72–79. doi: 10.1016/j.healthpol.2009.12.014.

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', *529 Health Policy and Planning*, 34(7), pp. 529–543. doi: 10.1093/heapol/czz070.

Pourtaleb, A. *et al.* (2020) 'New insight into the informal patients' payments on the evidence of literature: a systematic review study', *BMC Health Services Research 2020 20:1*, 20(1), pp. 1–11. doi: 10.1186/S12913-019-4647-3.

Schaaf, M. and Topp, S. M. (2019) 'A critical interpretive synthesis of informal payments in maternal health care', *Health Policy and Planning*, 34(3), pp. 216–229. doi: 10.1093/HEAPOL/CZZ003.

Stepurko, T. *et al.* (2015) 'To pay or not to pay? A multicountry study on informal payments for health-care services and consumers' perceptions', *Health Expectations*, 18(6), pp. 2978–2993. doi: 10.1111/HEX.12281.

The World Bank (2017a) *World Development Indicators*. Available at: https://databank.worldbank.org/reports.aspx?source=2&series=SH.XPD.GHED.PC.CD&country (Accessed: 2 September 2021).

The World Bank (2017b) *World Development Indicators* . Available at: https://databank.worldbank.org/reports.aspx?source=2&series=SH.XPD.OOPC.CH.ZS&country= (Accessed: 2 September 2021).

Theobald, S. *et al.* (2017) 'The importance of gender analysis in research for health systems strengthening', *Health Policy and Planning*. doi: 10.1093/heapol/czx163.

Transparency International (2017) *2017 Corruption Perceptions Index* . Available at: https://www.transparency.org/en/cpi/2017/index/nzl (Accessed: 13 August 2021).

Transparency International (2020) *Citizens' Views and Experiences of Corruption*. Available at: https://images.transparencycdn.org/images/GCB_Asia_2020_Report_Web_final.pdf (Accessed: 16 August 2021).

Vian, T. (2008) 'Review of corruption in the health sector: theory, methods and interventions', *Health Policy and Planning*, 23(2), pp. 83–94. doi: 10.1093/heapol/czm048.

Zeng, J. *et al.* (2014) 'Gender Inequality in Education in China: A Meta-Regression Analysis', *Contemporary Economic Policy*, 32(2), pp. 474–491. doi: 10.1111/COEP.12006.

Table 1. Baseline characteristics of women and men in the Afrobarometer sample and healthcare contacts in the past year.

	Total (N (%)) N=44715	Healthcare contact (N (%))	P	Women (N (%)) N=22382	Healthcare contact (N (%))	P	Men (N (%)) N=22333	Healthcare contact (N (%))	P
Age Group									
18-26	13101 (29%)	7459 (57%)		7076 (32%)	4353 (61%)		6025 (27%)	3106 (52%)	
27-34	9784 (22%)	6154 (63%)		5171 (23%)	3444 (66%)		4613 (20%)	2710 (59%)	
35-46	10785 (24%)	6855 (64%)		5344 (24%)	3512 (66%)		5441 (25%)	3343 (61%)	
47-106	11045 (25%)	6875 (62%)	<0.001	4791 (22%)	3100 (64%)	<0.001	6254 (28%)	3775 (60%)	<0.001
Education									
≤Primary	21413 (48%)	13809 (64%)		11811 (53%)	7893 (67%)		9602 (43%)	5916 (62%)	
≥Secondary	23302 (52%)	13534 (58%)	<0.001	10571 (47%)	6516 (61%)	<0.001	12731 (57%)	7018 (55%)	<0.001
Employment									
Unemployed	28736 (66%)	17543 (61%)		15982 (73%)	10197 (64%)		12754 (59%)	7346 (58%)	
Employed	15979 (34%)	9800 (61%)	0.558	6400 (27%)	4212 (66%)	0.005	9579 (41%)	5588 (58%)	0.269
Occupation									
Informal	36294 (81%)	22432 (62%)		19662 (88%)	12745 (64%)		16632 (74%)	9687 (58%)	
Formal	8421 (19%)	4911 (58%)	<0.001	2720 (12%)	1664 (62%)	<0.001	5701 (26%)	3247 (57%)	0.089
Residence									
Urban	19951 (44%)	11463 (57%)		10003 (44%)	6127 (61%)		9948 (44%)	5336 (54%)	
Rural	24764 (56%)	15880 (64%)	<0.001	12379 (56%)	8282 (67%)	<0.001	12385 (56%)	7598 (61%)	<0.001
Poverty Index									
Low LPI	36865 (82%)	22389 (61%)		18328 (81%)	11763 (64%)		18537 (82%)	10626 (57%)	
High LPI	7850 (18%)	4954 (63%)	<0.001	4054 (19%)	2646 (65%)	0.190	3796 (18%)	2308 (61%)	<0.001

