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Women with Functional Disabilities Use More Healthcare Yet Report Greater Access Barriers: Evidence from the 2022 Kenya Demographic and Health Survey

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Abstract

Background.

Women with disabilities need more health care than other women, so high use of services is expected. Whether that use reflects inclusion or a burdensome path to care is unclear, especially in sub-Saharan Africa. We examined whether higher healthcare utilization coexists with greater access barriers among women with functional disabilities in Kenya, and what role health insurance plays.

Methods.

Cross-sectional analysis of the 2022 Kenya Demographic and Health Survey among women aged 15–49. Functional disability was defined as *a lot of difficulty* or *inability* in at least one of six Washington Group domains (seeing, hearing, communicating, remembering, walking, and self-care). Outcomes were four access barriers (permission, money, distance, and company), inpatient care (past 12 months) and outpatient care (past 4 weeks). Insurance was a second exposure. Complex-sample logistic regression adjusted for age, education, wealth and residence.

Results.

Women with functional disabilities had higher odds than other women of reporting any barrier to care (aOR 1.57, 95% CI 1.15–2.14). They also had higher odds of healthcare utilization; inpatient care (aOR 1.98, 1.28–3.07) and outpatient care (aOR 2.64, 1.96–3.54). Among outpatient users, barriers were also more common with disability (71.4% versus 55.6%; aOR 1.39, 0.88–2.20). Insurance was associated with fewer barriers and more service use, but coverage was low and did not differ significantly by disability. Insurance did not significantly modify the disability gap in barriers (interaction $p = 0.41$).

Conclusions.

Women with functional disabilities used more care yet reported greater access barriers. Use alone is a poor signal of inclusion. Universal health coverage monitoring should also assess whether people with disabilities can obtain care affordably and without substantial barriers.

Background

An estimated 1.3 billion people, about 16% of the world's population, live with a significant disability. Most live in low- and middle-income countries (1). People with disabilities have poorer health and more limitations in everyday functioning. They may also die up to 20 years earlier than people without disabilities (1). Part of this gap arises inside health systems. Negative provider attitudes, inaccessible

information and buildings, limited transport and financial constraints all play a role (1). How well health systems serve this group is therefore a direct test of whether it works for everyone.

International commitments treat equal access to healthcare for people with disabilities as a right as well as health. The Convention on the Rights of Persons with Disabilities recognizes the right to the highest attainable standard of health without discrimination (2). The 2030 Agenda makes universal health coverage (UHC), including financial risk protection, a target of Sustainable Development Goal 3 (3). The 2019 United Nations political declaration on UHC pledged to leave no one behind (4). Yet progress toward UHC is usually tracked with national averages of service coverage and financial protection, which can hide the experience of smaller groups.

Women of reproductive age with disabilities are an important group within this Agenda. The Convention recognizes that women and girls with disabilities face multiple forms of discrimination (2), and women in this age group need regular contact with health services for contraception, pregnancy and childbirth care, and general illness. Evidence from Kenya is mostly qualitative. One in-depth study of poor women with disabilities found several barriers (5). Participants avoided care because of household and childcare duties. They needed an accompanying person, which added transport costs. They met inaccessible facilities and discriminatory attitudes. These barriers persisted even where free maternity services and insurance subsidies existed (5).

Studies of barriers to care for people with disabilities in low- and middle-income countries point to a consistent set of problems that includes transport and financial difficulties, and the attitudes of health workers (6). Disability is also associated with deeper poverty across developing countries (7), which makes the cost of care harder to bear. The global evidence summarised by the Missing Billion initiative likewise concludes that health systems often fail to reach people with disabilities (8).

People with disabilities need more care, so higher use is expected, and in coverage statistics it can look like successful inclusion. However, use is not the same as access. In the patient-centred framework of access, affordability, the ability to reach services and the approachability of services each shape whether care can be obtained and at what cost (9).

The Kenyan setting makes the question timely. In 2022, about one in four Kenyans had some form of health insurance (10). The Social Health Insurance Act of 2023 replaced the National Hospital Insurance Fund with the Social Health Authority, which began operating in October 2024 (11, 12). The 2022 Kenya Demographic and Health Survey (KDHS) was collected before this change, so it offers a national baseline against which the reform can later be judged.

Quantitative evidence is growing but does not close these gaps. A Demographic and Health Survey (DHS) analysis of ever-married women aged 15–49 in 16 low- and middle-income countries found that women with disabilities had higher odds of reporting problems in accessing healthcare (aOR 1.15; 95% CI 1.05–1.25), with getting money the problem with the highest odds, but it studied barriers only and not use of care (13). In Chile, people with disabilities used more health consultations and also more often

reported barriers to care (14), the same pattern we examine here. In nine low- and middle-income countries, women with disabilities were less likely to receive high-quality antenatal care, and so were women facing barriers to access (15). A systematic review found that the association between health insurance and general healthcare use among people with disabilities was inconclusive (16).

