Intra-Household WASH Inequities and Factors Associated with Individual-Level Access in Vulnerable Households under the Cash Transfer Program, Kenya

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ABSTRACT

Vulnerable groups, including those living in extreme poverty, older persons (OP), people with disabilities (PWD), orphaned children (OVC), and the chronically ill, encounter considerable and frequently neglected obstacles to obtaining safe, reliable and sufficient Water, Sanitation, and Hygiene (WASH) services. The Kenyan government's Cash Transfer Program, which targets vulnerable households of OP (70+), PWD, and OVC, aims to alleviate poverty and social exclusion. This study assessed WASH access among vulnerable households participating in a cash transfer program and identified factors associated with individual-level WASH access among OP and PWD. The study, conducted in Makueni County, Kenya, utilized both qualitative and quantitative approaches, administering individual questionnaires to 223 participants. Data analysis involved descriptive and inferential statistical methods. Findings revealed low levels of access to basic WASH services among OP, PWD, and OVC households: 43.0% for basic water, 11.3% for basic sanitation, and 19.3% for basic hygiene. Many older persons faced challenges in accessing water, sanitation, and bathing facilities independently, particularly among those aged 71–80, among whom 38% were unable to collect water and over 80% required assistance with sanitation and bathing. Age was significantly associated with all measured WASH accessibility outcomes, whereas other factors, such as income, distance, and facility proximity, influenced specific aspects of WASH access. These results highlight the limited access to basic WASH services among vulnerable households enrolled in the cash transfer program. The inability to independently use WASH facilities underscores the disparity between available infrastructure and its practical usability for household members, particularly those with functional limitations such as OP and PWD. The study advocates for intra-household WASH monitoring using disaggregated data and the development of inclusive WASH facility designs and targeted subsidies for WASH supplies to ensure no vulnerable individuals are left behind.

Keywords: WASH and cash transfer, WASH for vulnerable households, older persons, WASH facility usability.

INTRODUCTION

Background

Access to adequate WASH services is a fundamental human right (United Nations General Assembly, 2010) that safeguards human dignity and safety, as well as the health and social well-being of individuals. While there has been progress in access to water, sanitation, and hygiene (WASH) services globally and within individual countries in recent years, this advancement has not been uniform across all regions and populations (UNICEF/WHO, 2023). Access to WASH remains a significant challenge for a substantial portion of the world's vulnerable populations, with approximately 76% of individuals lacking access to safe WASH services who also bear the highest burden of WASH-related diseases, including diarrhea-related deaths, living in sub-Saharan Africa (WHO/UNICEF, 2023; Prüss-Üstün et al., 2019). In Kenya, only 37% of the population has access to basic sanitation services, and approximately 6% still practice open defecation (WHO & UNICEF, 2023). Further disparities in WASH access exist within subsets of vulnerable populations. Specifically, persons with functional

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limitations such as OP and PWD continue to face significant challenges in accessing essential services, including adequate WASH services. Inaccessibility of WASH services negatively impacts, among other things, health, education, the ability to work, and participation in social activities among these individuals (WHO & UNICEF, 2025; Okesanya et al., 2024; Bick et al., 2025).

The Government of Kenya is currently implementing a consolidated cash transfer program as part of its broader social protection strategy. This initiative aims to enhance dignity, foster social inclusion, and provide social protection for vulnerable OP aged 70 years and above, PWD and OVC. Access to adequate WASH services is especially crucial for OP and PWD who, due to their weakened immune system, are at greater risk of developing illness related to poor WASH conditions. This study adopts an intra-household equity lens, focusing not only on the presence of WASH facilities at the household level but also on vulnerable individuals' ability to use these facilities independently.