N = unweighted frequency.
% = weighted percentage.
P-values were calculated by chi-square tests (without sampling weight applied)

Table 2. Proportions of women and men that used healthcare in the past year

		Women (N (%))			Men (N (%))		
Country	**N**	**Total**	**Healthcare contact**	**Paid informally for care**	**Total**	**Healthcare contact**	**Paid informally for care**
Benin	1193	597 (50%)	331 (56%)	29 (9%)	596 (50%)	302 (51%)	47 (15%)
Botswana	1121	564 (51%)	472 (84%)	4 (1%)	557 (49%)	408 (74%)	4 (1%)
Burkina Faso	1191	601 (50%)	368 (61%)	17 (4%)	590 (50%)	383 (67%)	21 (6%)
Cabo Verde	1174	598 (51%)	441 (74%)	11 (3%)	576 (49%)	344 (61%)	19 (6%)
Cameroon	1154	572 (50%)	346 (60%)	72 (22%)	582 (50%)	302 (52%)	73 (24%)
Côte d'Ivoire	1163	575 (49%)	272 (47%)	35 (13%)	588 (51%)	244 (41%)	50 (20%)
eSwatini	1171	588 (50%)	437 (75%)	10 (2%)	583 (50%)	363 (64%)	18 (5%)
Gabon	1176	587 (50%)	304 (52%)	66 (22%)	589 (50%)	271 (46%)	68 (25%)
Gambia	1169	581 (48%)	357 (63%)	35 (9%)	588 (52%)	343 (58%)	23 (7%)
Ghana	2352	1186 (51%)	573 (47%)	55 (11%)	1166 (49%)	468 (40%)	65 (13%)
Guinea	1183	594 (50%)	405 (69%)	88 (21%)	589 (50%)	390 (66%)	96 (25%)
Kenya	1544	767 (50%)	582 (75%)	91 (16%)	777 (50%)	527 (68%)	104 (20%)
Lesotho	1182	593 (50%)	424 (72%)	13 (3%)	589 (50%)	350 (60%)	25 (7%)
Liberia	1187	593 (50%)	351 (57%)	158 (45%)	594 (50%)	307 (51%)	125 (40%)
Madagascar	1193	597 (50%)	262 (44%)	54 (21%)	596 (50%)	238 (40%)	50 (20%)
Malawi	1187	595 (50%)	510 (85%)	39 (7%)	592 (50%)	458 (76%)	35 (7%)
Mali	1197	597 (50%)	368 (61%)	25 (7%)	600 (50%)	387 (63%)	29 (8%)
Mauritius	1180	588 (50%)	401 (69%)	5 (2%)	592 (50%)	402 (68%)	8 (3%)
Morocco	1140	570 (50%)	319 (56%)	94 (30%)	570 (50%)	299 (52%)	100 (34%)
Mozambique	2190	1089 (50%)	854 (78%)	144 (17%)	1101 (50%)	797 (73%)	140 (18%)
Namibia	1160	585 (51%)	372 (65%)	14 (4%)	575 (49%)	297 (52%)	11 (4%)
Niger	1196	599 (50%)	498 (83%)	44 (9%)	597 (50%)	463 (77%)	48 (11%)
Nigeria	1582	785 (50%)	311 (40%)	65 (20%)	797 (50%)	312 (39%)	68 (20%)
São Tomé and Príncipe	1184	593 (50%)	438 (74%)	14 (3%)	591 (50%)	336 (58%)	18 (6%)
Senegal	1190	599 (50%)	375 (62%)	23 (7%)	591 (50%)	293 (49%)	19 (7%)
Sierra Leone	1157	580 (50%)	361 (62%)	176 (50%)	577 (50%)	334 (57%)	166 (50%)
South Africa	1771	886 (51%)	564 (64%)	41 (6%)	885 (49%)	392 (45%)	26 (6%)
Sudan	1167	580 (50%)	288 (49%)	35 (13%)	587 (50%)	303 (54%)	33 (11%)
Tanzania	2375	1190 (50%)	940 (79%)	92 (11%)	1185 (50%)	866 (73%)	97 (12%)
Togo	1182	589 (50%)	317 (55%)	41 (12%)	593 (50%)	314 (53%)	39 (12%)
Tunisia	1154	584 (51%)	223 (38%)	16 (7%)	570 (49%)	241 (42%)	35 (15%)
Uganda	1181	591 (50%)	491 (82%)	158 (29%)	590 (50%)	441 (73%)	148 (33%)
Zambia	1179	592 (50%)	483 (82%)	26 (5%)	587 (50%)	424 (72%)	17 (3%)
Zimbabwe	1190	597 (50%)	371 (62%)	13 (3%)	593 (50%)	335 (56%)	18 (5%)
Total	**44715**	**22382 (50%)**	**14409 (64%)**	**1803 (12%)**	**22333 (50%)**	**12934 (58%)**	**1843 (14%)**

N = unweighted frequency.