Three gaps remain. First, to our knowledge, few nationally representative quantitative analyses from Kenya, and none that we found for all women aged 15–49, examine disability, health insurance, barriers and use of care together. Second, evidence from sub-Saharan Africa on the coexistence of higher healthcare use and greater access barriers among people with disabilities is limited. Third, the role of insurance in that relationship is unclear: it may reduce barriers and raise use, yet may not reach women with disabilities or may not remove the barriers they face.

This paper addresses these gaps using nationally representative data. We examined whether higher healthcare use coexists with greater access barriers among women aged 15–49 with functional disabilities in Kenya, and the role of health insurance. Our objectives were to:

1. Compare healthcare access barriers between women with and without functional disabilities.
2. Assess differences in healthcare use by disability status
3. Examine the association between health insurance and access barriers.
4. Examine the association between health insurance and healthcare use.
5. Evaluate whether higher use and greater barriers coexist, and whether insurance modifies the barrier gap.

The study analyses disability, health insurance, barriers and use in one framework and provides a pre-reform national baseline for monitoring universal health coverage.

Methods

Data source and sample

We conducted a cross-sectional secondary analysis of the 2022 KDHS, a nationally representative household survey carried out by the Kenya National Bureau of Statistics and the Ministry of Health with technical support from the DHS Program (10). Data were collected between 17 February and 19 July 2022. The sample was drawn from the Kenya Household Master Sample Frame, with 1,692 clusters, 25 households per cluster, and each of the 47 counties stratified into urban and rural areas to give 92 strata. In total, 37,911 households and 32,156 women aged 15–49 years were interviewed, with a women's response rate of 95%.

The modules on disability, health insurance and health expenditures were administered in half of the selected households. We therefore restricted the analysis to women in that half-sample, which gave an analytic sample of 16,901 women. Women with a missing value on an outcome were excluded from the

models for that outcome. The sample size was 16,802 for the insurance and any-barrier models with insurance, 16,781 for overnight admission and 16,775 for outpatient care.

Study Variables

Functional disability

Disability was measured with the Washington Group Short Set on Functioning, which asks about difficulty in six domains: seeing, hearing, communicating, remembering or concentrating, walking or climbing steps, and self-care (17). Following the Washington Group recommendation, a woman was classed as having a disability in a domain if she reported *a lot of difficulty* or *could not do* the activity at all. Responses of *don't know* were set to missing. *Any functional disability* was defined as a disability in at least one domain.

Barriers to healthcare access

Women were asked whether four factors are *a big problem* or *not a big problem* when they are sick and want medical advice or treatment: getting permission to go, getting money for treatment, the distance to the health facility, and not wanting to go alone. Each was coded as 1 for *a big problem* and 0 otherwise. *Any barrier* was coded 1 when at least one of the four was *a big problem*.

Health insurance

Insurance was coded 1 if the woman was covered by any health insurance at the time of the survey and 0 otherwise.

Healthcare utilization

We used two indicators: an overnight admission in a medical facility in the past 12 months (inpatient care), and receipt of outpatient medical care in the past 4 weeks. *Don't know* responses were set to missing.

Covariates

Covariates were age in years, type of place of residence (urban or rural), highest educational level (none, primary, secondary, higher) and household wealth quintile (poorest to richest). These factors predict both insurance and use of care and may differ between women with and without disabilities, so they were treated as confounders.

Statistical analysis

All analyses used complex-samples procedures in IBM SPSS Statistics that account for the survey weights, stratification and clustering. We estimated weighted prevalence with 95% confidence intervals. We compared women with and without disability using weighted cross-tabulations, the Rao–Scott adjusted *F* test (18), crude odds ratios and risk differences.

We then fitted complex-samples logistic regression models. For each barrier and for insurance, the model included disability, age, residence, education and wealth. For any barrier and for each utilization indicator, the model also included insurance, so that the disability estimate is net of coverage and the insurance estimate is net of disability. To test whether insurance changes the disability gap in barriers, we added a disability by insurance interaction to the models for any barrier and for each individual barrier. Results are reported as adjusted odds ratios (aOR) with 95% confidence intervals, and significance was assessed with design-based Wald *F* tests at the 5% level.

The five research questions map onto the analysis as follows. Question 1 (barriers by disability) and Question 2 (utilization by disability) used the disability estimates above. Question 3 (barriers by insurance) and Question 4 (utilization by insurance) used the insurance estimates from models that also contained disability. Question 5 (coexistence of higher use and greater barriers) was answered by reading the disability estimates for use and for barriers together, in models adjusted for the same covariates and for insurance, and by testing the interaction with insurance.

All percentages and confidence intervals are weighted for the survey design; counts (*n*) are unweighted.

