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Mapping inequalities in health service coverage in Africa: a scoping review

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ABSTRACT

Objective In this scoping review, we aim to consolidate the evidence on inequalities in service coverage in Africa using a comprehensive set of stratifiers. These stratifiers include place of residence, race/ethnicity/culture/language, occupation, gender/sex, religion, education, socioeconomic status and social capital. Our approach provides a more holistic understanding of the different dimensions of inequality in the context of universal health coverage (UHC).

Design We conducted a scoping review following the Joanna Briggs Institute Manual for Evidence Synthesis.

Data sources We searched MEDLINE, Embase, Web of Science, CINAHL, PyscINFO, Cochrane Library, Google Scholar and Global Index Medicus for articles published between 1 January 2005 and 29 August 2022 examining inequalities in utilisation of health services for reproductive, maternal, newborn and child health (RMNCH), infectious or non-communicable diseases in Africa.

Eligibility criteria for selecting studies We included any empirical research that assessed inequalities in relation to services for RMNCH (eg, family planning), infectious diseases (eg, tuberculosis treatment) and non-communicable diseases (eg, cervical cancer screening) in Africa.

Data extraction and synthesis The data abstraction process followed a stepwise approach. A pilot-tested form capturing study setting, inequality assessment and service coverage indicators was developed and finalised. Data were extracted by one reviewer and cross-checked by another, with discrepancies resolved through consensus meetings. If a consensus was not reached, senior reviewers made the final decision. We used a narrative approach to describe the study characteristics and mapped findings against PROGRESS-Plus stratifiers and health service indicators. Quantitative findings were categorised as 'proequity', 'antiequity' or 'equal' based on service utilisation across social groups.

Results We included 178 studies in our review, most studies published within the last 5 years (61.1%). Most studies assessed inequality using socioeconomic status (70.6%), followed by age (62.4%), education (60.7%) and place of residence (59.0%). Few studies focused on disability, social capital and ethnicity/race and intersectionality of stratifiers. Most studies were on RMNCH services (53.4%) and infectious disease services (43.3%). Few studies were qualitative or behavioural analyses. Results highlight significant inequalities across different equity stratifiers and services with inconsistent trends of inequalities over time after the implementation of strategies to increase demand of services and strengthen health systems.

Conclusion There is a need to examine equity in service coverage for a variety of health conditions among various populations beyond the traditional classification of social groups. This also requires using diverse research methods identifying disparities in service use and various barriers to care. By addressing these knowledge gaps, future research and health system reforms can support countries in moving closer to achievement of UHC targets.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ A strength of our scoping review is bringing together a wide scope of studies using a comprehensive strategy.
⇒ By applying the PROGRESS-Plus framework, we ensured a broader dimension of social process factors to uncover inequities in service utilisation.
⇒ Adapting the WHO Universal Health Coverage service coverage indicators prevented us from exploring inequalities in the quality of services provided, as the coverage indicators are primarily focused on utilisation.
⇒ Research was skewed towards certain drivers of health inequalities such as language and ethnicity.
⇒ Our search strategy primarily included articles published in English due to resource constraints and the predominant use of English in the databases we searched.

INTRODUCTION

Achieving universal health coverage (UHC) is a key priority of the global agenda to improve health and well-being. UHC, the umbrella target for the third sustainable development goal (SDG), means ensuring that all populations have access to quality health services without experiencing financial hardship.[1 2] Minimising the impact of inequalities on access to and utilisation of essential health services is a core expectation for achieving UHC, reflected in the SDG's promise to 'leave no one behind'. The impact of these inequalities contributes to the disparities in health outcomes observed within the African region.[3 4]

While the need to address these inequalities is shared by most health stakeholders, the problem has remained intractable. Current evidence suggests that while overall health and well-being are significantly improving in many countries, the differences in outcomes between different populations within countries have persisted in many instances.[5 6]

Efforts to address inequalities typically focused on specific services or addressing one of the inequality drivers: place of residence, race/ethnicity/culture/language, occupation, gender/sex, religion, education, socioeconomic status (SES) and social capital ('PROGRESS').[7] Many efforts to address inequalities focus on one or a few of these inequality drivers. However, it is recognised that the ways in which these drivers act to address inequalities are complex, evolving and context-specific. The framing of health inequality is, therefore, not fit for purpose, as it takes a vertical siloed approach that does not take cognizance of the contextual needs and drivers. The primary healthcare (PHC) approach, which defines how health investments need to be made, requires a shift from a vertical issue-based approach to one centred around the needs of the individuals as beneficiaries of services.[8] Person-centredness and sustainability need to be viewed as ontological to health inequality framing. In this paper, we explore what this means for countries in the African region.

We aim to provide information on the relative contribution of each driver of health inequalities to the variations in health outcomes for beneficiaries in the African Region. To achieve this, two questions are addressed: (1) What is the evidence on the contribution of each driver to reducing health inequalities in the African region? and (2) What drives this relative contribution? This information is crucial for policy and decision-makers as it provides them with evidence of the relative prioritisation they need to place on each driver of inequality given their health goals.

METHODS

Scoping review methodology

We conducted a scoping review following the Joanna Briggs Institute (JBI) Manual for Evidence Synthesis, to explore what evidence exists for the contribution of each driver of health inequalities in Africa. This was done following the methodology recommended in the JBI Manual for Evidence Synthesis, a manual that provides guidance on developing systematic reviews[9] and was reported according to the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses).[10] Our protocol was registered with the Open Science Framework (OSF) (identifier: https://osf.io/zd5bt), peer reviewed and published.[11]

The electronic search strategy (online supplemental appendix 1) was conducted on MEDLINE, Embase, Web of Science, CINAHL, PyscINFO and Cochrane Library from their dates of inception to 29 August 2022, in line with this protocol to identify studies of interest. We ensured the comprehensiveness of our search strategy by incorporating all relevant search terms and validated filters to reflect three core themes: (1) equity, (2) UHC and (3) African regions. We also expanded our review to include publicly available sources, such as information produced by governments at all levels, academic institutions and industry, both in print and electronic formats, that are not controlled by commercial publishers. Our search strategy was reviewed by an information specialist and our core research team of international experts in health equity, UHC, health information systems or knowledge syntheses from Africa reviewed the preliminary search strategy to ensure its thoroughness and relevance. We included any empirical research that assessed inequalities in relation to services for reproductive, maternal, newborn and child health (RMNCH) (eg, family planning), infectious diseases (eg, tuberculosis treatment) and non-communicable diseases (NCDs) (eg, cervical cancer screening) in Africa.[11] Additionally, we performed a search to specifically capture studies on subnational health inequalities to ensure we included relevant work on the subnational burden of diseases. Recognising the importance of quality assessment in providing context to our findings, we conducted a preliminary appraisal of the included studies based on several criteria: study design, sample size, data collection methods and relevance to the research question. Studies with significant methodological flaws or those lacking direct relevance were excluded. For the remaining eligible studies, data were extracted using prepiloted, standardised forms (online supplemental table 1). Additionally, we excluded retracted publications, conference abstracts, study protocols and editorial materials (online supplemental appendix 2), as well as studies not directly relevant to health inequalities (online supplemental appendix 2). Only studies published from 1 January 2005 to 26 August 2022 were considered as 2005 marked the first introduction of UHC into public health discourse.[11] Our search strategy primarily included English-language articles. However, we included studies indexed in databases that cover a wide range of languages, such as Global Index Medicus, which includes literature from various WHO regional databases, often in multiple languages. We calculated an inter-reviewer agreement using the weighted Cohen's kappa.[12]

The data abstraction and presentation process followed a stepwise process. First, a data abstraction form that included information on study setting, information on how inequality was assessed and the context of the study and service coverage indicators was developed and pilot-tested by ABC, DOA and SS. Following this, the final agreed form was used to extract information from the identified reports by one single reviewer (ABC, DOA, SS or TM) and checked by another (ABC or DOA). Any discrepancies were resolved through consensus meetings between the reviewers (ABC, DOA, SS and TM). Where consensus could not be achieved,

reports were reviewed by HK and HCK to decide on their inclusion.

After extracting information from the included reports, we described the main characteristics of studies using a narrative approach involving content analysis. We mapped included studies against the appropriate PROGRESS-Plus stratifiers and health service coverage indicators. We characterised quantitative findings for different social groups receiving or using services as 'proequity' (ie, higher service utilisation by worst-off groups), 'antiequity' (ie, higher service utilisation by better-off groups) or equal (no significant differences in groups receiving or using services).

Patient and public involvement

None.

RESULTS

Selection of studies

Our electronic search identified 7777 potentially relevant records. Of these, 4041 were duplicates and 673 were ineligible (because published before 2005), leaving 3063 records. The subsequent review of the 3063 records found 2538 did not meet the review criteria. Full-text eligibility review was, therefore, done on the 525 remaining reports. This remained 525 reports were reviewed for eligibility, 175 of which the met the inclusion criteria.[13–187] An additional three articles[188–190] were identified from other sources. Overall, 178 articles were included in the review (figure 1), as the others were outside the Africa geographical region, did not include a PROGRESS-plus driver or did not include a health service outcome indicator (see online supplemental appendix 3).

Characteristics of included studies

Geographically, most of the studies involved single African countries (81.5%, n=145) with more than half of these studies from five countries: Nigeria (n=22), Ethiopia (n=17), Ghana (n=16), Uganda (n=13) and Tanzania (n=11). Many of the studies were published within the last 5 years (n=109, 61.2). Over three out of four studies were cross-sectional studies (n=141, 79.2%), followed by experimental or quasi-experimental (n=12, 6.7%), longitudinal studies (n=11, 6.2%) qualitative studies (n=5, 2.8%), knowledge syntheses (n=4, 2.2%), multipronged study designs (n=3, 1.7%) and mixed-methods studies (n=2, 1.1%). With data sources, over half (n=96, 53.9%) were from secondary sources, 42.1% (n=75) were from primary sources and 3.9% (n=7) were from both sources. Over half (n=92, 51.7%) of studies used national-level data, followed by subnational level (n=73, 41.0%), organisational level (n=8, 4.5%) and multiple levels (n=5, 2.8%). Characteristics of included studies are outlined in online supplemental table 1 and description of each included study can be found in online supplemental appendix 3.