% = weighted percentage.

Table 3 Country-Specific Associations between Gender and Bribing for Healthcare Among Individuals Who Had Contact with the Healthcare System

Country	Model 1 OR (95% CI)	Model 2 OR (95% CI)
Benin	**1.95 (1.19-3.20)**	**1.99 (1.18-3.34)**
Botswana	1.09 (0.27-4.42)	1.05 (0.25-4.33)
Burkina Faso	1.28 (0.66-2.48)	1.32 (0.67-2.58)
Cabo Verde	**2.29 (1.07-4.89)**	**2.66 (1.20-5.90)**
Cameroon	1.23 (0.85-1.78)	1.23 (0.84-1.80)
Cote d'Ivoire	**1.90 (1.18-3.07)**	**2.07 (1.25-3.44)**
eSwatini	**2.21 (1.00-4.85)**	1.92 (0.86-4.31)
Gabon	1.26 (0.85-1.87)	1.31 (0.88-1.95)
Gambia	0.74 (0.42-1.28)	0.68 (0.37-1.22)
Ghana	**1.61 (1.09-2.37)**	**1.69 (1.13-2.53)**
Guinea	1.23 (0.88-1.73)	1.32 (0.93-1.87)
Kenya	1.29 (0.94-1.77)	1.25 (0.90-1.74)
Lesotho	**2.54 (1.28-5.07)**	**2.52 (1.24-5.11)**
Liberia	0.87 (0.63-1.19)	0.82 (0.58-1.17)
Madagascar	1.04 (0.67-1.60)	1.04 (0.67-1.63)
Malawi	1.12 (0.69-1.82)	1.18 (0.71-1.95)
Mali	1.16 (0.65-2.08)	1.12 (0.60-2.06)
Mauritius	1.69 (0.55-5.27)	1.84 (0.55-6.22)
Morocco	1.22 (0.87-1.71)	1.21 (0.84-1.74)
Mozambique	1.14 (0.88-1.47)	1.16 (0.89-1.51)
Namibia	0.99 (0.44-2.22)	0.93 (0.41-2.13)
Niger	1.19 (0.76-1.86)	1.19 (0.74-1.91)
Nigeria	1.16 (0.79-1.72)	1.11 (0.74-1.67)
Sao Tome and Principe	1.71 (0.84-3.49)	1.88 (0.89-3.98)
Senegal	0.96 (0.51-1.83)	0.96 (0.49-1.87)
Sierra Leone	1.01 (0.74-1.36)	1.11 (0.80-1.54)
South Africa	0.91 (0.54-1.51)	0.94 (0.56-1.60)
Sudan	0.96 (0.58-1.60)	0.94 (0.56-1.60)
Tanzania	1.18 (0.87-1.60)	1.23 (0.90-1.69)
Togo	0.97 (0.60-1.56)	0.93 (0.56-1.53)
Tunisia	**2.51 (1.33-4.74)**	**2.37 (1.22-4.64)**
Uganda	1.07 (0.81-1.41)	0.96 (0.72-1.27)
Zambia	0.72 (0.38-1.35)	0.59 (0.30-1.13)
Zimbabwe	1.67 (0.80-3.48)	1.51 (0.71-3.24)
Total	**1.21 (1.13-1.30)**	**1.22 (1.13-1.31)**

Model 1 included adjustments for age.

Model 2 was model 1 additionally adjusted for residential location, educational attainment, employment status, occupation, and lived poverty index.

APPENDIX TABLE 1 Associations between paying informally for healthcare and age, residential location, educational attainment, employment, occupation, and deprivation among individuals with healthcare contact in the past year.