Results

Participant characteristics and prevalence

The analytic sample comprised 16,901 women with a weighted mean age of 29.3 years (Table 1). About 59% lived in rural areas, and 19% had higher education. Overall, 2.5% (95% CI 2.2–2.9; n = 415) had a functional disability. Difficulty seeing was the most common domain (1.34%), followed by walking (0.60%) and remembering (0.45%). Hearing (0.31%), self-care (0.17%) and communicating (0.05%) were rare.

Barriers were common. More than half of women (52.4%; 95% CI 50.8–54.0) reported at least one barrier. Getting money for treatment was the most common (46.0%), followed by distance (23.7%), not wanting to go alone (9.3%) and getting permission (5.0%). Insurance covered 28.7% (95% CI 27.4–30.1) of women. In the past 12 months, 9.0% (8.4–9.6) had been admitted overnight for inpatient care, and in the past 4 weeks, 22.5% (21.6–23.4) had received outpatient care.

Table 1
Characteristics of the analytic sample and distribution of study variables, KDHS 2022 (women aged 15–49 years, disability half-sample, *N* = 16,901).

Variable	Weighted % (95% CI)	Unweighted *n*
Background characteristics		
Age in years, mean	29.3	—
Residence: urban	41.0	—
Residence: rural	59.0	—
Education: none	5.5	—
Education: primary	36.5	—
Education: secondary	38.8	—
Education: higher	19.2	—
Wealth: poorest	15.5	—
Wealth: poorer	17.8	—
Wealth: middle	18.5	—
Wealth: richer	22.3	—
Wealth: richest	25.9	—
Functional disability		
Any disability	2.54 (2.20–2.89)	415
Seeing	1.34 (1.05–1.62)	199
Walking	0.60 (0.44–0.75)	114
Remembering	0.45 (0.32–0.58)	71
Hearing	0.31 (0.20–0.42)	55
Self-care	0.17 (0.10–0.23)	38
Communicating	0.05 (0.01–0.08)	11
Barriers reported as a big problem		
Any barrier	52.4 (50.8–54.0)	9,401
Getting money for treatment	46.0 (44.5–47.5)	8,391
Distance to health facility	23.7 (22.5–24.9)	4,589
Not wanting to go alone	9.3 (8.7–9.9)	1,791

Variable	Weighted % (95% CI)	Unweighted *n*
Background characteristics		
Getting permission to go	5.0 (4.6–5.4)	1,009
Insurance and utilization		
Covered by health insurance	28.7 (27.4–30.1)	4,323
Overnight admission, past 12 months	9.0 (8.4–9.6)	1,390
Outpatient care, past 4 weeks	22.5 (21.6–23.4)	3,660

Percentages are weighted for the survey design; n is the unweighted count. Disability domains overlap, so counts exceed 415.

Barriers to Healthcare access by disability status

Women with a disability were more likely to report any barrier than women without a disability: 68.5% (95% CI 61.3–75.0) versus 52.0% (Table 2). The adjusted odds of any barrier were 57% higher (aOR 1.58; 95% CI 1.14–2.17; p = 0.006). Adding insurance to the model left the estimate unchanged (aOR 1.57; 95% CI 1.15–2.14; p = 0.005).

The gap was specific to two barriers. Getting money for treatment was a big problem for 62.5% of women with disability and 45.5% of other women (aOR 1.52; 95% CI 1.12–2.07; p = 0.008). Not wanting to go alone was reported by 17.2% and 9.1% respectively, which was the largest adjusted difference (aOR 2.11; 95% CI 1.52–2.93; p < 0.001).

Two barriers showed no adjusted gap. Distance was more common among women with disability in the crude analysis (32.5% versus 23.5%; crude OR 1.57; 95% CI 1.19–2.09), but the difference was not significant after adjustment (aOR 1.22; 95% CI 0.89–1.68; p = 0.22). Getting permission was reported by 5.3% and 5.0% (aOR 0.98; 95% CI 0.63–1.53; p = 0.93). Across the whole sample, barriers fell steeply with wealth: women in the poorest quintile had much higher odds of any barrier than women in the richest quintile (aOR 6.82; 95% CI 5.41–8.60).

Table 2
Barriers to care and insurance coverage among women with and without functional disability.

Outcome	Disability %	No disability %	Crude OR (95% CI)	*p*	Adjusted OR (95% CI)	*p*
Any barrier	68.5	52.0	2.01 (1.46–2.76)	< 0.001	1.58 (1.14–2.17)	0.006
Getting money	62.5	45.5	1.99 (1.48–2.67)	< 0.001	1.52 (1.12–2.07)	0.008
Not wanting to go alone	17.2	9.1	2.08 (1.50–2.89)	< 0.001	2.11 (1.52–2.93)	< 0.001
Distance	32.5	23.5	1.57 (1.19–2.09)	0.002	1.22 (0.89–1.68)	0.22
Getting permission	5.3	5.0	1.07 (0.69–1.66)	0.76	0.98 (0.63–1.53)	0.93
Covered by insurance	24.5	28.8	0.80 (0.54–1.19)	0.27	0.85 (0.54–1.33)	0.47

OR, odds ratio for the outcome in women with disability relative to women without. Percentages are weighted. Crude *p* values are from the Rao–Scott adjusted *F* test. Adjusted models include age, residence, education and wealth.