Description of inequality stratifiers

Most of the studies assessed inequality using more than one PROGRESS-Plus stratifier (82.0% n=146) with a

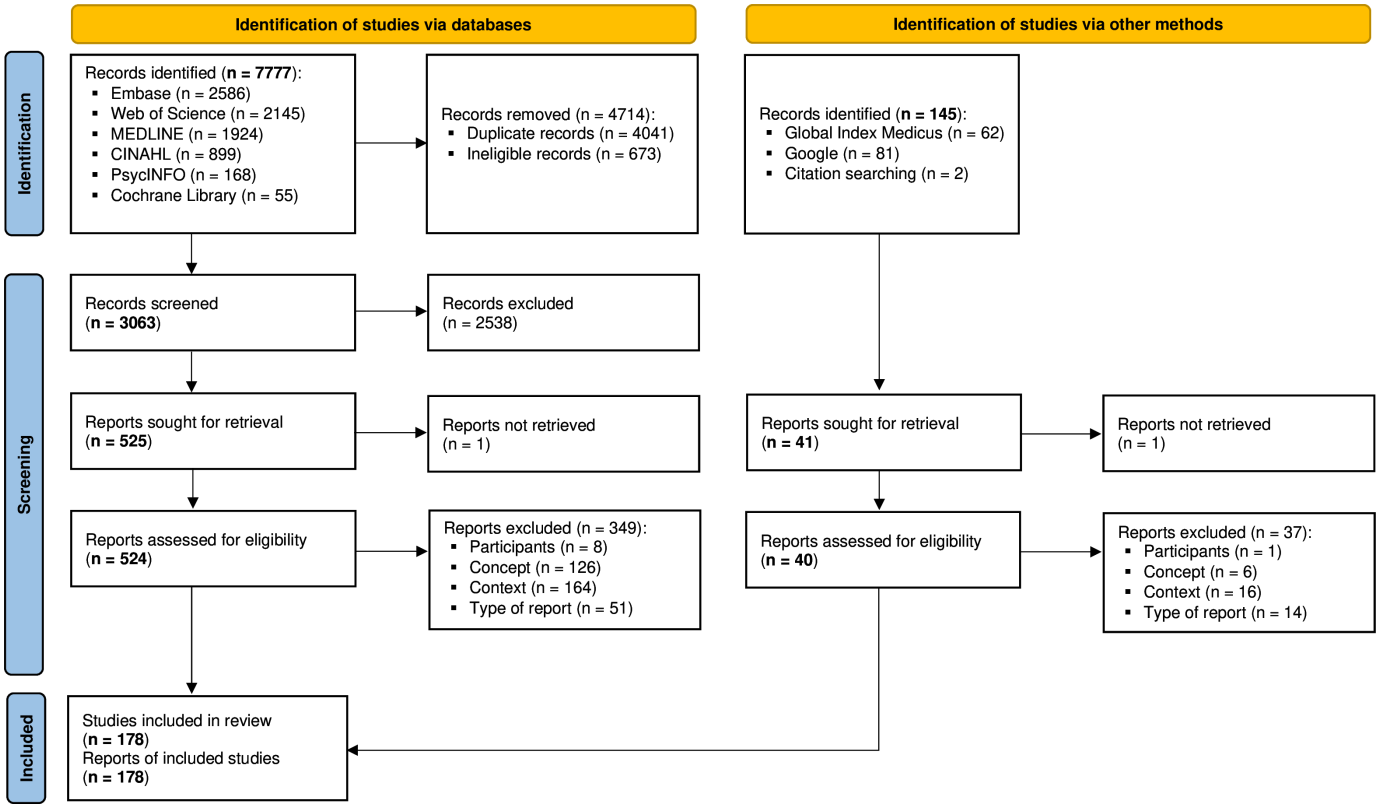

Figure 1 PRISMA 2020 flow diagram of the study inclusion process. PRISMA, Preferred Reporting Items for Systematic reviews and Meta-Analyses.

median of three. The most frequent stratifiers used were SES (n=125, 70.2%), age (n=111, 62.4%), education (n=108, 60.7%) and place of residence (n=105, 59.0%), with the least used stratifiers by studies being disability (n=3, 1.7%) and ethnicity/race (n=7, 3.9%).

Description of health service coverage indicators

RMNCH services were the most common (n=98, 53.4%) followed by infectious disease services (n=77, 43.3%), NCD services (n=15, 8.4%) and composite indices (n=5, 2.8%). In terms of specific interventions, nearly one-third of studies focused on the use of long-lasting insecticidal nets (n=54, 30.3%), followed by antenatal care (n=47, 26.4%), family planning (n=37, 20.8%), skilled birth attendance (n=33, 18.5%) and child immunisation (n=25, 14.0%).

Overview of evidence of impact for different drivers of inequality

We characterised quantitative findings for different social groups receiving or using services as 'proequity' (higher service utilisation by worst-off groups), antiequity (higher service utilisation by better-off groups) or neutral (no significant differences in groups receiving or using services). Some studies examined equity in more than one service indicator; therefore, in figure 2, we provide an overview of the reported findings for service utilisation by equity stratifiers. In general, the quantitative findings show that better-off groups across the different equity stratifiers are more likely to receive or use services.

Synthesis of quantitative and qualitative studies by equity stratifier

Socioeconomic status

SES refers to social and economic factors that influence an individual's societal class; this includes income, wealth, education and occupation. This section focuses on studies that reported directly on SES (composite measure) or used household financial or asset-based indicators for SES (wealth quintile or tertile or income).[7] Among quantitative studies, there were 120 studies, which assessed SES across 149 service coverage indicators. In 72% (n=107) of services that were assessed by SES, those in the wealthier groups are more likely to use services with 23% of services (n=35) reporting there are no significant differences

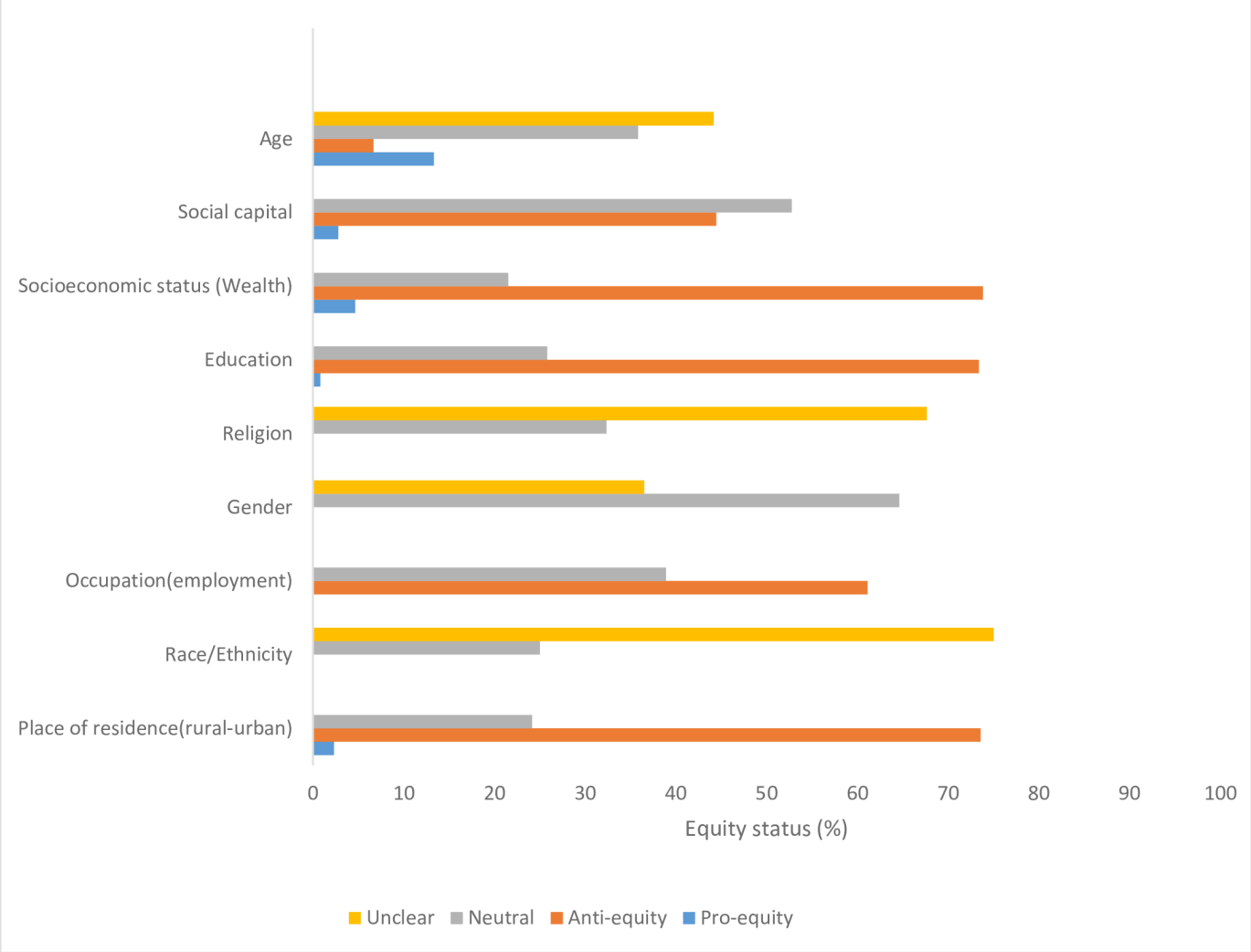

Figure 2 Overview of service utilisation by equity stratifiers.

in coverage by SES and about 5% of services (n=7) that reach the poor. Nearly 60% (n=25) of services in which studies found no significant differences by SES or either reached the worst-off groups were free access to use insecticide treatment net (ITN), immunisation or antiretroviral therapy (ART).