	Women					Paid informally		Men					Paid informally	
	Total	Never paid informally	Paid informally	P	Once	A few times	Often	Total	Never paid informally	Paid informally	P	Once	A few times	Often
	14409	**12606 (88%)**	**1803 (12%)**		**911 (6%)**	**549 (4%)**	**343 (2%)**	**12934**	**11091 (86%)**	**1843 (14%)**		**858 (6%)**	**608 (5%)**	**377 (3%)**
Age Group														
18-26	4353 (30%)	3701 (85%)	652 (15%)		330 (7%)	200 (5%)	122 (3%)	3106 (24%)	2606 (84%)	500 (16%)		232 (7%)	164 (5%)	104 (4%)
27-34	3444 (24%)	2994 (87%)	450 (13%)		230 (6%)	135 (4%)	85 (2%)	2710 (21%)	2272 (83%)	438 (17%)		204 (8%)	143 (6%)	91 (3%)
35-46	3512 (24%)	3086 (88%)	426 (12%)		207 (6%)	138 (4%)	81 (2%)	3343 (26%)	2856 (86%)	487 (14%)		213 (6%)	177 (5%)	97 (3%)
47-106	3100 (22%)	2825 (91%)	275 (9%)	<0.001	144 (5%)	76 (2%)	55 (2%)	3775 (29%)	3357 (89%)	418 (11%)	<0.001	209 (6%)	124 (3%)	85 (2%)
Education														
≤Primary	7893 (55%)	6883 (87%)	1010 (13%)		488 (6%)	309 (4%)	213 (3%)	5916 (46%)	5115 (87%)	801 (13%)		362 (6%)	270 (4%)	169 (3%)
≥Secondary	6516 (45%)	5723 (88%)	793 (12%)	0.258	423 (6%)	240 (4%)	130 (2%)	7018 (54%)	5976 (85%)	1042 (15%)	0.034	496 (7%)	338 (5%)	208 (3%)
Employment														
Unemployed	10197 (73%)	8900 (87%)	1297 (13%)		651 (6%)	391 (4%)	255 (3%)	7346 (59%)	6315 (86%)	1031 (14%)		473 (6%)	338 (5%)	220 (3%)
Employed	4212 (27%)	3706 (88%)	506 (12%)	0.244	260 (6%)	158 (4%)	88 (2%)	5588 (41%)	4776 (85%)	812 (15%)	0.424	385 (7%)	270 (5%)	157 (3%)
Occupatio														

n														
Informal	12745 (88%)	11137 (87%)	1608 (13%)		807 (6%)	499 (4%)	302 (3%)	9687 (75%)	8295 (86%)	1392 (14%)		642 (6%)	470 (5%)	280 (3%)
Formal	1664 (12%)	1469 (88%)	195 (12%)	0.298	104 (6%)	50 (3%)	41 (3%)	3247 (25%)	2796 (86%)	451 (14%)	0.498	216 (7%)	138 (4%)	97 (3%)
Residence														
Urban	6127 (42%)	5321 (87%)	806 (13%)		400 (6%)	252 (4%)	154 (3%)	5336 (41%)	4524 (85%)	812 (15%)		365 (7%)	281 (5%)	166 (3%)
Rural	8282 (58%)	7285 (88%)	997 (12%)	0.045	511 (6%)	297 (4%)	189 (2%)	7598 (59%)	6567 (87%)	1031 (13%)	0.008	493 (6%)	327 (4%)	211 (3%)
Poverty Index														
Low LPI	11763 (81%)	10394 (89%)	1369 (11%)		711 (6%)	403 (3%)	255 (2%)	10626 (81%)	9217 (87%)	1409 (13%)		684 (6%)	452 (4%)	273 (3%)
High LPI	2646 (19%)	2212 (83%)	434 (17%)	<0.001	200 (8%)	146 (5%)	88 (4%)	2308 (19%)	1874 (81%)	434 (19%)	<0.001	174 (7%)	156 (7%)	104 (5%)

N = unweighted frequency.

% = weighted percentage.

P-values were calculated by chi-square tests (without sampling weight applied)

Appendix Table 2. Results of the full models of the determinants of making informal payments

	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)
Male (reference = female)	**1.22 (1.13-1.31)**	**1.17 (1.09-1.26)**	**1.19 (1.10-1.28)**	**1.22 (1.14-1.31)**
Age (continuous)	**0.99 (0.98-0.99)**	**0.99 (0.99-0.99)**	**0.99 (0.99-0.99)**	**0.99 (0.98-0.99)**
Education (ref: none or primary)				
Secondary or higher	0.96 (0.89-1.04)	1.07 (0.99-1.16)	1.03 (0.94-1.12)	1.00 (0.92-1.09)
Location (ref: urban)				
Rural	**0.83 (0.77-0.90)**	**0.76 (0.70-0.82)**	**0.81 (0.74-0.88)**	**0.76 (0.70-0.83)**
Employment (ref: unemployed)				
Employed	1.08 (1.00-1.17)	**1.18 (1.09-1.28)**	**1.13 (1.04-1.23)**	1.02 (0.94-1.10)
Occupation (ref: none/informal sector)				
Formal sector	1.01 (0.91-1.12)	1.02 (0.92-1.14)	1.00 (0.90-1.12)	1.05 (0.95-1.17)
Lived poverty index (ref: low)				
High	**1.34 (1.29-1.39)**	**1.31 (1.26-1.36)**	**1.35 (1.29-1.41)**	
Wealth index (ref: quintile 1)				
Quintile 2				0.98 (0.88-1.08)
Quintile 3				**0.75 (0.66-0.84)**