Problem Statement

The burden of inadequate WASH in Kenya falls heaviest on the poorest and most vulnerable households (Njuguna, 2019; KNBS & ICF, 2023). Poor households, often with limited income, may find it difficult to afford basic WASH services. In fact, households at the bottom of Kenya's wealth pyramid are reported to be 270 times more likely to practice open defecation than the wealthiest households (GOK/WSP, 2012). Wealthier households are more likely to access WASH services and adopt hygiene practices, such as safe water management and handwashing (Gaffan et al., 2022). Consequently, WASH-related diseases disproportionately affect poor and vulnerable groups compared with wealthier populations (Ohwo & Odubo, 2021; Okesanya et al., 2024; WHO, 2023). An analysis of sanitation-related disease disparities across ten nations, including Kenya, found that the burden of such diseases in Kenya’s poorest households is more than 18 times higher than in the most affluent households (Rheingans et al., 2012). Inaccessible WASH infrastructure presents considerable challenges for individuals with disabilities and older adults, increasing their exposure to unhygienic conditions, elevating the likelihood of injury, and diminishing their dignity when accessing or requiring support in using WASH facilities (Wilbur et al.,2024; UNICEF, 2023). Whereas monitoring systems for household-level WASH are largely institutionalized in the sector, WASH access for vulnerable household members, particularly those with functional limitations such as people with disabilities and older persons, remains insufficiently streamlined in standard WASH monitoring and programming.

Study Objective

The overall objective of this study was to assess intra-household inequities in WASH and the factors associated with individual-level access among vulnerable households enrolled in Kenya’s cash transfer program.

The following specific objectives guided the study:

i. To assess WASH access among vulnerable households of OP, PWD, and OVC enrolled in the cash transfer program.

ii. To identify factors associated with individual-level WASH access among OP and PWD in households enrolled in the cash transfer program.

Significance of the Study

To realize Kenya’s Vision 2030 of universal WASH coverage and, consequently, achieve Sustainable Development Goal 6 (access to clean water and sanitation for all) by 2030, WASH services must be accessible to all, including the most vulnerable groups. This study offers valuable insights into assessing WASH access among vulnerable households that receive cash transfer and contributes to the advancement of methodological approaches for monitoring intra-household WASH disparities. It further contributes to the growing body of evidence on the determinants that shape WASH access. Key beneficiaries include policymakers in WASH and social protection, program implementers at the national and county levels, non-governmental agencies, and households of poor and vulnerable populations that benefit from social protection programs.

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MATERIALS AND METHODS

Study Design and Setting

This study employed a cross-sectional mixed-methods design, combining quantitative household survey data with qualitative data from key informant interviews (KIIs) and focus group discussions (FGDs). The quantitative component assessed household-level access to WASH services and individual-level physical accessibility and usability of WASH facilities among vulnerable individuals. The qualitative component explored lived experiences, perceived barriers, and contextual factors affecting WASH access among older persons and people with disabilities. The study was conducted in Makueni County, Kenya, between April and May 2023, as part of a broader inclusive WASH intervention targeting households enrolled in the national cash transfer program for OP, PWD, and OVC. Ethical approval and research permit were obtained from a recognized ethics review board and the national research licensing body, respectively. Formal approvals were obtained from the State Department of Social Protection at all relevant levels, as well as from local administration and community leadership. Informed consent was obtained from all participants, and confidentiality was maintained throughout the study.

Study Population and Sampling

The study population comprised households of OP, PWD, and OVC enrolled in Kenya's national cash transfer program. Makueni County was purposively sampled because of its notably low coverage of WASH services, high poverty rate, and high enrollment in the national cash transfer program at the time of the study. These criteria ensured the inclusion of regions most affected by WASH inequities and socioeconomic vulnerability. The sample size was determined using the Nassiuma (2000) formula, yielding a total of 223 respondents. A stratified proportionate random sampling approach was employed to ensure a representative sample of the target population, comprising the three categories of cash transfer beneficiaries. Stratification was based on official overall cash transfer registration data available for the three cash transfer categories in the four sub-counties at the time of the study: 20,087 OP, 833 PWD, and 5,969 OVC beneficiaries (State Department of Social Protection, 2019). The final sample of 223 households was proportionally allocated to reflect the actual distribution of beneficiary categories within the cash transfer registry, yielding 167 households of older persons, 49 households of orphaned and vulnerable children, and 7 households of people with disabilities. The relatively small number of PWD households in the sample corresponds to their limited representation within the cash transfer program in the selected study areas, rather than sampling exclusion.