Healthcare utilization by disability status

Women with a disability used more care on both indicators (Table 3). Overnight admission in the past 12 months was reported by 15.0% of women with disability and 8.8% of other women, and outpatient care in the past 4 weeks by 45.0% and 21.9%. After adjustment, the odds of outpatient care were 2.64 times higher (95% CI 1.96–3.54; p < 0.001) and the odds of an overnight admission were 1.98 times higher (95% CI 1.28–3.07; p = 0.002). Both estimates account for insurance.

Table 3
Adjusted associations of disability with healthcare utilization.

Outcome	All women, % (95% CI)	Disability, %	No disability, %	Disability aOR (95% CI)	*p*
Inpatient care (past 12 months)	9.0 (8.4–9.6)	15.0	8.8	1.98 (1.28–3.07)	0.002
Outpatient care (past 4 weeks)	22.5 (21.6–23.4)	45.0	21.9	2.64 (1.96–3.54)	< 0.001

aOR, adjusted odds ratio. Each model includes disability, insurance, age, residence, education and wealth. Percentages are weighted. Analytic *n* = 16,781 for overnight admission and 16,775 for outpatient care.

Barriers to healthcare access by insurance coverage

Insured women were less likely to report any barrier than uninsured women (aOR 0.70; 95% CI 0.61–0.79; $p < 0.001$), which is equivalent to about 30% lower odds (Table 4).

Table 4
Adjusted associations of insurance with any barrier.

Outcome	All women, % (95% CI)	Insured aOR (95% CI)	*p*
Any barrier	52.4 (50.8–54.0)	0.70 (0.61–0.79)	< 0.001

aOR, adjusted odds ratio. The model includes disability, insurance, age, residence, education and wealth. Percentages are weighted. Analytic *n* = 16,802.

Healthcare utilization by insurance coverage

Insured women used more care on both indicators (Table 5). Overnight admission was reported by 12.1% of insured and 7.6% of uninsured women, and outpatient care by 26.9% and 20.8%. After adjustment, the odds were 1.69 times higher for overnight admission (95% CI 1.32–2.16) and 1.33 times higher for outpatient care (95% CI 1.17–1.53), both $p < 0.001$.

Table 5
Adjusted associations of insurance with healthcare utilization.

Outcome	All women, % (95% CI)	Insured, %	Uninsured, %	Insured aOR (95% CI)	*p*
Overnight admission, past 12 months	9.0 (8.4–9.6)	12.1	7.6	1.69 (1.32–2.16)	< 0.001
Outpatient care, past 4 weeks	22.5 (21.6–23.4)	26.9	20.8	1.33 (1.17–1.53)	< 0.001

aOR, adjusted odds ratio. Each model includes disability, insurance, age, residence, education and wealth. Percentages are weighted. Analytic *n* = 16,781 for overnight admission and 16,775 for outpatient care.

Coexistence of higher utilization and greater barriers, and the role of insurance

Higher use and greater barriers were both more common among women with disability, and this held at the group level and among women who used care (Table 6 and Fig. 1). Across all women, weighted prevalences were higher among those with disability for any barrier (68.5% versus 52.0%), Inpatient care (15.0% versus 8.8%) and outpatient care (45.0% versus 21.9%). After adjustment for age, residence, education, wealth and insurance, women with disability had higher odds of each outcome.

Table 6

a. Weighted prevalence and adjusted odds of barriers and healthcare utilization among women with and without functional disability.

Outcome	Disability, %	No disability, %	Disability aOR (95% CI)	*p*
Any barrier	68.5	52.0	1.57 (1.15–2.14)	0.005
Overnight admission, past 12 months	15.0	8.8	1.98 (1.28–3.07)	0.002
Outpatient care, past 4 weeks	45.0	21.9	2.64 (1.96–3.54)	< 0.001

aOR, adjusted odds ratio for women with disability relative to women without. Each model includes disability, insurance, age, residence, education and wealth. Percentages are weighted prevalences within each group.

