

Original Research Article

Accessibility of reproductive health services among women living in the informal settlements of Mathare slums, Nairobi City County, Kenya

Janet C. Rotich^{1*}, Justus O. Osero², Eliphas Gitonga²

¹Department of Family Medicine Community Health and Epidemiology, Kenyatta University, Kenya, Nairobi, Kenya

²Department of Environment and Occupational Health, Kenyatta University, Kenya, Nairobi, Kenya

Received: 25 March 2024

Revised: 13 April 2024

Accepted: 15 May 2024

*Correspondence:

Janet C. Rotich,

E-mail: janetochy@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: This study sought to determine the health facility-related factors and social factors associated with the accessibility of reproductive health services (RHS) among women living in the informal settlements of Mathare slums, Nairobi City County, Kenya.

Methods: This cross-sectional study focused on Nairobi County, Kenya, specifically targeting Mathare slums, known for poor reproductive health (PRH) indicators among women. Three hundred women were randomly recruited from four villages (Mathare 3B, Mathare 4A, Kosovo, and Mathare village 2).

Results: The majority of respondents were aged 18-29 years (48.7%), had primary education (61.7%), were married (58.7%), and unemployed (69.3%). Significant associations were observed between accessibility and the woman's age ($\chi^2=83.013$, $df=1$, $p<0.001$), education level ($p<0.001$), marital status ($p<0.001$), and employment status ($\chi p<0.001$). Significant health facility barriers to accessibility encompassed long distances to health facilities ($p<0.001$), transportation cost constraints ($p<0.001$), difficult terrain ($p<0.001$), cost of services ($p<0.001$), services provided by health facilities ($p<0.001$), and availability of required medications ($p<0.001$). Discouragement by friends or family ($p<0.001$), the perceived influence of age on RHS accessibility ($p<0.001$), the perceived influence of education level on RHS choices ($p=0.014$), and the perceived role of a spouse in influencing RHS ($p=0.002$) were all significant social factors associated with accessibility to RHS.

Conclusions: Health facilities and social factors presented complex challenges, including geographical barriers, transportation costs, and medication availability, while spouse involvement, education's influence, and familial discussions positively impacted accessibility.

Keywords: Accessibility, Social factors, Health-facility factors, RHS, Informal settlement

INTRODUCTION

Reproductive health is a concept that refers to a condition of total physical, mental, and social well-being rather than just the absence of disease.¹ Inequalities in access to reproductive health care have led to increased perinatal morbidities, despite various developments in the administration of these services across the globe.² Globally, over five hundred thousand women living in slums die each year in the process of reproduction,

according to the world health organization, and if women gain access to sexual and reproductive care, the majority of these deaths can be avoided.³

Informal settlements are characterized as underserved populations with limited access to health care services around the world. These areas are characterized by poorly constructed houses, bad environmental features such as a lack of safe drinking water and sanitation, inadequate drainage with abundant open sewers, uncollected trash,

extreme congestion, flies, and low lighting.⁴ They also contribute significantly to high cases of malnutrition, maternal and child-related complications, delivery complications, and postpartum morbidity.⁵

Rapid urbanization is changing the dynamics of health in Africa, and those living in densely populated areas and slums are directly affected.⁶ Access to quality health care in such areas is limited due to various issues, such as poorly maintained road networks and relatively high transportation costs. This is especially true for reproductive health and family planning. Moving to the city used to mean becoming wealthier and having better access to institutional services. According to recent surveys, 70% of urban residents live in poverty; often in low-income informal settlements with no recognized public services.⁷

Kenya's healthcare infrastructure has improved in recent years, but many women still live far from healthcare facilities and cannot afford reproductive and maternal health services. As a result, many women encounter obstacles in obtaining high-quality reproductive healthcare.⁸ When comparing the health indices of urban and rural populations, significant differences arise. Women in Nairobi's slums are more prone to unwanted pregnancies and fertility than those living in non-slum areas. In slum regions, the contraceptive prevalence rate (CPR) is believed to be around 45 percent, while non-slum areas have a CPR of 50 percent.⁹ In Kenya, private hospitals, pharmacies, and dispensaries provide contraception to more than 40% of the contraceptive users.¹⁰