Data Collection Procedures

Quantitative data was collected using a semi-structured household questionnaire administered to 223 respondents by trained research assistants. The questionnaire captured socio-demographic characteristics, household-level WASH service access, and individual-level accessibility (independent usability) of WASH facilities among older persons and people with disabilities. Qualitative data were collected through key informant interviews (KIIs) with WASH policymakers and implementers, and through focus group discussions (FGDs) with OP and caregivers of PWD. Qualitative tools were used to explore experiences of WASH access, perceived barriers, coping strategies, and design-related challenges affecting vulnerable OP and PWD.

Data Analysis

Quantitative data was analyzed using descriptive statistics, including frequencies, proportions, medians, and interquartile ranges, in line with the objectives of the study. Household-level access to WASH services was analyzed based on the WHO and UNICEF Joint Monitoring Programme (JMP) WASH service ladder, which classifies drinking water, sanitation, and hygiene services along a progressive scale of service levels. Individual-level accessibility focused on the ability of older persons and persons with disabilities to access and use available WASH facilities independently. Where appropriate, comparisons across vulnerability groups were conducted descriptively. Inferential analysis was limited due to the small sample size of people with disabilities.

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Qualitative data from KIIs and FGDs was audio-recorded, transcribed verbatim, and thematically analyzed. An inductive coding approach was applied, whereby transcripts were reviewed line by line to identify recurring concepts and patterns. Codes were grouped into broader themes reflecting physical, environmental, economic, and psychosocial barriers to WASH access. The qualitative findings were used to complement and contextualize quantitative results, providing insight into the lived experiences of older persons and persons with disabilities and enhancing interpretation through triangulation.

RESULTS

This study reports on WASH access among vulnerable households of OP, PWD, and OVC, as well as among individual OP and PWD within these households. Additionally, the study reports on factors associated with WASH access among OP and PWD enrolled in the cash transfer program.

Socio-Demographic Characteristics of Respondents

Table 1 below shows the socio-demographic characteristics of the study participants. A total of 223 respondents participated. Data was collected on key demographic variables, including gender, type of vulnerability, education level, and economic status. All households in the study received a standardized monthly government stipend of 2,000 KES from the cash transfer program.

Table 1: Respondents' Social Demographic Characteristics

Variable	**Category**	**Overall N=223**	**%**
Age	**Median (IQR)**	80 (72, 86)	-
Gender	Female	145	65.3%
	Male	77	34.7%
Vulnerability Type	OP	168	75.3%
	OVC	48	21.5%
	PWD	7	3.2%
Education level	No formal school	66	29.6%
	Pre-primary	21	9.4%
	Primary	112	50.2%
	Secondary	23	10.3%
	Mid-level/technical and vocational training (TVET)	1	0.5%
Source of Income for Household	Casual/day labor	22	10%
	Employed	1	0.4%
	Housewife	25	11.2
	Retired	52	23.3 %

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	Self-employed/business/trade	116	52%
	Unemployed (looking for employment)	7	3.1%
Household Monthly Income *(including 2000 KES)*	Median (IQR)	3000(2000,4500)	-

Older persons constituted the majority (75.3%), followed by OVC (21.5%) and PWD (3.2%). Half of the respondents had attained primary school education (50.2%). Self-employment is the primary source of income for most households (52%). A significant minority (23.3%) were retired and had no source of income.

WASH access among vulnerable households of OP, PWD, and OVC enrolled in the cash transfer program.

The study assessed household-level access to basic WASH services based on the recommended JMP standards for WASH service levels, as shown in Table 2. Specifically, the assessment covered key WASH domains, including access to basic water services, safe drinking water at home, basic sanitation and hygiene services.