Quintile 4			**0.67 (0.59-0.76)**
Quintile 5			**0.62 (0.54-0.71)**
Log GDP per capita	**0.70 (0.66-0.73)**		
Health expenditure (% of GDP)	**1.07 (1.06-1.09)**		
Country (ref: Benin)			
Botswana		**0.08 (0.04-0.16)**	
Burkina Faso		**0.43 (0.29-0.65)**	
Cabo Verde		**0.36 (0.23-0.56)**	
Cameroon		**1.92 (1.41-2.60)**	
Cote d'Ivoire		**1.48 (1.06-2.08)**	
eSwatini		**0.29 (0.19-0.46)**	
Gabon		**1.81 (1.32-2.48)**	
Gambia		0.76 (0.53-1.09)	
Ghana		1.22 (0.89-1.67)	
Guinea		**2.14 (1.60-2.88)**	
Kenya		**1.77 (1.33-2.36)**	
Lesotho		**0.40 (0.27-0.60)**	
Liberia		**6.15 (4.61-8.21)**	
Madagascar		**1.96 (1.41-2.71)**	
Malawi		**0.66 (0.47-0.92)**	
Mali		**0.68 (0.47-0.98)**	
Mauritius		**0.19 (0.11-0.36)**	
Morocco		**4.56 (3.37-6.15)**	
Mozambique		**1.69 (1.29-2.23)**	
Namibia		**0.31 (0.20-0.50)**	
Niger		0.80 (0.58-1.10)	
Nigeria		**2.20 (1.61-3.01)**	
Sao Tome and Principe		**0.37 (0.24-0.57)**	
Senegal		**0.50 (0.34-0.75)**	
Sierra Leone		**8.19 (6.16-10.9)**	
South Africa		**0.60 (0.42-0.85)**	
Sudan		1.02 (0.72-1.45)	
Tanzania		0.96 (0.72-1.28)	
Togo		0.99 (0.71-1.39)	
Tunisia		1.12 (0.76-1.64)	
Uganda		**3.93 (2.97-5.19)**	
Zambia		**0.40 (0.27-0.59)**	
Zimbabwe		**0.36 (0.23-0.55)**	

Model 1 was adjusted for age, residential location, education, employment, occupation, and Lived Poverty Index. Model 2 was model 1 additionally adjusted for log GDP per capita and health expenditure (% of GDP) of the countries. Model 3 was model 1 additionally adjusted for country dummies. Model 4 was adjusted for age, residential location, education, employment, occupation, and wealth quintiles. The final sample for Model 1-3 was 27,343, while for Model 4 was 26,802.

Appendix Table 3. Heckprobit model

Number of individuals = 44,715
Censored = 17,372
Uncensored = 27,343

	Coefficient	P-value
Second stage: Determinants of making informal payments for care		
Male (female reference)	0.18	0.000
Age (continuous)	-0.01	0.03
Education (ref: none or primary)		
Secondary or higher	0.05	0.31
Location (ref: urban)		
Rural	-0.15	0.001
Employment (ref: unemployed)		
Employed	-0.05	0.47
Occupation (ref: none/informal sector)		
Formal sector	0.01	0.68
Lived poverty index (ref: low)		
High	0.02	0.71
First stage: Determinants of a medical visit		
Gender (ref: female)		
Male	-0.18	0.000
Age (continuous)	0.00	0.02
Education (ref: none or primary)		
Secondary or higher	-0.08	0.04
Location (ref: urban)		
Rural	0.14	0.000
Employment (ref: unemployed)		
Employed	0.08	0.15
Occupation (ref: none/informal sector)		
Formal sector	-0.01	0.69
Lived poverty index (ref: low)		
High	0.06	0.04
ρ	-0.97	0.29

Appendix Table 4. Multicollinearity test

Variable	VIF
Gender	1.06
Age	1.10
Location	1.12
Education	1.28
Occupation	1.25
Employment	1.15
Poverty	1.07
Mean VIF	1.15

VIF = variance inflation factors