17 quantitative studies also examined the trends of inequalities for utilisation of 28 RMNCH service indicators. Studies found that wealth inequalities in service utilisation (n=16, 57%) have decreased and this was due to the removal of financial barriers through national health insurance programmes, exemptions or waivers of user fees for RMNCH services.[16 30 37 67 127] However, for some services and context, wealth inequalities were reported to have increased (n=10, 42%) or remained the same (n=2, 8%) over time despite national strategies to decrease inequalities.[26 37 39 40]

Evidence on the reasons for the disparity among SES groups was limited. One study[54] which conducted programmatic analysis on mass drug administration for neglected tropical diseases (NTDs) found that although drugs were free, communities that fear side effects could lead to unaffordable health costs shaped the acceptability of coverage.

Place of residence

There were 105 studies that examined service coverage according to place of residence focused on three main dimensions—rural/urban differences, regional differences (n=34) and distance to health facilities. Studies that examined service coverage according to place of residence focused on three main dimensions; rural–urban differences, subnational regional differences and distance to health facilities. Evidence from quantitative studies (n=73) examining inequalities for 80 service indicators suggests that those living in urban communities were more likely to receive or use services. Nearly 74% (n=59) of service use was found to be higher among those in urban communities with only 2% of services (n=2) being used more among individuals in rural communities. However, for some services, such as ITN use (n=19, 24%), studies found that there were no significant differences in use among rural and urban groups. Studies that assessed inequalities by region, reported significant differences (n=28, 100%) in service coverage across different regions in countries. In addition, studies also found that service utilisation (n=5, 100%) was higher among those living closer to health facilities.

Quantitative findings from seven studies showed that the trend of rural–urban gap is inconsistent for eight services. Two studies[16 39] reported that the rural–urban gap has declined over time for utilisation of four services while other studies reported[37 40 67] this gap has either increased for three services or remained the same for one service.

Qualitative studies on place of residence were limited. One study[107] found that those in periurban areas were mostly factory workers who finished work late when health facilities were closed and this resulted in their children missing vaccinations and pregnant women not receiving necessary antenatal services.

Education

A number of quantitative studies assessed inequalities in 118 service indicators according to individuals' educational attainment. Studies reported that about 73% of the services, the educated groups were more likely to receive or use these services compared with the non-educated groups while 23% of services had equal use by both groups. More than half of the services in which there were no differences in use were for ITN and ART. Only one study reported a higher service use by individuals with lower education.[143]

12 studies[26 30 39 40 67 80 80 89 106 127 178] reported the inequalities trend by education level for 21 services. Among these 19 services, studies reported that inequalities decreased over time in 10, while inequalities increased for another 8. In three services, studies found no change in equalities by education.

Qualitative studies on education were also limited. One study[117] on the use of skilled-birth attendance in Ethiopia observed that giving birth at home was higher among uneducated women due to the need to abide by the decision of their mothers-in-laws who believed in giving birth at home compared with educated women who have the agency to make their own decision.

Gender

57[7] quantitative studies assessed inequalities using gender differences (men or women) of service users or their heads of households for utilisation in 63 service indicators. There were no differences in service use by men and women for 43 of them (n=43), of which nearly half of the services were ITN use. In 24% of services, females or households headed by females were more likely to receive or use services. Only about 8% of services did studies report higher use by males or households headed by males.

Four of the quantitative studies[97 129 185 188] examined the trend of inequalities by gender for seven service indicators. Studies reported that service use among women and men remained the same over time except for two services.

The two qualitative findings[17 54] show that the differences in service use among men and women vary for each gender. In South-South Nigeria, one study reported that although water, sanitation and hygiene (WASH) services are poor for slum dwellers, women in slums bear the disproportionate burden of inadequate services due to the gendered distribution of childcare, household work and the need to fulfil the personal sanitary needs.[17] However, another study about NTDs found that men were left out of the distribution of treatment drugs due to their livelihood activities such as farming and fishing being concentrated outside of communities.[54]

Language/race/ethnicity

Seven quantitative studies[16 31 52 71 118 151 177] reported inequalities by either language, race or ethnicity for eight service indicators. In six of these services, studies reported that those in majority groups were more likely to receive or use services while in two services, there were equal use among groups.

No qualitative study reported inequalities by language, race or ethnicity.

Religion

There were 29 quantitative studies, which examined inequalities in the use of 34 services by religion. Among these 34 services, studies found that in 23, there were significant differences among religious groups in receiving or using services. In 20 of them, studies reported that Christians or one of its types were more likely to use services compared with non-Christians. However, it was not clear whether Christians were the religious majority group in study settings.

No qualitative study reported inequalities by religion.

Occupation

48 quantitative studies examined inequalities for coverage in 60 services by occupation. Among these studies, 28 of them examined inequalities for utilisation for 36 service indicators by occupation through employment status (employed vs non-employed) of individuals, their spouse or parents. For these 36 service indicators, studies reported that for about 61% (n=22,), those employed were more likely to receive or use services compared with non-employed, while for the remaining (n=14, 39%), there were no significant differences between these two groups. The studies (n=20) that assessed occupation using occupational groups, examined inequalities for utilisation of 23 service indicators. They reported that for the majority (n=16, 70%) of these services, there were differences in utilisation among the different occupational groups, while for the remaining service indicators, there were no differences among them. Studies were not explicit about the occupational groups that were better off or the worst-off in their contexts, and so making it difficult to determine equitable use among the groups. Only two studies[39 129] examined the trend of inequalities by occupation over time, and they reported that inequalities by occupation have increased.

Social capital

35 quantitative studies examined inequalities by social capital for 41 service indicators. Among these studies, 31 assessed social capital using marital status for 36 service indicators, and they reported that for half of services (n=19), there were no significant differences in use among those married compared with other groups such as single, widowed or divorced. About 44% of services (n=16), those married were more likely to receive or use services. Only one study[144] reported one service (ITN use) whereby those not married were least likely to use ITNs.

Two studies[28 178] examined inequalities over time by marital status for one service indicator each. Both found that inequalities in previous periods whereby previously there were no significant differences among groups, this has changed to service coverage favouring those that are married. The qualitative findings from two studies[119 128] may explain the reason marital status did not contribute to inequalities in service coverage. The findings show that for married women, lack of husbands' consent inhibited taking contraceptives.[119] In addition, those married women could be 'thrown out of their marital laws by their in-laws just because they used contraceptives'. The other study[128] observed that for pregnant married women in need of antenatal care services, minimal or lack of support from husbands in the form of financial assistance or domestic chores hindered women from receiving these services. Three quantitative studies[114 139 143] examined social capital for one service each and they all reported that those with stronger social support or social network were more likely to use or receive services.

Only qualitative studies explored inequalities by social support.[117] In Ethiopia, the study reported that women with strong social support such as close relatives, neighbours and friends were more vulnerable to social persuasion to deliver at home than skilled birth care in health facility.

Age

The 111 quantitative studies that examined inequalities by age assessed it by the age of users or their parents for 121 service indicators. Studies reported that for nearly 36% (n=43) of services, there was an equal use of services by different age groups while about for 35% (n=42) of services, older age groups were more likely to receive or use services and for the remaining of services (n=36, 30%), younger age groups were more likely to use. No clear distinction between services (NCDs, CDs or RMNCH) that each age group were more likely to use or receive.

Six studies[30 89 127 129 159 167] assessed the trend of inequalities by age groups over time for eight service indicators. The findings show that the trend of inequalities by age group is unclear. Among the eight service indicators, inequalities remained the same, while for three, it increased and for one service, it decreased.

One qualitative study[117] reported experiences of different age groups in the use of antenatal care, infant immunisation and SBA. The study reported that services were accessed equally across the different age groups except for SBA where younger women (18–25 years) were more likely to deliver with SBA. However, they did not elaborate on the factors that contributed to the differences in SBA use among the different age groups.

Disability

Only one quantitative study examined inequalities by disability alone and they reported that disabled individuals

were less likely to be on ART compared with non-disabled persons.[66]

Intersectionality

Some studies (n=3) also assessed inequalities through an intersectionality lens. Intersectionality is a theoretical framework in which human experiences are shaped by a web of intersecting equity stratifiers (eg, SES and gender). Two quantitative studies[73 89] from Kenya showed the intersection of geographical location and other equity stratifiers on service coverage. One study[93] showed that generally, regardless of urban or rural residence, service use was still very low for the poorest populations compared with the better-off populations while the other[73] reported that in each type of geographic residence, there are different individual factors that affect service use. One study[174] examined the intersection of disability type and multiple equity stratifiers and found that the more educated women with hearing difficulties were more likely to use antenatal care compared with non-disabled women without an education while wealthier women with hearing difficulties had fewer chances of receiving the same services. Qualitative findings revealed how service utilisation by men and women is shaped by their other social positions. Two studies found that gendered roles intersected with occupation to decrease service utilisation; migrant women working as head porters with long working schedules faced many challenges in accessing health facilities for contraceptives uptake.[119] On the other hand, in rural areas, men who worked farther away from communities are less likely to receive treatment for NTDs during drug mass drug administration campaigns.[54] Studies also revealed the intersection of gender and SES, age, marital status and social support from husband or in-laws.[119 128]

DISCUSSION

Ensuring fair access to essential services is crucial to the movement towards UHC and other health goals. We provide a comprehensive and current consolidation of evidence on the state of health inequalities in the African region. We see over half of the evidence coming from only five countries—Ethiopia, Ghana, Kenya, Nigeria and Uganda—and most evidence is focused on inequalities due to SES, age and education while the least evidence looks at inequalities due to disability, social capital and ethnicity/race.