To see whether barriers were also reported by the same women who used care, we examined barriers among women who had used services (Table 6b). Among women who used outpatient care in the past four weeks (n = 3,660), 71.4% of those with disability and 55.6% of those without reported at least one barrier ($p = 0.005$). The adjusted odds ratio was 1.39 (95% CI 0.88–2.20), similar in size to the full-sample estimate but imprecise. Of the specific barriers, only not wanting to go alone remained significantly higher after adjustment (aOR 1.79; 95% CI 1.10–2.91); the estimates for money (aOR 1.39; 0.90–2.14), distance (1.06; 0.70–1.59) and permission (1.00; 0.51–1.96) included no difference. Among women admitted overnight in the past 12 months, the gaps were larger, for example money (74.4% versus 46.4%; aOR 3.03; 1.24–7.44) and any barrier (75.5% versus 53.4%; aOR 2.24; 0.91–5.49), but only about 60 women with disability were in this group and the intervals are wide, so these results are exploratory.

Table 6

b. Weighted prevalence and adjusted odds of barriers and healthcare utilization among women with and without functional disability that Used Care

Barriers	Outpatient users (past 4 weeks)			Inpatient users (past 12 months)		
	Disability, %	No disability, %	aOR (95% CI)	Disability, %	No disability, %	aOR (95% CI)
Any barrier	71.4	55.6	1.39 (0.88–2.20)	75.5	53.4	2.24 (0.91–5.49)
Money	66.4	48.8	1.39 (0.90–2.14)	74.4	46.4	3.03 (1.24–7.44)
Distance	33.7	25.4	1.06 (0.70–1.59)	48.3	22.6	2.36 (0.97–5.76)
Not wanting to go alone	18.5	10.6	1.79 (1.10–2.91)	14.0	9.6	1.25 (0.45–3.53)
Permission	6.4	5.4	1.00 (0.51–1.96)	3.2	4.6	0.94 (—)

aOR, adjusted odds ratio for women with disability relative to women without. Models are restricted to women who used the service and include disability, insurance, age, residence, education and wealth. Percentages are weighted. Outpatient *n* = 3,660; inpatient *n* = 1,390, with about 60 women with disability.

Insurance coverage itself did not differ significantly by disability. Coverage was 24.5% (95% CI 18.2–32.2) among women with disability and 28.8% (95% CI 27.4–30.3) among other women (crude OR 0.80; 95% CI 0.54–1.19; p = 0.27; aOR 0.85; 95% CI 0.54–1.33; p = 0.47). About three in four women with disability had no insurance. Coverage was strongly associated with wealth and education: the adjusted odds of being insured were about 16 times higher in the richest than in the poorest quintile (95% CI 12.2–20.7) and 5.1 times higher for women with higher than no education (95% CI 3.9–6.7).

Insurance did not significantly change the disability gap in barriers. The disability by insurance interaction was not significant for any barrier (p = 0.41), money (*p* = 0.74), distance (*p* = 0.40), not wanting to go alone (*p* = 0.50) or permission (p = 0.84). In an exploratory comparison for any barrier, the odds ratio for disability was 1.25 (95% CI 0.66–2.39) among insured women and about 1.7 among uninsured women, but only 92 insured women had a disability, so this difference cannot be confirmed.

Blue circles compare women with disability with women without. Orange squares compare insured with uninsured women (shown where insurance was in the model). The line at 1 marks no difference.

Discussion

Three findings stand out. First, women with functional disabilities were more likely to report barriers to care, mainly the cost of treatment and not wanting to go alone. Second, the same women were more likely to use outpatient and inpatient care. Third, insurance was linked to fewer barriers and more use for all women, but it was no more common among women with disabilities, and it did not significantly change their extra barriers. Together these describe a healthcare inclusion paradox: women with disabilities reach care more often, yet reach it through more difficulty.

The pattern of barriers points to cost and company as the main problems. Money was the most common barrier overall, and women with disabilities were more affected even after wealth and education were taken into account. Not wanting to go alone showed the largest gap. This agrees with systematic evidence that financial difficulty and transport are the commonest barriers for people with disabilities in low- and middle-income countries (6), and with the Kenyan qualitative finding that women with disabilities often need an accompanying person and bear the extra transport costs that follow (5). Distance and permission did not differ after adjustment, which suggests that for these women the problem is less about physical distance or family control than about affording care and travelling safely and comfortably. Our finding that cost is a leading barrier also agrees with the 16-country DHS analysis, in which getting money had the highest odds among the four barriers (13). Our estimates are larger than that pooled estimate, which may reflect the Kenyan context, the inclusion of never-married women, or chance given that only 415 women had a disability.

Higher use among women with disabilities is best read as need meeting a system that is partly working. Under the behavioural model, greater need produces more use (19), and our estimates for outpatient care and admission are consistent with that. We could not measure need directly, so we cannot say how much of the difference is need and how much is something else, such as more frequent contact because of repeated or complex conditions.