Table 2: WASH services access at the household level

Variable	**Access to WASH services**	**N=223**	**(%)**
Water services	Basic	96	43.0%
	limited	73	32.7%
	Unimproved	54	24.3%
Time Taken for Water Collection	Inside the house	19	8.5%
	<15 mins	42	18.9%
	Between 30mins-1hour	145	65.0%
	>15 1 hour	17	7.6%
Household's water treatment practice	Always	64	28.6%
	Sometimes	38	17.0%
	Never	121	54.4%
Sanitation services	Basic (flush to pit latrine/septic and pit latrine with VIP)	25	11.3%
	Unimproved (Pit latrine without slab/Open pit, Pit latrine without VIP)	195	87.4%
	No sanitation services	3	1.3%
Hygiene Services	**Access to bathing facilities**		

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	Yes	194	87.0%
	No	29	13.0%
	Access to hand-washing facilities		
	Yes	43	19.3%
	No	180	80.7%
	Location of bathing facility	**n=194**	**%**
	Bathing structure inside the house	28	14.4%
	Bathing structure outside the house	166	85.6%
	Access to functional handwashing facilities	**n=43**	**(%)**
	Water and soap present	22	51.1%
	Water only	14	32.6%
	Soap only	1	2.3%
	No water and soap	6	14.0%
Menstrual Hygiene Management (MHM services)		**n=36**	**(%)**
OVC girls in the menstruating stage	No	14	39%
	Yes	22	61%
	Access to MHM materials	**n=22**	**(%)**
	Easy to access MHM materials	11	50%
	Neutral (sometimes)	3	14%
	Not easy	8	36%

Overall, less than half of vulnerable households (43.0%) have access to basic water services, such as piped water, tubewell/borehole, or protected wells. The remaining households had either limited water services (32.7%) or unimproved water sources (24.3%). Only 8.5% of households had indoor water connections, so most walk outside their homes to fetch water. The majority (65.0%) spend between 30 minutes and 1 hour collecting water. Additionally, only 28.6% of households consistently treated their water before drinking.

Most households (87.4%) relied on unimproved sanitation facilities, such as pit latrines without slabs or open pits. Only 11.3% had access to basic sanitation services, such as flush-to-pit latrines/septic tanks and VIP latrines. In total, 98.7% of households used pit latrines.

Handwashing facilities were available in only 19.3% of households; nearly half of those (48.9%) were not functional (lacking water, soap, or both). While 87.0% of households had a dedicated bathing space accessible

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inside the house, the majority (85.6%) had their bathing facilities located outside the house. Half of the OVC girls in the menstruating stage reported experiencing challenges accessing MHM products.

Factors associated with individual-level accessibility of WASH facilities

Beyond household-level access, this study examined factors associated with accessibility (ability to use WASH facilities independently) among OP and PWD in the cash transfer program. Table 3 presents a bivariate analysis of factors associated with individuals' ability to physically access the available water, sanitation, and hygiene facilities provided at home.

Table 3: Bivariate analysis of factors associated with individual-level WASH accessibility among vulnerable households

Variable	Predictor	Category	Outcome	Unable	Able	χ^2	P Value
Access to water points	Age Group	<70 years	Ability to collect water independently	2 (33.3%)	4 (66.7%)	6.428	0.0405
	Age Group	71-80 years	Ability to collect water independently	27 (38%)	44 (62%)		
	Age Group	>80 years	Ability to collect water independently	20 (20.4%)	78 (79.6%)		
	Gender	Female	Ability to collect water independently	38 (31.1%)	84 (68.9%)	1.98	0.2109
	Gender	Male	Ability to collect water independently	11 (20.8%)	42 (79.2%)		
	Distance to Water Source	>15 minutes	Ability to collect water independently	40 (32.5%)	83 (67.5%)	4.196	0.0525
	Distance to Water Source	<=15 minutes	Ability to collect water independently	9 (17.3%)	43 (82.7%)		
Sanitation facilities	Age Group	<70 years	Ability to use the toilet independently	1 (16.7%)	5 (83.3%)	12.392	0.003
	Age Group	71-80 years	Ability to use the toilet independently	57 (80.3%)	14 (19.7%)		
	Age Group	>80 years	Ability to use the toilet independently	65 (66.3%)	33 (33.7%)		
	Gender	Female	Ability to use the toilet independently	85 (69.7%)	37 (30.3%)	0.073	0.8521
	Gender	Male	Ability to use the toilet independently	38 (71.7%)	15 (28.3%)		