A striking finding of this review is the persistent inequalities in UHC service indicators across the different equity stratifiers. This finding is consistent with previous summaries on socioeconomic inequalities and service utilisation.[191–193] Qualitative evidence seems to suggest that these inequalities are driven by multiple factors. These include the inability to pay for services and other indirect costs that create barriers for low-income individuals to access services. Many studies have shown that financial barriers, such as direct health costs, transportation costs and informal payments, deter service utilisation by those in the lowest wealth groups in Africa.[194–196] Another factor hindering service utilisation is the limited accommodation of services, particularly for those with long working hours. Another important driver is sociocultural norms surrounding the use of services such as skilled birth deliveries and contraceptives. These driving factors can intersect to exacerbate or reduce inequalities.[174 197]

We see some services have limited disparities across different stratifiers. These are the interventions that emphasise mass distribution and free access to everyone and target vulnerable populations as persons needing special attention in the mass distributed interventions. These include those interventions for ITN and ART services. This approach to providing services would, therefore, be useful in addressing inequalities in utilisation. However, the sustainability of this approach is questionable without external financing.[198–200]

The review reveals that strategies to reduce financial barriers, such as health insurance programmes, exemptions and subsidies, may have reduced inequality gaps over time to an extent for some services. However, they may not be sufficient to address inequalities in universal service coverage. These financial initiatives may be effective in reducing inequalities for services covered under them or those in which providers are incentivised to increase utilisation for vulnerable populations. Their inadequacy is probably due to socioeconomic inequalities in insurance enrolment[201 202] and governance structures around funding flows for their effective implementation.[203 204] Other strategies that are been used to reduce other accessibility barriers are supply-side interventions such as the availability of community health workers for equitable PHC services. In Ethiopia, the review showed that its community health extension programme has contributed to narrowing equity gaps for some services, but inequities still exist. The persisting inequities are due to challenges the programme faces with the productivity and efficiency of extension workers, the capacity of health posts and social determinants of health.[205]

Our findings highlight the need to consider how context and social processes influence service utilisation. For example, the review showed that structural and financial social support from spouses were crucial factors for women using ANC in Ghana. In Ethiopia, on the other hand, not having social support from family increased the need for skilled birth deliveries. Likewise, although women face more barriers in accessing services than men,[206] the review revealed they are more likely to use services than men. The underutilisation of services by men is linked to a low priority of men's health in health systems and masculine social norms that perpetuate that healthcare seeking or use health services is a female task.[207]

While our study provides a comprehensive overview of consolidated evidence on health inequalities in the African region, several methodological limitations should be considered when interpreting the findings. These

include our search strategy, which primarily included articles published in English due to resource constraints and the predominance of English in the databases searched. Additionally, adapting the WHO UHC service coverage indicators limited our ability to explore inequalities in the quality of services provided, as these indicators are primarily focused on utilisation.

CONCLUSION

We have explored the evidence on health inequalities driving health outcomes across the African Region. We have seen that a lot of the evidence is informed by a few health service interventions, and inequality stratifiers. Even with this limitation, however, we have been able to derive some inferences about how to address health inequalities in the region. First, we see that the way different services are provided impacts their contribution to addressing inequalities. Interventions that are targeted at whole populations with vulnerability targeting as a subset of the programme lead to fewer inequalities. Targeting inequalities should be done as part of a wider set of interventions aimed at ensuring everyone who needs the service has access to it. Second, we also see different stratifiers have different effects on health outcomes depending on the context. It is important that efforts to address inequalities are contextualised, and not only driven by advocacy for specific areas. Health inequality interventions in the African region be tailored to the specific context of each country. A comprehensive understanding of the distinctive drivers of health inequalities across different settings is of critical importance for the design of effective interventions.

It is critical that further research is conducted to address the gaps in understanding health inequalities. There are, for instance, few studies exploring inequalities in NCD service access, or health emergency response—both of which are crucial to health and well-being in the region. Additionally, few studies look at multiple stratifiers, and yet many of these stratifiers are inter-related and have similar effects on health outcomes. There is a need to use diverse research methods, this include expand the study of overlooked social stratifiers and countries and investigating the impact of various health system interventions on equity. Importantly, stimulating research efforts across services for different diseases is crucial to fill these knowledge gaps to examine the progress being made towards UHC as countries make epidemiological transitions and population health needs shift

A strength of our scoping review is bringing together a wide scope of studies using a comprehensive strategy. Furthermore, by applying the PROGRESS-Plus framework, we ensured a broader dimension of social process factors to uncover inequities in service utilisation. However, there were some limitations. Adapting the WHO UHC service coverage indicators prevented us from exploring inequalities in the quality of services provided, as the coverage indicators are primarily focused on utilisation.

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Contributors HCK, SS, HK, TO, TM and BD conceived the idea of this knowledge synthesis. HCK, ABC, DOA, SS, HK, TO and BD designed this review. ABC drafted the search strategy, and all authors revised it. HCK, ABC, DOA and SS contributed to the selection of records or reports. HCK, ABC, DOA, SS and TM contributed to the data extraction. HCK, ABC, DOA, SS, HK, TO, TM and BD contributed to the analysis or interpretation of data. ABC and DOA drafted this manuscript. All authors revised the manuscript critically for important intellectual content, gave final approval of the version to be published and agreed to be accountable for all aspects of the knowledge synthesis. HCK is responsible for the overall content of this work as the guarantor.

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Patient consent for publication Not applicable.

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Data availability statement All data relevant to the study are included in the article or uploaded as online supplemental information.

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REFERENCES

1 World Health Organization. The world health report: health systems financing: the path to universal coverage. 2010. Available: https://apps.who.int/iris/handle/10665/44371 [accessed 21 Jun 2023]
2 United Nations General Assembly. Resolution adopted by the general assembly on 16 September 2005. 2005. Available: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globa lcompact/A_RES_60_1.pdf [Accessed 21 Jun 2023].
3 Umuhoza SM, Ataguba JE. Inequalities in health and health risk factors in the Southern African Development Community: evidence from World Health Surveys. *Int J Equity Health* 2018;17:52.
4 Pérez-Mesa D, Marrero GA, Darias-Curvo S. Child health inequality in Sub-Saharan Africa. *Econ Hum Biol* 2022;47:101176.
5 Wagstaff A, Bredenkamp C, Buisman LR. Progress on Global Health Goals: Are the Poor Being Left Behind? *World Bank Res Obs* 2014;29:137–62.
6 Abekah-Nkrumah G. Trends in utilisation and inequality in the use of reproductive health services in Sub-Saharan Africa. *BMC Public Health* 2019;19:1541.
7 O'Neill J, Tabish H, Welch V, *et al*. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. *J Clin Epidemiol* 2014;67:56–64.
8 Karamagi HC. Are we chasing the wind? Translating global health commitments to actions, for health results. *Afr J Prim Health Care Fam Med* 2023;15:e1–2.