The coexistence of high use and high barriers is the central point. The framework of patient-centred access describes access as more than the act of using care; it includes affordability and the ability to reach services (9). Our results fit this: women with disabilities used more services while finding it harder to afford them and to go. A coverage indicator based on use alone would have recorded this group as well served. The WHO global report makes a similar point when it says that unfair conditions inside the health system itself contribute to the health gap (1). The same pattern of higher use together with more barriers was reported for people with disabilities in Chile (14). A nine-country DHS analysis found that women with disabilities, and women facing barriers, were less likely to receive high-quality antenatal care although most women had at least one visit (15). Together these studies suggest that frequency of use can hide differences in the quality and ease of care.

Insurance did what is expected of it for all women, but not more. Insured women reported about 30% lower odds of any barrier and used more care. Even so, the disability gap in barriers was unchanged when insurance was included in the model, and the interaction was not significant. The exploratory

suggestion that the gap may be smaller among insured women should not be over-read, because very few insured women had a disability. The results do support the view of the Kenyan qualitative study that financial cover alone does not remove the transport, accessibility and attitude barriers women with disabilities face (5). A systematic review of studies from low- and middle-income countries likewise found the association between insurance and general healthcare use among people with disabilities to be inconclusive, and called for evaluations that focus on this group (16).

Coverage was not higher among women with disabilities, even though they use more care. About three in four had no insurance. The difference from other women was not statistically significant, but the confidence interval allows a gap of nearly half, so the data cannot show that coverage is equal. Coverage followed wealth and education closely, which fits the strong socio-economic gradient in coverage reported in the KDHS itself (10). Disability was not a route into coverage.

Several limitations should be kept in mind. The data are cross-sectional, so we describe associations and not causes, and disability that results from illness or injury may influence both use and barriers. Disability is self-reported and defined by a conservative cut-off, which yields a small group (415 women) and wide confidence intervals; we could not analyse individual domains. Barriers were asked of all women as general problems when seeking care, not as experiences at a specific visit, and utilization was recalled over 4 weeks and 12 months, so the two utilization odds ratios should not be compared in size. We did not measure illness or need, so the higher use among women with disabilities cannot be separated from need. We did not examine the type of insurance, and we did not analyse out-of-pocket spending, so we can describe difficulty paying but not the amounts paid.

The study also has strengths. It uses a large, nationally representative survey with a high response rate, a disability measure designed for international comparison, and analysis that accounts for the survey design. It examines disability, coverage, barriers and two measures of use in one framework with consistent adjustment, which allowed us to test the coexistence of higher use and greater barriers directly. Because the survey was collected before the 2024 change in the national insurance scheme, it also provides a baseline for later evaluation.

For policy, the results suggest that Kenya's move to the Social Health Authority should be judged on whether women with disabilities are enrolled and can use care without difficulty. Targets for enrolment are needed, because coverage among this group was not higher despite higher need. Measures that address the cost of treatment and the cost and difficulty of travel, such as help with escorts or transport and accessible facilities, are likely to matter alongside insurance. The government's contribution to premiums for people listed as vulnerable (12) is a possible route, but whether women with disabilities are reached through it was not examined here. National monitoring of UHC should report results separately for people with disabilities, using the same short set of questions, and should include indicators of access difficulty next to use of services.

For research, three steps follow. Studies should measure need, for example through recent illness or chronic conditions, to separate need from other reasons for higher use. They should analyse out-of-

pocket spending and catastrophic expenditure among users, which would show whether the cost barrier we found translates into financial hardship. Repeat surveys after 2024 should test whether the Social Health Authority changes coverage and barriers for women with disabilities.

Conclusion

In this national survey of Kenyan women aged 15–49 years, those with functional disabilities were more likely to report barriers to healthcare, especially the cost of treatment and not wanting to go alone, and were also more likely to use outpatient and inpatient care. Among women who used care the barriers remained more common among those with disability. Higher use therefore coexisted with greater barriers. Insurance was linked to fewer barriers and more use among all women, yet it was not more common among women with disabilities and did not significantly narrow their barrier gap.

Use of services is not enough to show inclusion. Progress toward universal health coverage in Kenya should be measured by whether people with disabilities can get care affordably and easily, and policy should combine insurance enrolment with measures that reduce the cost of treatment and the difficulty of travelling to care.

Abbreviations

aOR
adjusted odds ratio
CI
confidence interval
DHS
Demographic and Health Survey
KDHS
Kenya Demographic and Health Survey
OR
odds ratio
UHC
universal health coverage
WHO
World Health Organization

Declarations

Ethics approval and consent to participate

This study is a secondary analysis of de-identified data from the 2022 Kenya Demographic and Health Survey (KDHS), which are publicly available from the DHS Program on registration. The KDHS 2022 protocol was reviewed and approved by the survey's ethics review boards, and informed consent was

obtained from respondents by the survey implementers (Kenya National Bureau of Statistics and ICF). No additional ethical approval was required for this secondary analysis, and no identifiable information was accessed.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

E.M. conceived and designed the study, analysed the data and drafted the manuscript. S.O. and D.O. reviewed the manuscript and provided technical guidance and critical feedback. All authors read and approved the final manuscript. E.M. assumes full responsibility for the study.