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	Toilet Location	<= 5 minutes	Ability to use the toilet independently	46 (65.7%)	24 (34.3%)	1.167	0.2924
	Toilet Location	> 5 minutes	Ability to use the toilet independently	77 (73.3%)	28 (26.7%)		
	Toilet Type	Flush	Using the toilet unsupported	3 (42.8%)	4 (57.2%)	1.0237	0.5994
	Toilet Type	Pit		48 (28.9%	118 (71.1%)		
	Toilet Type	None		1 (50.0%)	1 (50.0%)		
Handwashing Facilities	Age Group	<70 years	Ability to handwash without assistance	3 (50.0%)	3 (50.0%)	2.758	0.2494
	Age Group	71-80 years		15 (21.1%)	56 (78.9%)		
	Age Group	>80 years		21 (21.4%)	77 (78.6%)		
	Gender	Female	Ability to handwash without assistance	25 (20.15)	97 (79.5%)	0.74851	0.4398
	Gender	Male		14 (26.4%)	39 (73.6%)		
Bathing facilities	Age Group	<70 years	Ability to Bathe without Assistance	1 (16.7%)	5 (83.3%)	18.544	0.001
	Age Group	71-80 years	Ability to Bathe without Assistance	62 (87.3%)	9 (12.7%)		
	Age Group	>80 years	Ability to Bathe without Assistance	67 (68.4%)	31 (31.6%)		
	Gender	Female	Ability to Bathe without Assistance	88 (72.1%)	34 (27.9%)	0.979	0.3363
	Gender	Male	Ability to Bathe without Assistance	42 (79.2%)	11 (20.8%)		

Age group was significantly associated with the ability to independently collect water ($\chi^2 = 6.43$, $p = 0.041$). Respondents aged 71-80 years had the highest proportion unable to collect water independently (38%), compared with those under 70 years (33.3%). Distance to water source approached statistical significance ($\chi^2 = 4.20$, $p = 0.053$), with respondents living more than 15 minutes from water sources having a higher prevalence of inability to collect water independently (32.5%) than those within 15 minutes (17.3%). Gender showed no significant association with water collection independence ($\chi^2 = 1.98$, $p = 0.211$).

Age group demonstrated the strongest association with toilet-use independence ($\chi^2 = 12.39$, $p = 0.003$). Those aged 71-80 years had the highest proportion of individuals unable to use the toilet independently (80.3%), compared with those under 70 years (16.7%). Toilet location showed no significant relationship with

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independent toilet use ($\chi^2 = 1.17$, $p = 0.292$), with approximately 66-73% across both proximity groups requiring assistance. Similarly, there is no statistically significant association between toilet type and the ability to use the toilet unsupported ($\chi^2 = 1.0237$, $p = 0.5994$). Gender showed no significant difference ($\chi^2 = 0.07$, $p = 0.852$), with males (71.7%) and females (69.7%) showing similar rates of requiring assistance to use the toilets.

None of the selected demographic factors showed a statistically significant association with performing handwashing without assistance among the OP and PWD. Inability to perform handwashing is relatively evenly distributed across age groups. Gender showed a minimal difference in the inability to use handwashing facilities ($p=0.4398$), with males having a slightly higher inability rate of 26.4% compared with females at 20.15%.

Age group was significantly associated with bathing independence ($\chi^2 = 18.54$, $p = 0.001$). The 71-80 age group demonstrated the highest inability to bathe without assistance (87.3%), followed by those over 80 years (68.4%). Gender showed no significant difference in bathing independence ($\chi^2 = 0.98$, $p = 0.336$), with males (79.2% able) and females (72.1% able).

Qualitative insights on barriers to WASH accessibility

Guided by the Integrated Behavior Model for WASH (Dreibelbis et al., 2013), the study thematically organized perceived barriers to WASH access into three interrelated dimensions: contextual, psychosocial, and technological.

Theme 1: Contextual Factors

Physical strain and mobility limitations: Participants consistently described physical weakness because of age, joint pain, and reduced mobility as major barriers to independently accessing WASH facilities. Older persons reported difficulty carrying water containers, squatting to use toilets, or standing for prolonged periods during bathing.