9 Peters MDJ, Godfrey C, McInerney P, *et al*. Chapter 11: scoping reviews. In: Aromataris E, Munn Z, eds. *Joanna Briggs Institute Reviewer's Manual*. 2017. Available: https://reviewersmanual.joannabriggs.org/
10 Page MJ, McKenzie JE, Bossuyt PM, *et al*. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71.
11 Karamagi HC, Ben Charif A, Afriyie DO, *et al*. Mapping health service coverage inequalities in Africa: a scoping review protocol. *BMJ Open* 2023;13:e068903.
12 McHugh ML. Interrater reliability: the kappa statistic. *Biochem Med (Zagreb)* 2012;22:276–82.
13 Adeleye KK, Akinwaare MO, Adejumo PO. Reproductive Plans And Utilization of Contraceptives Among Women Living With HIV. *Int J MCH AIDS* 2019;8:120–30.
14 Adeniyi OV, Ajayi AI, Somefun OD, *et al*. Provision of immediate postpartum contraception to women living with HIV in the Eastern Cape, South Africa; a cross-sectional analysis. *Reprod Health* 2020;17:194.
15 Afework A, Beyene H, Ermias A, *et al*. Moving Up the Sanitation Ladder: A Study of the Coverage and Utilization of Improved Sanitation Facilities and Associated Factors Among Households in Southern Ethiopia. *Environ Health Insights* 2022;16:11786302221080825.
16 Ajayi AI, Akpan W. Maternal health care services utilisation in the context of "Abiye" (safe motherhood) programme in Ondo State, Nigeria. *BMC Public Health* 2020;20:362.
17 Akpabio EM, Wilson N-AU, Essien KA, *et al*. Slums, women and sanitary living in South-South Nigeria. *J Hous and the Built Environ* 2021;36:1229–48.
18 Alaba OA, Hongoro C, Thulare A, *et al*. Leaving No Child Behind: Decomposing Socioeconomic Inequalities in Child Health for India and South Africa. *Int J Environ Res Public Health* 2021;18:7114.
19 Alhassan JAK, Wariri O, Onuwabuchi E, *et al*. Access to skilled attendant at birth and the coverage of the third dose of diphtheria-tetanus-pertussis vaccine across 14 West African countries - an equity analysis. *Int J Equity Health* 2020;19:78.
20 Alhassan RK, Owusu-Agyei S, Ansah EK, *et al*. Trends and correlates of maternal, newborn and child health services utilization in primary healthcare facilities: an explorative ecological study using DHIMSII data from one district in the Volta region of Ghana. *BMC Pregnancy Childbirth* 2020;20:543.
21 Aliy J, Mariam DH. Determinants of equity in utilization of maternal health services in Butajira, Southern Ethiopia. *Eth J Health Dev* 2012;26:265–70.
22 Amoran OE, Senbanjo IO, Asagwara CE. Determinants of insecticide treated nets use among youth corp members in Edo State, Nigeria. *BMC Public Health* 2011;11:728.
23 Amu H, Aboagye RG, Dowou RK, *et al*. Towards achievement of Sustainable Development Goal 3: multilevel analyses of demographic and health survey data on health insurance coverage and maternal healthcare utilisation in sub-Saharan Africa. *Int Health* 2023;15:134–49.
24 Anarwat SG, Salifu M, Akuriba MA. Equity and access to maternal and child health services in Ghana a cross-sectional study. *BMC Health Serv Res* 2021;21:864.
25 Andrada A, Herrera S, Inyang U, *et al*. A subnational profiling analysis reveals regional differences as the main predictor of ITN ownership and use in Nigeria. *Malar J* 2019;18:185.
26 Asamoah BO, Agardh A. Inequality trends in maternal health services for young Ghanaian women with childbirth history between 2003 and 2014. *BMJ Open* 2017;7:e011663.
27 Assefa Y, Hill PS, Van Damme W, *et al*. Leaving no one behind: lessons from implementation of policies for universal HIV treatment to universal health coverage. *Global Health* 2020;16:17.
28 Asuman D, Ackah CG, Enemark U. Inequalities in child immunization coverage in Ghana: evidence from a decomposition analysis. *Health Econ Rev* 2018;8:9.
29 Ataguba J-O. A reassessment of global antenatal care coverage for improving maternal health using sub-Saharan Africa as a case study. *PLoS One* 2018;13:e0204822.
30 Atake E-H. Socio-economic inequality in maternal health care utilization in Sub-Saharan Africa: Evidence from Togo. *Int J Health Plann Manage* 2021;36:288–301.
31 Awoleke JO, Olofinbiyi BA. Poor prenatal service utilization and pregnancy outcome in a tertiary health facility in Southwest Nigeria. *Pan Afr Med J* 2020;35:28.
32 Babalola S, Ricotta E, Awantang G, *et al*. Correlates of Intra-Household ITN Use in Liberia: A Multilevel Analysis of Household Survey Data. *PLoS One* 2016;11:e0158331.
33 Bain LE, Aboagye RG, Dowou RK, *et al*. Prevalence and determinants of maternal healthcare utilisation among young women in sub-Saharan Africa: cross-sectional analyses of demographic and health survey data. *BMC Public Health* 2022;22:647.
34 Bbaale E, Guloba A. Maternal education and childbirth care in Uganda. *Australas Med J* 2011;4:389–99.
35 Bbaale E. Factors influencing timing and frequency of antenatal care in Uganda. *Australas Med J* 2011;4:431–8.
36 Becker N, Poudel KC, Cordeiro LS, *et al*. A quantitative analysis of food insecurity and other barriers associated with ART nonadherence among women in rural communities of Eswatini. *PLoS One* 2021;16:e0256277.
37 Benova L, Dennis ML, Lange IL, *et al*. Two decades of antenatal and delivery care in Uganda: a cross-sectional study using Demographic and Health Surveys. *BMC Health Serv Res* 2018;18:758.
38 Bilal SM, Spigt M, Dinant GJ, *et al*. Utilization of Sexual and Reproductive Health Services in Ethiopia – Does it affect sexual activity among high school students? *Sexual & Reproductive Healthcare* 2015;6:14–8.
39 Bintabara D. Addressing the huge poor-rich gap of inequalities in accessing safe childbirth care: A first step to achieving universal maternal health coverage in Tanzania. *PLoS ONE* 2021;16:e0246995.
40 Bintabara D, Basinda N. Twelve-year persistence of inequalities in antenatal care utilisation among women in Tanzania: a decomposition analysis of population-based cross-sectional surveys. *BMJ Open* 2021;11:e040450.
41 Blumenberg C, Hellwig F, Ewerling F, *et al*. Socio-demographic and economic inequalities in modern contraception in 11 low- and middle-income countries: an analysis of the PMA2020 surveys. *Reprod Health* 2020;17:82.
42 Bosomprah S, Aryeetey GC, Nonvignon J, *et al*. A decomposition analysis of change in skilled birth attendants. *BMC Pregnancy Childbirth* 2003;14:415.
43 Callaghan M. Antiretroviral therapy in Walvis Bay, Namibia. 2015. Available: https://tspace.library.utoronto.ca/handle/1807/70825
44 Campbell OMR, Benova L, MacLeod D, *et al*. Family planning, antenatal and delivery care: cross-sectional survey evidence on levels of coverage and inequalities by public and private sector in 57 low- and middle-income countries. *Tropical Med Int Health* 2016;21:486–503.
45 Di Cesare M, Khang Y-H, Asaria P, *et al*. Inequalities in non-communicable diseases and effective responses. *Lancet* 2013;381:585–97.
46 Chakraborty NM, Sprockett A. Use of family planning and child health services in the private sector: an equity analysis of 12 DHS surveys. *Int J Equity Health* 2018;17:50.
47 Choi Y, Fabic MS, Hounton S, *et al*. Meeting demand for family planning within a generation: prospects and implications at country level. *Glob Health Action* 2015;8:29734.
48 Clark S, Berrang-Ford L, Lwasa S, *et al*. A Longitudinal Analysis of Mosquito Net Ownership and Use in an Indigenous Batwa Population after a Targeted Distribution. *PLoS One* 2016;11:e0154808.
49 Cote CM, Goel V, Muhindo R, *et al*. Malaria prevalence and long-lasting insecticidal net use in rural western Uganda: results of a cross-sectional survey conducted in an area of highly variable malaria transmission intensity. *Malar J* 2021;20:304.
50 Crissman HP, Adanu RM, Harlow SD. Women's sexual empowerment and contraceptive use in Ghana. *Stud Fam Plann* 2012;43:201–12.
51 Daca C, Sebastian MS, Arnaldo C, *et al*. Socio-economic and demographic factors associated with reproductive and child health preventive care in Mozambique: a cross-sectional study. *Int J Equity Health* 2020;19:200.
52 Dankwah E, Feng C, Kirychuck S, *et al*. Assessing the contextual effect of community in the utilization of postnatal care services in Ghana. *BMC Health Serv Res* 2021;21:40.
53 Day C, Gray A, Cois A, *et al*. Is South Africa closing the health gaps between districts? Monitoring progress towards universal health service coverage with routine facility data. *BMC Health Serv Res* 2021;21:194.
54 Dean L, Ozano K, Adekeye O, *et al*. Neglected Tropical Diseases as a "litmus test" for Universal Health Coverage? Understanding who is left behind and why in Mass Drug Administration: Lessons from four country contexts. *PLoS Negl Trop Dis* 2019;13:e0007847.
55 Deathe AR, Oyungu E, Ayaya SO, *et al*. Preventive Health Service Coverage Among Infants and Children at Six Maternal-Child Health Clinics in Western Kenya: A Cross-Sectional Assessment. *Matern Child Health J* 2022;26:522–9.