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Data Availability

The datasets analysed during the current study are available from the DHS Program repository on reasonable registration and approval of a data request. https://statistics.knbs.or.ke/nada/index.php/catalog/128 (20). The SPSS syntax used for the analyses is available from the corresponding author on request.

References

1. World Health Organization. Global report on health equity for persons with disabilities [Internet]. Geneva: World Health Organization. 2022 [cited 2026 Oct 6]. Available from: https://www.who.int/publications/i/item/9789240063600

2. United Nations. Convention on the Rights of Persons with Disabilities (CRPD) | Division for Inclusive Social Development (DISD) [Internet]. United Nations. 2006 [cited 2026 Oct 6]. Available from: https://social.desa.un.org/issues/disability/crpd/convention-on-the-rights-of-persons-with-disabilities-crpd
3. United Nations General Assembly. Transforming our world: the 2030 Agenda for Sustainable Development [Internet]. United Nations. 2015. Available from: https://docs.un.org/en/A/RES/70/1
4. United Nations General Assembly. Political declaration of the high-level meeting on universal health coverage [Internet]. 2019. Available from: https://docs.un.org/en/A/RES/74/2
5. Kabia E, Mbau R, Muraya KW, Morgan R, Molyneux S, Barasa E. How do gender and disability influence the ability of the poor to benefit from pro-poor health financing policies in Kenya? An intersectional analysis. Int J Equity Health. 2018;17(1):149. 10.1186/s12939-018-0853-6.
6. Bright T, Kuper H. A Systematic Review of Access to General Healthcare Services for People with Disabilities in Low and Middle Income Countries. Int J Environ Res Public Health. 2018;15(9):1879. 10.3390/ijerph15091879.
7. Mitra S, Posarac A, Vick B. Disability and Poverty in Developing Countries: A Multidimensional Study. World Dev. 2013;41:1–18. 10.1016/j.worlddev.2012.05.024.
8. Hannah K, Phyllis H. The Missing Billion: Access to health services for 1 billion people with disabilities [Internet]. London: London School of Hygiene & Tropical Medicine; 2019 [cited 2026 Oct 6]. Available from: https://www.lshtm.ac.uk/research/centres/international-centre-evidence-disability/missing-billion
9. Levesque JF, Harris MF, Russell G. Patient-centred access to health care: conceptualising access at the interface of health systems and populations. Int J Equity Health. 2013;12(1):18. 10.1186/1475-9276-12-18.
10. KNBS ICF, Kenya Demographic. and Health Survey 2022: Volume 1 [Internet]. 2023 Jun 15 [cited 2026 Oct 6]. Available from: https://dhsprogram.com/publications/publication-fr380-dhs-final-reports.cfm
11. Republic of Kenya. Social Health Insurance Act [Internet]. Government Printer; 2023 [cited 2026 Oct 6]. Available from: https://new.kenyalaw.org/akn/ke/act/2023/16/eng@2023-11-24
12. The Star (Kenya). EXPLAINER: All you need to know about the new Health Fund to replace NHIF [Internet]. 2024 [cited 2026 Oct 6]. Available from: https://the-star.co.ke/counties/coast/2024-09-17-explainer-all-you-need-to-know-about-the-new-health-fund-to-replace-nhif
13. Mitra S, Patchaiappan K, Carpenter B, Kamalakannan S, Pinilla-Roncancio M, Rivas Velarde M, et al. The association between disability and problems in accessing healthcare: Evidence for women aged 15 to 49 in 16 low- and middle-income countries. Public Health. 2026;256:106301. 10.1016/j.puhe.2026.106301.
14. Rodríguez Gatta D, Rotarou ES, Banks LM, Kuper H. Healthcare access among people with and without disabilities: a cross-sectional analysis of the National Socioeconomic Survey of Chile. Public Health. 2025;241:144–50. 10.1016/j.puhe.2025.02.010.

15. Turi E, Gold L, Le HND, Mannan H, Lau EHY, Abimanyi-Ochom J. Disability status and socioeconomic related inequality in receiving quality antenatal care in nine low- and middle-income countries: A multilevel analysis. Reprod Health. 2025;22(1):179. 10.1186/s12978-025-02075-1.
16. Azizatunnisa' L, Kuper H, Banks LM. Access to health insurance amongst people with disabilities and its association with healthcare use, health status and financial protection in low- and middle-income countries: a systematic review. Int J Equity Health. 2024;23(1):264. 10.1186/s12939-024-02339-5.
17. WG Short Set on Functioning (WG-SS) - The Washington Group on Disability Statistics [Internet], Hyattsville MD. Washington Group on Disability Statistics; 2020 [cited 2026 Oct 6]. Available from: https://www.washingtongroup-disability.com/question-sets/wg-short-set-on-functioning-wg-ss/
18. Rao JNK, Scott AJ. On Chi-Squared Tests for Multiway Contingency Tables with Cell Proportions Estimated from Survey Data. Ann Stat. 1984;12(1). 10.1214/aos/1176346391.
19. Andersen RM. Revisiting the Behavioral Model and Access to Medical Care: Does it Matter? J Health Soc Behav. 1995;36(1):1. 10.2307/2137284.
20. Kenya National Bureau of Statistics. Kenya Demographic and Health Survey 2022 [Internet]. Kenya National Data Archive (KeNADA); 2022 [cited 2026 Sep 14]. Available from: https://statistics.knbs.or.ke/nada/index.php/catalog/128