"Even when water is available, I cannot lift the container. My legs are weak, and I fear falling on the way" (FGD, participant, an older person).

"*It is really challenging. I often find myself unable to use the toilet because I struggle to maintain my balance, especially without someone there to help. Sometimes, I have to crawl to the bush" (FGD participant, an older person).*

Distance, terrain, location, and other environmental barriers: Long distances to water sources, uneven terrain, and slippery or steep paths were frequently cited as obstacles to accessing water points and sanitation facilities. Participants noted that paths become especially hazardous during the rainy season, increasing the risk of falls and injury. This report was confirmed by county WASH implementers.

"The water point is far, and the road is rough. When it rains, it becomes impossible for the elderly to walk there safely" (KII, county WASH officer)."

Economic constraints affecting usability: Economic barriers, particularly the inability to afford soap, water treatment products, or facility modifications, were highlighted as additional constraints to WASH access. Participants noted that limited household income necessitated prioritizing food over hygiene materials.

"Sometimes we have water, but no soap. We must choose between buying food and buying soap" (FGD participant, caregiver)."

Theme 2: Psychological factors

Dependency, dignity, and safety concerns: Many older persons expressed discomfort with relying on others for personal hygiene activities, particularly toileting and bathing. Caregivers reported that dependency sometimes resulted in delayed hygiene practices, compromising dignity and personal comfort.

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"He waits until someone is around to help him, even if he needs to go urgently. It affects his dignity," (FGD participant, caregiver)."

"It is very embarrassing when my children help me to use the toilet or even bathe. Sometimes I feel like I do not want to eat again" (FGD, participant, older person).

Theme 3: Technological

WASH facility designs: Key informant interviews with WASH implementers revealed that the WASH standard program predominantly targets household-level coverage improvement. However, there is a notable lack of comprehensive guidance regarding standards and design options tailored for individuals with limited mobility.

"We are improving WASH access in our communities using many approaches including the Community Led Total sanitation (CLTS) program, but we cannot say that we have made the facilities truly accessible to all because people with disabilities and very old people cannot access the toilets that are being built at the households and even other community spaces"- (KII with County WASH officer)

DISCUSSION

Interpretation of Findings

Overall, the findings reveal limited access to basic WASH services among vulnerable households receiving cash transfers. Specifically, household-level access to at least basic water services was below the 58% national average (WHO & UNICEF, 2025), and the majority use unimproved sanitation facilities, which aligns with findings from–multicounty studies conducted in Bangladesh, Kenya, Uganda, South Sudan, and Zimbabwe (Calderón-Villarreal et al., 2022). The bivariate analysis shows that increasing age was significantly associated with reduced ability to independently collect water, use sanitation facilities, and bathe without assistance, highlighting the compounding effect of physical decline on WASH accessibility. These findings clearly show that even in households where basic WASH services are available, vulnerable individuals, particularly those with functional limitations such as OP and PWD, often cannot independently access these facilities. This observation is consistent with findings from related studies. For instance, a study conducted in Ghana indicated that having a water source alone does not ensure equitable access, particularly when usability is neglected (Dosu & Hanrahan, 2021). Similarly, limited physical access to handwashing stations was common among people with mobility challenges, particularly those with disabilities in Kenya (Muchangi et al., 2024). A research paper by Ariel Francis et al. (2023) in the Philippines highlights that many individuals with mobility impairments face difficulties in using bathing facilities. This underscores the importance of considering usability in WASH service provision.