56 Defar A, Okwaraji YB, Tigabu Z, *et al*. Geographic differences in maternal and child health care utilization in four Ethiopian regions; a cross-sectional study. *Int J Equity Health* 2019;18:173.
57 Defar A, Okwaraji YB, Tigabu Z, *et al*. Distance, difference in altitude and socioeconomic determinants of utilisation of maternal and child health services in Ethiopia: a geographic and multilevel modelling analysis. *BMJ Open* 2021;11:e042095.
58 Deressa W, Fentie G, Girma S, *et al*. Ownership and use of insecticide-treated nets in Oromia and Amhara Regional States of Ethiopia two years after a nationwide campaign. *Tropical Med Int Health* 2011;16:1552–61.
59 Desrochers RE, Siekmans K, Berti PR, *et al*. Effectiveness of post-campaign, door-to-door, hang-up, and communication interventions to increase long-lasting, insecticidal bed net utilization in Togo (2011-2012): a cluster randomized, control trial. *Malar J* 2014;13:260.
60 Dey T, Ononge S, Weeks A, *et al*. Immediate postnatal care following childbirth in Ugandan health facilities: an analysis of Demographic and Health Surveys between 2001 and 2016. *BMJ Glob Health* 2021;6:e004230.
61 Diabaté S, Druetz T, Bonnet E, *et al*. Insecticide-treated nets ownership and utilization among under-five children following the 2010 mass distribution in Burkina Faso. *Malar J* 2014;13:353.
62 Dietler D, Farnham A, Loss G, *et al*. Impact of mining projects on water and sanitation infrastructures and associated child health outcomes: a multi-country analysis of Demographic and Health Surveys (DHS) in sub-Saharan Africa. *Global Health* 2021;17:70.
63 Ejembi J, Ajumobi O, Ibrahim MS, *et al*. Predictors of insecticidal net use among internally displaced persons aged 6-59 months in Abuja, Nigeria. *Pan Afr Med J* 2018;29:136.
64 Emina JBO, Chirwa T, Kandala N-B. Trend in the use of modern contraception in sub-Saharan Africa: Does women's education matter? *Contraception* 2014;90:154–61.
65 Enos JY, Amoako RD, Doku IK. Utilization, Predictors and Gaps in the Continuum of Care for Maternal and Newborn Health in Ghana. *Int J MCH AIDS* 2021;10:98–108.
66 Exavery A, Charles J, Barankena A, *et al*. ART use and associated factors among HIV positive caregivers of orphans and vulnerable children in Tanzania. *BMC Public Health* 2020;20:1251.
67 Fenny AP, Asuman D, Crentsil AO, *et al*. Trends and causes of socioeconomic inequalities in maternal healthcare in Ghana, 2003–2014. *IJSE* 2019;46:288–308.
68 Fokam EB, Kindzeka GF, Ngimuh L, *et al*. Determination of the predictive factors of long-lasting insecticide-treated net ownership and utilisation in the Bamenda Health District of Cameroon. *BMC Public Health* 2017;17:263.
69 Fournier P, Dumont A, Tourigny C, *et al*. The free caesareans policy in low-income settings: an interrupted time series analysis in Mali (2003-2012). *PLoS ONE* 2014;9:e105130.
70 Francois JN, Kakeu J, Kouame C. Do Better Institutions Broaden Access to Sanitation in Sub-Sahara Africa. *Contemp Econ Policy* 2021;39:435–52.
71 Ganle JK. Ethnic disparities in utilisation of maternal health care services in Ghana: evidence from the 2007 Ghana Maternal Health Survey. *Ethn Health* 2016;21:85–101.
72 Ganle JK, Amoako D, Baatiema L, *et al*. Risky sexual behaviour and contraceptive use in contexts of displacement: insights from a cross-sectional survey of female adolescent refugees in Ghana. *Int J Equity Health* 2019;18:127.
73 Gao X, Kelley DW. Understanding how distance to facility and quality of care affect maternal health service utilization in Kenya and Haiti: A comparative geographic information system study. *Geospat Health* 2019;14.
74 Garley AE, Ivanovich E, Eckert E, *et al*. Gender differences in the use of insecticide-treated nets after a universal free distribution campaign in Kano State, Nigeria: post-campaign survey results. *Malar J* 2013;12:119.
75 Gichangi P, Waithaka M, Thiongo M, *et al*. Demand satisfied by modern contraceptive among married women of reproductive age in Kenya. *PLoS One* 2021;16:e0248393.
76 Gonahasa S, Maiteki-Sebuguzi C, Rugnao S, *et al*. LLIN Evaluation in Uganda Project (LLINEUP): factors associated with ownership and use of long-lasting insecticidal nets in Uganda: a cross-sectional survey of 48 districts. *Malar J* 2018;17:421.
77 Haberer JE, Bwana BM, Orrell C, *et al*. ART adherence and viral suppression are high among most non-pregnant individuals with early-stage, asymptomatic HIV infection: an observational study from Uganda and South Africa. *J Int AIDS Soc* 2019;22:e25232.
78 Hailu S, Astatkie A, Johansson KA, *et al*. Low immunization coverage in Wonago district, southern Ethiopia: A community-based cross-sectional study. *PLoS ONE* 2019;14:e0220144.
79 Hosseinpoor AR, Victora CG, Bergen N, *et al*. Towards universal health coverage: the role of within-country wealth-related inequality in 28 countries in sub-Saharan Africa. *Bull World Health Organ* 2011;89:881–90.
80 Hounton S, Barros AJD, Amouzou A, *et al*. Patterns and trends of contraceptive use among sexually active adolescents in Burkina Faso, Ethiopia, and Nigeria: evidence from cross-sectional studies. *Glob Health Action* 2015;8:29737.
81 Idowu A, Ukandu GC, Mattu J, *et al*. Modern Contraception: Uptake and Correlates among Women of Reproductive Age-Group in a Rural Community of Osun State, Nigeria. *Ethiop J Health Sci* 2020;30:531–40.
82 Ikilezi G, Augusto OJ, Sbarra A, *et al*. Determinants of geographical inequalities for DTP3 vaccine coverage in sub-Saharan Africa. *Vaccine (Auckl)* 2020;38:3447–54.
83 Imo CK. Influence of women's decision-making autonomy on antenatal care utilisation and institutional delivery services in Nigeria: evidence from the Nigeria Demographic and Health Survey 2018. *BMC Pregnancy Childbirth* 2022;22:141.
84 Isabirye A, Elwange BC, Singh K, *et al*. Individual and community-level determinants of cervical cancer screening in Zimbabwe: a multi-level analyses of a nationwide survey. *BMC Womens Health* 2022;22:309.
85 Johnson FA, Frempong-Ainguah F, Padmadas SS. Two decades of maternity care fee exemption policies in Ghana: have they benefited the poor? *Health Policy Plan* 2016;31:46–55.
86 Joseph G, da Silva ICM, Barros AJD, *et al*. Socioeconomic inequalities in access to skilled birth attendance among urban and rural women in low-income and middle-income countries. *BMJ Glob Health* 2018;3:e000898.
87 Kangmennaang J, Thogarapalli N, Mkandawire P, *et al*. Investigating the disparities in cervical cancer screening among Namibian women. *Gynecol Oncol* 2015;138:411–6.
88 Kantorová V, Wheldon MC, Dasgupta ANZ, *et al*. Contraceptive use and needs among adolescent women aged 15-19: Regional and global estimates and projections from 1990 to 2030 from a Bayesian hierarchical modelling study. *PLoS ONE* 2021;16:e0247479.
89 Karim AM, Tamire A, Medhanyie AA, *et al*. Changes in equity of maternal, newborn, and child health care practices in 115 districts of rural Ethiopia: implications for the health extension program. *BMC Pregnancy Childbirth* 2015;15:238.
90 Karp C, Wood SN, Guiella G, *et al*. Contraceptive dynamics during COVID-19 in sub-Saharan Africa: longitudinal evidence from Burkina Faso and Kenya. *BMJ Sex Reprod Health* 2021;47:252–60.
91 Kateera F, Ingabire CM, Hakizimana E, *et al*. Long-lasting insecticidal net source, ownership and use in the context of universal coverage: a household survey in eastern Rwanda. *Malar J* 2015;14:390.
92 Keating J, Hutchinson P, Miller JM, *et al*. A quasi-experimental evaluation of an interpersonal communication intervention to increase insecticide-treated net use among children in Zambia. *Malar J* 2012;11:313.
93 Keats EC, Akseer N, Bhatti Z, *et al*. Assessment of Inequalities in Coverage of Essential Reproductive, Maternal, Newborn, Child, and Adolescent Health Interventions in Kenya. *JAMA Netw Open* 2018;1:e185152.
94 Kentoffio K, Kraemer JD, Griffiths T, *et al*. Charting health system reconstruction in post-war Liberia: a comparison of rural vs. remote healthcare utilization. *BMC Health Serv Res* 2016;16:478.
95 Khan JAM, Ahmed S, Chen T, *et al*. A Transparent Universal Health Coverage Index with Decomposition by Socioeconomic Groups: Application in Asian and African Settings. *Appl Health Econ Health Policy* 2019;17:399–410.
96 Koenker H, Yukich JO. Effect of user preferences on ITN use: a review of literature and data. *Malar J* 2017;16:233.
97 Larson PS, Minakawa N, Dida GO, *et al*. Insecticide-treated net use before and after mass distribution in a fishing community along Lake Victoria, Kenya: successes and unavoidable pitfalls. *Malar J* 2014;13:466.
98 Lemp JM, De Neve J-W, Bussmann H, *et al*. Lifetime Prevalence of Cervical Cancer Screening in 55 Low- and Middle-Income Countries. *JAMA* 2020;324:1532–42.
99 Leone T, Cetorelli V, Neal S, *et al*. Financial accessibility and user fee reforms for maternal healthcare in five sub-Saharan countries: a quasi-experimental analysis. *BMJ Open* 2016;6:e009692.
100 Levira F, Agnarson AM, Masanja H, *et al*. Antiretroviral treatment coverage in a rural district in Tanzania--a modeling study using empirical data. *BMC Public Health* 2015;15:195.