Figures

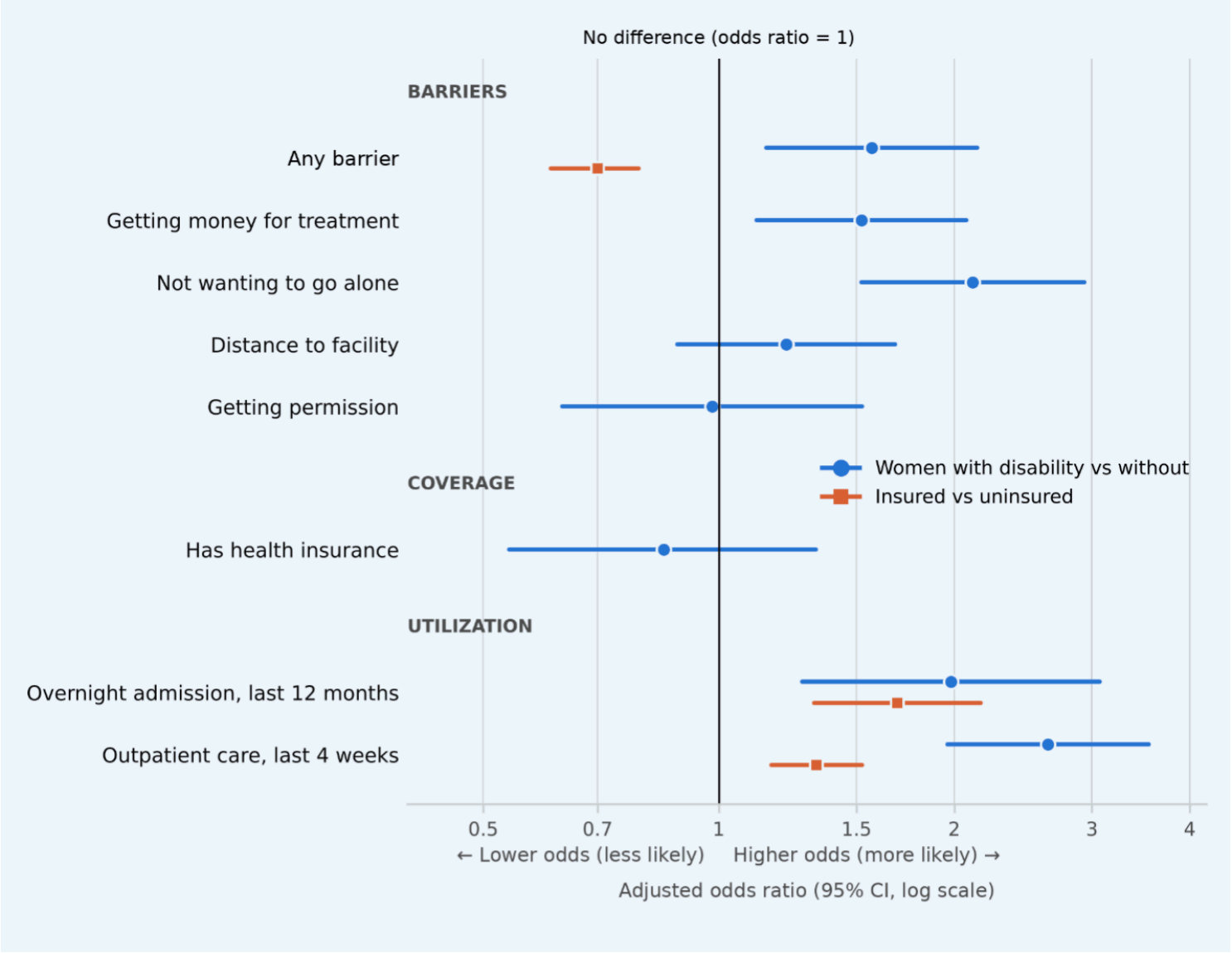


Figure 1

Adjusted odds ratios for disability and for insurance across barriers, coverage and healthcare utilization.

Blue circles compare women with disability with women without. Orange squares compare insured with uninsured women (shown where insurance was in the model). The line at 1 marks no difference.