In this study, contextual factors were identified as key barriers to accessing water from collection points; these challenges also emerged in qualitative accounts, in which caregivers described older persons being unable to lift water containers or walk long distances without risking falls. These findings are consistent with multicounty studies on WASH, disability, and aging, which identified physical difficulties limiting daily activities as the primary reason that older persons and persons with disabilities are unable to collect water independently (Aboderin, 2010; Hazel, 2013; Mactaggart et al., 2018; Banks et al., 2019; White et al., 2016). Consistent with qualitative findings, we also find that individuals residing in households farther from water sources in the present study were more likely to report difficulty accessing WASH services independently. However, some associations did not reach statistical significance. These findings are consistent with studies that reported inability to walk to the toilet and limitations in physical and self-care activities as key barriers to sanitation access for older persons in India (Hazel, 2013) and for people with disabilities in Nepal (Banks et al., 2019). In addition to physical barriers, economic obstacles contribute to the difficulties that OP and PWD face in accessing WASH services. Consistent with the study findings, socioeconomic barriers affected the ability to purchase soap and water for handwashing in Nepal (Banks et al., 2019) and to access general WASH services among older persons in Ghana (Dako-Gyeke et al., 2024). In this study, household heads who reported being self-employed had an average monthly income of KES 3500 (below the poverty line). Given their low economic status, improved WASH services may be unaffordable for many vulnerable households. Dependence on others for assistance in

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accessing WASH facilities, especially sanitation facilities, caused shame among OP and PWD, as evidenced by the qualitative findings of this study. These opinions mirror research findings by Bisung & Elliott (2017), which reported that inadequate sanitation contributed to shame, lack of dignity, and emotional distress.

Overall, qualitative findings align with quantitative results by highlighting how contextual psychological and technological constraints interact to affect accessibility of WASH facilities at the individual level. While household-level infrastructure may be present, qualitative evidence shows that usability and independent access remain significant challenges for older persons and people with disabilities.

Implications of the study

This study highlights key implications for household WASH access monitoring systems. By revealing existing inequalities in WASH access, it emphasizes the need to develop data collection methods that uncover disparities often hidden within household WASH data. Such systems should allow disaggregation by gender, age, disability, and other social markers, ensuring that inequities are visible. The findings also stress the importance of identifying and addressing specific barriers faced by vulnerable groups, such as the elderly and persons with disabilities. Mapping physical, mobility, cultural, social, and financial obstacles enables programs to incorporate targeted solutions into policy, training, and program design. This approach promotes rights-based strategies that prioritize dignity, safety, and inclusion. Overall, these implications support the development of equity-focused WASH monitoring and programming aligned with SDG commitments and national standards, ensuring no one is left behind.

Study limitations

One key study limitation was that persons living with disabilities were underrepresented in the target population, which was a reflection of the low enrolment within the cash transfer program in the selected study area and, by extension, the national proportion of PWD nationally. For this reason, the study findings related to PWDs are based on a small number of participants. They should therefore be interpreted as applying to the study sample rather than to the general PWD population. Although inferential analysis was conducted for selected outcomes, the exploratory nature of the study and reliance on self-reported measures may also be considered a limitation due to the nature of the data. Despite these limitations, the study provides valuable insights into intra-household WASH accessibility and highlights critical gaps between infrastructure availability and usability for vulnerable populations.

CONCLUSION AND RECOMMENDATIONS

Summary of Conclusions

The findings of this study indicate that vulnerable households have lower access to basic water, sanitation, and hygiene services than the national average. Additionally, the findings highlight a significant gap between the availability of physical WASH infrastructure and its usability for people with mobility limitations, such as older persons and people with disabilities. Contextual, Psychological, and technological-related barriers affect the usability of WASH facilities among this vulnerable group. Understanding these access barriers is crucial for the WASH sector, given the global and national efforts to achieve universal access to WASH by 2030 (SDG, 2030; Kenya Vision 2030; Kenya Universal HealthCare, 2030).

Policy and Practice Recommendations

The findings highlight the need to establish intra-household WASH access monitoring systems. Such systems are essential for capturing disaggregated household-level data to identify and address WASH disparities within households. The study further recommends that WASH programming prioritize inclusive adoption of inclusive facility design options that accommodate the diverse needs of all users. WASH infrastructure development, such as water points and sanitation facilities, should account for user proximity to ensure universal access. Additionally, the study recommends adopting policy measures that provide targeted subsidies for essential WASH materials for vulnerable households, including older persons and people with disabilities.

Recommendations for further study.

To strengthen the evidence on WASH access for vulnerable groups, the study recommends further investigations into how psychological factors (stigma, fear of dependency, self-efficacy) affect access to WASH services among older adults and people with disabilities. Additionally, further studies can explore WASH access needs and barriers across various disability types in institutional settings.

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