101 Lindberg C, Nareeba T, Kajungu D, *et al*. The Extent of Universal Health Coverage for Maternal Health Services in Eastern Uganda: A Cross Sectional Study. *Matern Child Health J* 2022;26:632–41.
102 Loha E, Tefera K, Lindtjørn B. Freely distributed bed-net use among Chano Mille residents, south Ethiopia: a longitudinal study. *Malar J* 2013;12:23.
103 Mac-Seing M, Zarowsky C, Yuan M, *et al*. Disability and sexual and reproductive health service utilisation in Uganda: an intersectional analysis of demographic and health surveys between 2006 and 2016. *BMC Public Health* 2022;22:438.
104 Macintyre K, Littrell M, Keating J, *et al*. Determinants of hanging and use of ITNs in the context of near universal coverage in Zambia. *Health Policy Plan* 2012;27:25:316–25:.
105 MacPherson P, Corbett EL, Makombe SD, *et al*. Determinants and consequences of failure of linkage to antiretroviral therapy at primary care level in Blantyre, Malawi: a prospective cohort study. *PLoS One* 2012;7:e44794.
106 Mafiana JJ, Shen X, Hu W, *et al*. Insight into Nigeria's progress towards the universal coverage of reproductive, maternal, newborn and child health services: a secondary data analysis. *BMJ Open* 2022;12:e061595.
107 Makadzange K, Radebe Z, Maseko N, *et al*. Implementation of Urban Health Equity Assessment and Response Tool: a Case of Matsapha, Swaziland. *J Urban Health* 2018;95:672–81.
108 Mankadi PM, Jin Y. Effects of Door-to-Door Hang-Up Visits on the Use of Long-Lasting Insecticide-Treated Mosquito Nets in the Democratic Republic of the Congo: A Cluster Randomized Controlled Trial. *Int J Environ Res Public Health* 2021;18:9048.
109 Mategula D, Ndeketa L, Gichuki J, *et al*. Effect of bed net colour and shape preferences on bed net usage: a secondary data analysis of the 2017 Malawi Malaria Indicator Survey. *Malar J* 2020;19:428.
110 Mathews C, Cheyip M, Beauclair R, *et al*. HIV care coverage among HIV-positive adolescent girls and young women in South Africa: Results from the HERStory Study. *S Afr Med J* 2021;111:460–8.
111 Mbeya Munkhondya TE, Smyth RM, Lavender T. Facilitators and barriers to retention in care under universal antiretroviral therapy (Option B+) for the Prevention of Mother to Child Transmission of HIV (PMTCT): A narrative review. *Int J Afr Nurs Sci* 2021;15:100372.
112 Mboma ZM, Festo C, Lorenz LM, *et al*. The consequences of declining population access to insecticide-treated nets (ITNs) on net use patterns and physical degradation of nets after 22 months of ownership. *Malar J* 2021;20:171.
113 Mboma ZM, Overgaard HJ, Moore S, *et al*. Mosquito net coverage in years between mass distributions: a case study of Tanzania, 2013. *Malar J* 2018;17:100.
114 Medhanyie AA, Desta A, Alemayehu M, *et al*. Factors associated with contraceptive use in Tigray, North Ethiopia. *Reprod Health* 2017;14:27.
115 Melesse DY, Mutua MK, Choudhury A, *et al*. Adolescent sexual and reproductive health in sub-Saharan Africa: who is left behind? *BMJ Glob Health* 2020;5:e002231.
116 Mercer LD, Lu F, Proctor JL. Sub-national levels and trends in contraceptive prevalence, unmet need, and demand for family planning in Nigeria with survey uncertainty. *BMC Public Health* 2019;19:1752.
117 Mirkuzie AH. Exploring inequities in skilled care at birth among migrant population in a metropolitan city Addis Ababa, Ethiopia; a qualitative study. *Int J Equity Health* 2014;13:110.
118 Moon TD, Hayes CB, Blevins M, *et al*. Factors associated with the use of mosquito bed nets: results from two cross-sectional household surveys in Zambézia Province, Mozambique. *Malar J* 2016;15:196.
119 Munemo P, Boateng A, Dako-Gyeke M. Sociocultural and Institutional Constraints to Family Planning Uptake Among Migrant Female Head Porters in Madina, a Suburb of Accra, Ghana. *Affilia* 2021;36:612–28.
120 Mwangi K, Gathecha G, Nyamongo M, *et al*. Reframing Non-Communicable Diseases and Injuries for Equity in the Era of Universal Health Coverage: Findings and Recommendations from the Kenya NCDI Poverty Commission. *Ann Glob Health* 2021;87:3.
121 Mwase T, Brenner S, Mazalale J, *et al*. Inequities and their determinants in coverage of maternal health services in Burkina Faso. *Int J Equity Health* 2018;17:58.
122 Nakwafila O, Mashamba-Thompson T, Godi A, *et al*. A Cross-Sectional Study on Hypertension Medication Adherence in a High-Burden Region in Namibia: Exploring Hypertension Interventions and Validation of the Namibia Hill-Bone Compliance Scale. *Int J Environ Res Public Health* 2022;19:4416.
123 Nashilongo MM, Singu B, Kalemeera F, *et al*. Assessing Adherence to Antihypertensive Therapy in Primary Health Care in Namibia: Findings and Implications. *Cardiovasc Drugs Ther* 2017;31:565–78.
124 Ndwandwe D, Nnaji CA, Mashunye T, *et al*. Incomplete vaccination and associated factors among children aged 12-23 months in South Africa: an analysis of the South African demographic and health survey 2016. *Hum Vaccin Immunother* 2021;17:247–54.
125 Nguhiu PK, Barasa EW, Chuma J. Determining the effective coverage of maternal and child health services in Kenya, using demographic and health survey data sets: tracking progress towards universal health coverage. *Tropical Med Int Health* 2017;22:442–53.
126 Njumkeng C, Apinjoh TO, Anchang-Kimbi JK, *et al*. Coverage and usage of insecticide treated nets (ITNs) within households: associated factors and effect on the prevalance of malaria parasitemia in the Mount Cameroon area. *BMC Public Health* 2019;19:1216.
127 Novignon J, Ofori B, Tabiri KG, *et al*. Socioeconomic inequalities in maternal health care utilization in Ghana. *Int J Equity Health* 2019;18:141.
128 Ntoimo LFC, Okonofua FE, Igboin B, *et al*. Why rural women do not use primary health centres for pregnancy care: evidence from a qualitative study in Nigeria. *BMC Pregnancy Childbirth* 2019;19:277.
129 Ntuku HM, Ruckstuhl L, Julo-Réminiac J-E, *et al*. Long-lasting insecticidal net (LLIN) ownership, use and cost of implementation after a mass distribution campaign in Kasaï Occidental Province, Democratic Republic of Congo. *Malar J* 2017;16:22.
130 Obse AG, Ataguba JE. Explaining socioeconomic disparities and gaps in the use of antenatal care services in 36 countries in sub-Saharan Africa. *Health Policy Plan* 2021;36:651–61.
131 Ojo TO, Anjorin OE, Babatola AO, *et al*. Sociodemographic factors associated with the use of insecticide treated nets among under-fives in Nigeria: Evidence from a national survey. *Trop Doct* 2022;52:466–73.
132 Olakanmi-Falade B, Awoleke JO. Slow and Steady can Still Win the Race Childhood Vaccination Experience of Migrant Ebira Women Within the Health System in Ekiti State, Nigeria. *Online J Health Allied Sci* 2021;20.
133 Onarheim KH, Taddesse M, Norheim OF, *et al*. Towards universal health coverage for reproductive health services in Ethiopia: two policy recommendations. *Int J Equity Health* 2015;14:86.
134 Onwujekwe O, Etiaba E, Uguru N, *et al*. Towards making efficient use of household resources for appropriate prevention of malaria: investigating households' ownership, use and expenditures on ITNs and other preventive tools in Southeast Nigeria. *BMC Public Health* 2014;14:315.
135 Oppong FB, Boateng D, Senkyire EK, *et al*. Demographic disparities in unimproved drinking water and sanitation in Ghana: a nationally representative cross-sectional study. *BMJ Open* 2022;12:e060595.
136 Ozumba BC, Onyeneho NG, Chalupowski M, *et al*. Inequities in Access to Maternal Health Care in Enugu State: Implications for Universal Health Coverage to Meet Vision 2030 in Nigeria. *Int Q Community Health Educ* 2019;39:163–73.
137 Pugliese-Garcia M, Radovich E, Hassanein N, *et al*. Temporal and regional variations in use, equity and quality of antenatal care in Egypt: a repeat cross-sectional analysis using Demographic and Health Surveys. *BMC Pregnancy Childbirth* 2019;19:268.
138 Pullan RL, Freeman MC, Gething PW, *et al*. Geographical inequalities in use of improved drinking water supply and sanitation across Sub-Saharan Africa: mapping and spatial analysis of cross-sectional survey data. *PLoS Med* 2014;11:e1001626.
139 Ramadhani HO, Ndembi N, Nowak RG, *et al*. Individual and Network Factors Associated With HIV Care Continuum Outcomes Among Nigerian MSM Accessing Health Care Services. *J Acquir Immune Defic Syndr* 2018;79:e7–16.
140 Rek J, Musiime A, Zedi M, *et al*. Non-adherence to long-lasting insecticide treated bednet use following successful malaria control in Tororo, Uganda. *PLoS One* 2020;15:e0243303.
141 Renggli S, Mandike R, Kramer K, *et al*. Design, implementation and evaluation of a national campaign to deliver 18 million free long-lasting insecticidal nets to uncovered sleeping spaces in Tanzania. *Malar J* 2013;12:85.
142 Roche R, Bain R, Cumming O. A long way to go – Estimates of combined water, sanitation and hygiene coverage for 25 sub-Saharan African countries. *PLoS ONE* 2017;12:e0171783.
143 Russell CL, Sallau A, Emukah E, *et al*. Determinants of Bed Net Use in Southeast Nigeria following Mass Distribution of LLINs: Implications for Social Behavior Change Interventions. *PLoS ONE* 2015;10:e0139447.

144 Ruyange MM, Condo J, Karema C, *et al*. Factors associated with the non-use of insecticide-treated nets in Rwandan children. *Malar J* 2016;15:355.
145 Sanogo NA, Yaya S. Wealth Status, Health Insurance, and Maternal Health Care Utilization in Africa: Evidence from Gabon. *Biomed Res Int* 2020;2020:4036830.
146 Scott J, Kanyangarara M, Nhama A, *et al*. Factors associated with use of insecticide-treated net for malaria prevention in Manica District, Mozambique: a community-based cross-sectional survey. *Malar J* 2021;20:200.
147 Sharma A, Alatise OI, O'Connell K, *et al*. Healthcare utilisation, cancer screening and potential barriers to accessing cancer care in rural South West Nigeria: a cross-sectional study. *BMJ Open* 2021;11:e040352.
148 Shibre G, Mekonnen W. Socio-economic inequalities in ANC attendance among mothers who gave birth in the past 12 months in Debre Brehan town and surrounding rural areas, North East Ethiopia: a community-based survey. *Reprod Health* 2019;16:99.
149 Sia D, Kobiané J-F, Sondo BK, *et al*. Individual and environmental characteristics associated with immunization of children in rural areas in Burkina Faso: a multi-level analysis. *Sante* 2007;17:201–6.
150 Sidze EM, Wekesah FM, Kisia L, *et al*. Inequalities in Access and Utilization of Maternal, Newborn and Child Health Services in sub-Saharan Africa: A Special Focus on Urban Settings. *Matern Child Health J* 2022;26:250–79.
151 Sié A, Bountogo M, Ouattara M, *et al*. Insecticide-treated bed net access and use among preschool children in Nouna District, Burkina Faso. *Int Health* 2020;12:164–9.
152 Sloan DJ, van Oosterhout JJ, Malisita K, *et al*. Evidence of improving antiretroviral therapy treatment delays: an analysis of eight years of programmatic outcomes in Blantyre, Malawi. *BMC Public Health* 2013;13:490.
153 Solomon T, Loha E, Deressa W, *et al*. Low use of long-lasting insecticidal nets for malaria prevention in south-central Ethiopia: A community-based cohort study. *PLoS One* 2019;14:e0210578.
154 Some SYM, Pu C, Huang S-L. Empowerment and use of modern contraceptive methods among married women in Burkina Faso: a multilevel analysis. *BMC Public Health* 2021;21:1498.
155 Stevens ER, Aldridge A, Degbey Y, *et al*. Evaluation of the 2011 long-lasting, insecticide-treated net distribution for universal coverage in Togo. *Malar J* 2013;12:162.
156 Straneo M, Fogliati P, Pellis I, *et al*. On the way to universal coverage of maternal services in Iringa rural District in Tanzania. Who is yet to be reached? *Afr Health Sci* 2016;16:420–8.
157 Stuck L, Chacky F, Festo C, *et al*. Evaluation of long-lasting insecticidal net distribution through schools in Southern Tanzania. *Health Policy Plan* 2022;37:243–54.
158 Sully EA, Biddlecom AS, Darroch JE. Not all inequalities are equal: differences in coverage across the continuum of reproductive health services. *BMJ Glob Health* 2019;4:e001695.
159 Taleb El Hassen MV, Cabases JM, Zine Eddine El Idrissi MD, *et al*. Changes in Inequality in Use of Maternal Health Care Services: Evidence from Skilled Birth Attendance in Mauritania for the Period 2007-2015. *Int J Environ Res Public Health* 2022;19:3566.
160 Tapera O, Kadzatsa W, Nyakabau AM, *et al*. Sociodemographic inequities in cervical cancer screening, treatment and care amongst women aged at least 25 years: evidence from surveys in Harare, Zimbabwe. *BMC Public Health* 2019;19:428.
161 Tapera O. Determinants of long-lasting insecticidal net ownership and utilization in malaria transmission regions: evidence from Zimbabwe Demographic and Health Surveys. *Malar J* 2019;18:278.
162 Tchinda VHM, Socpa A, Keundo AA, *et al*. Factors associated to bed net use in Cameroon: a retrospective study in Mfou health district in the Centre Region. *Pan Afr Med J* 2012;12:112.
163 Tchounga B, Boni SP, Koffi JJ, *et al*. Cervical cancer screening uptake and correlates among HIV-infected women: a cross-sectional survey in Côte d'Ivoire, West Africa. *BMJ Open* 2019;9:e029882.
164 Teo AKJ, Singh SR, Prem K, *et al*. Duration and determinants of delayed tuberculosis diagnosis and treatment in high-burden countries: a mixed-methods systematic review and meta-analysis. *Respir Res* 2021;22:251.
165 Tesfaye B, Mathewos T, Kebede M. Skilled delivery inequality in Ethiopia: to what extent are the poorest and uneducated mothers benefiting? *Int J Equity Health* 2017;16:82.
166 Thogarapalli N, Mkandawire P, Rulisa S, *et al*. Investigating the association between pregnancy intention and insecticide-treated bed net (ITN) use: a cross-sectional study of pregnant women in Rwanda. *J Public Health* 2015;23:241–8.
167 Thwing J, Eckert E, Dione DA, *et al*. Declines in Malaria Burden and All-Cause Child Mortality following Increases in Control Interventions in Senegal, 2005-2010. *Am J Trop Med Hyg* 2017;97:89–98.
168 Thwing JI, Perry RT, Townes DA, *et al*. Success of Senegal's first nationwide distribution of long-lasting insecticide-treated nets to children under five - contribution toward universal coverage. *Malar J* 2011;10:86.
169 Tiruneh FN, Chuang K-Y, Ntenda PAM, *et al*. Individual-level and community-level determinants of cervical cancer screening among Kenyan women: a multilevel analysis of a Nationwide survey. *BMC Womens Health* 2017;17:109.
170 Tokponnon FT, Aholoukpe B, Denon EY, *et al*. Evaluation of the coverage and effective use rate of long-lasting insecticidal nets after nation-wide scale up of their distribution in Benin. *Parasites Vectors* 2013;6:265.
171 Tsawe M, Sathiya Susuman A. Factors associated with the upsurge in the use of delivery care services in Sierra Leone. *Public Health (Fairfax)* 2020;180:74–81.
172 Tsuang A, Lines J, Hanson K. Which family members use the best nets? An analysis of the condition of mosquito nets and their distribution within households in Tanzania. *Malar J* 2010;9:211.
173 Ugwu EO, Ezechukwu PC, Obi SN, *et al*. Utilization of insecticide treated nets among pregnant women in Enugu, South Eastern Nigeria. *Niger J Clin Pract* 2013;16:292–6.
174 Uvin P. Fighting hunger at the grassroots: Paths to scaling up. *World Dev* 1995;23:927–39.
175 Valadez JJ, Berendes S, Lako R, *et al*. Finding the gap: revealing local disparities in coverage of maternal, newborn and child health services in South Sudan using lot quality assurance sampling. *Tropical Med Int Health* 2015;20:1711–21.
176 Vedanthan R, Kamano JH, Chrysanthopoulou SA, *et al*. Group Medical Visit and Microfinance Intervention for Patients With Diabetes or Hypertension in Kenya. *J Am Coll Cardiol* 2021;77:2007–18.
177 Wabiri N, Chersich M, Zuma K, *et al*. Equity in maternal health in South Africa: analysis of health service access and health status in a national household survey. *PLoS One* 2013;8:e73864.
178 Wang C, Cao H. Persisting Regional Disparities in Modern Contraceptive Use and Unmet Need for Contraception among Nigerian Women. *Biomed Res Int* 2019;2019:9103928.
179 Wang W, Mallick L, Allen C, *et al*. Effective coverage of facility delivery in Bangladesh. *PLoS ONE* 2019;14:e0217853.
180 Wanzira H, Katamba H, Rubahika D. Use of long-lasting insecticide-treated bed nets in a population with universal coverage following a mass distribution campaign in Uganda. *Malar J* 2016;15:311.
181 Wanzira H, Yeka A, Kigozi R, *et al*. Long-lasting insecticide-treated bed net ownership and use among children under five years of age following a targeted distribution in central Uganda. *Malar J* 2014;13:185.
182 West PA, Protopopoff N, Rowland MW, *et al*. Evaluation of a national universal coverage campaign of long-lasting insecticidal nets in a rural district in north-west Tanzania. *Malar J* 2012;11:273.
183 Wotodjo AN, Doucoure S, Diagne N, *et al*. The Impact of Renewing Long-Lasting Insecticide-Treated Nets in the Event of Malaria Resurgence: Lessons from 10 Years of Net Use in Dielmo, Senegal. *Am J Trop Med Hyg* 2021;104:255–62.
184 Wuneh AD, Bezabih AM, Okwaraji YB, *et al*. Wealth and Education Inequities in Maternal and Child Health Services Utilization in Rural Ethiopia. *Int J Environ Res Public Health* 2022;19:5421.
185 Yaya S, Uthman OA, Amouzou A, *et al*. Inequalities in maternal health care utilization in Benin: a population based cross-sectional study. *BMC Pregnancy Childbirth* 2018;18:194.
186 Zerdo Z, Bastiaens H, Anthierens S, *et al*. Long-lasting insecticide-treated bed net ownership, utilization and associated factors among school-age children in Dara Mallo and Uba Debretsehay districts, Southern Ethiopia. *Malar J* 2020;19:369.
187 Zhang C, Rahman MdS, Rahman MdM, *et al*. Trends and projections of universal health coverage indicators in Ghana, 1995-2030: A national and subnational study. *PLoS ONE* 2019;14:e0209126.
188 Elduma AH. Equality Analysis of Main Health Indicators among Children under 5 Years in Uganda. *Ethiop J Health Sci* 2019;29:215–22.
189 Mchenga M, Manthalu G, Chingwanda A, *et al*. Developing Malawi's Universal Health Coverage Index. *Front Health Serv* 2021;1:786186.
190 Njomo D, Mukoko D, Njenga S, *et al*. Socioeconomic factors associated with compliance with mass drug administration for lymphatic filariasis elimination in Kenya: Descriptive study results. *Ann Trop Med Public Health* 2012;5:103.
191 Adegbosin AE, Zhou H, Wang S, *et al*. Systematic review and meta-analysis of the association between dimensions of inequality and

a selection of indicators of Reproductive, Maternal, Newborn and Child Health (RMNCH). *J Glob Health* 2019;9:010429.
192 Ogundele OJ, Pavlova M, Groot W. Socioeconomic inequalities in reproductive health care services across Sub-Saharan Africa. A systematic review and meta-analysis. *Sexual & Reproductive Healthcare* 2020;25:100536.
193 Say L, Raine R. A systematic review of inequalities in the use of maternal health care in developing countries: examining the scale of the problem and the importance of context. *Bull World Health Organ* 2007;85:812–9.
194 Dahab R, Sakellariou D. Barriers to Accessing Maternal Care in Low Income Countries in Africa: A Systematic Review. *Int J Environ Res Public Health* 2020;17:4292.
195 Seidu A-A. Mixed effects analysis of factors associated with barriers to accessing healthcare among women in sub-Saharan Africa: Insights from demographic and health surveys. *PLoS One* 2020;15:e0241409.
196 Kabia E, Goodman C, Balabanova D, *et al*. The hidden financial burden of healthcare: a systematic literature review of informal payments in Sub-Saharan Africa. *Wellcome Open Res* 2021;6:297.
197 Batist J. An intersectional analysis of maternal mortality in Sub-Saharan Africa: a human rights issue. *J Glob Health* 2019;9:010320.
198 World Bank. The financial sustainability of HIV/AIDS and universal health coverage programs in Sub-Saharan Africa (English). n.d. Available: https://documents.worldbank.org/en/publication/documents-reports/documentdetail
199 Okumu F, Gyapong M, Casamitjana N, *et al*. What Africa can do to accelerate and sustain progress against malaria. *PLOS Glob Public Health* 2022;2:e0000262.
200 Ogbuabor D, Olwande C, Semini I, *et al*. Stakeholders' Perspectives on the Financial Sustainability of the HIV Response in Nigeria: A Qualitative Study. *Glob Health Sci Pract* 2023;11:e2200430.
201 Barasa E, Kazungu J, Nguhiu P, *et al*. Examining the level and inequality in health insurance coverage in 36 sub-Saharan African countries. *BMJ Glob Health* 2021;6:e004712.
202 Osei Afriyie D, Krasniq B, Hooley B, *et al*. Equity in health insurance schemes enrollment in low and middle-income countries: A systematic review and meta-analysis. *Int J Equity Health* 2022;21:21.
203 Kuwawenaruwa A, Ramsey K, Binyaruka P, *et al*. Implementation and effectiveness of free health insurance for the poor pregnant women in Tanzania: A mixed methods evaluation. *Soc Sci Med* 2019;225:17–25.
204 Osei Afriyie D, Hooley B, Mhalu G, *et al*. Governance factors that affect the implementation of health financing reforms in Tanzania: an exploratory study of stakeholders' perspectives. *BMJ Glob Health* 2021;6:e005964.
205 Assefa Y, Gelaw YA, Hill PS, *et al*. Community health extension program of Ethiopia, 2003-2018: successes and challenges toward universal coverage for primary healthcare services. *Global Health* 2019;15:24.
206 Rodin J. Accelerating action towards universal health coverage by applying a gender lens. *Bull World Health Organ* 2013;91:710–1.
207 Next Gen Men. Masculine norms and men's health: making the connections. 2020. Available: https://www.nextgenmen.ca/library/masculine-norms-and-mens-health-making-the-connections [Accessed 21 Jun 2023].