Mathare slum in Nairobi is characterized by high incidences of poverty, insecurity, illiteracy, drug abuse, gender-based violence, inaccessibility, poor accommodation, and improper waste disposal systems, which make reproductive health a matter of least concern to the dwellers. Due to poverty, the slum is also characterized by high school dropouts due to lack of food, school fees, drug abuse, and peer pressure. These affect girls as well, leading to early exposure to illicit sex, prostitution, and early marriages. Dropping out of school hinders young girls from getting adequate knowledge about their reproductive health through the education system, reduces their ability to read and understand reproductive health, and reduces their ability to engage in meaningful economic activities that would guarantee access to RHS.

Despite the many reproductive health challenges the residents of Mathare slum face, little research has been published in Nairobi County among women living in informal settlements. As a result, this study was conducted to determine health facility-related and social factors influencing the accessibility of RHS among women living in the informal settlements of Mathare slums, Nairobi City County, Kenya.

METHODS

This cross-sectional study focused on Nairobi County, Kenya, and specifically targeted Mathare slums, known for poor reproductive health (PRH) indicators among women. Four villages (Mathare 3B, Mathare 4A, Kosovo, and Mathare village 2) within Mathare were purposively selected due to their larger populations. Employing a multi-stage cluster sampling technique, the research recruited 300 women using simple random sampling for women in selected households.

The tool used for data collection was a semi-structured questionnaire. This tool was pretested and necessary corrections were made. The study included women aged 15-49 residing in the Mathare slums of Nairobi County, Kenya, who were willing to participate. The researcher excluded women outside this age range, those residing outside the Mathare slums, and those unwilling to participate. Data was collected from April 1, 2023, to May 31, 2023, on weekdays from 8 a.m. to 5 p.m.

Background characteristics (age, marital status, employment, and education level) and health facility and social factors were the independent variables. The accessibility to RHS amongst women living in the informal settlement of Mathare slums, Nairobi City County, Kenya, was the dependent variable. All necessary ethical approvals were obtained from relevant bodies, and measures were taken to ensure respondents' anonymity, voluntary participation, and information safeguarding.

Data analysis involved descriptive statistics, such as frequencies and percentages, for both the independent and dependent variables. Then, inferential statistics, such as chi-square or Fisher's exact test (which is an alternative to chi-square when chi-square assumptions are violated), were used to assess the association between the dependent variable 'accessibility of RHS' and various independent factors (including background, health facility-related, and social factors). The findings are presented in tables, figures, charts, and in prose.

RESULTS

Background characteristics of the respondents

A total of 300 women were surveyed, representing a response rate of 78.1%. The socio-demographic profile of the participants is shown in Table 1. The majority of respondents were aged between 18 and 29 years (48.7%, n=146), had a primary level of education (61.7%, n=185), were married (58.7%, n=176), and were unemployed (69.3%, n=208). However, as shown in Table 2, statistically significant associations were only observed between accessibility and the woman's age ($\chi^2=83.013$, df=1, $p<0.001$), education level ($p<0.001$), marital status ($p<0.001$), and employment status ($p<0.001$).

Health facility-related and social factors influencing the accessibility to RHS

Table 3 summarizes key health facilities and social factors influencing access to RHS. Among the health facility factors, the primary barriers were service-needs mismatch at facility at 70.3% (n=211), transportation cost challenge at 65.3% (n=196), and affordability barrier at 62.7% (n=188).

On the social front, the key challenges are "age affects RHS accessibility" at 78.0% (n=234), "age increases RH awareness" at 65.7% (n=197), and "spouse influences RHS" at 73.7% (n=221).

On cross-tabulation (Table 4) health facility factors such

as challenges in the reaching reproductive health centers ($p<0.001$), long distances to health facilities ($p<0.001$), transportation cost ($p<0.001$), and difficult terrain ($p<0.001$), were identified were significantly associated with RHS accessibility. Additionally, the cost of the services ($p<0.001$), whether the health facilities provided services needed ($p<0.001$), and availability of required medications ($p<0.001$) emerged as critical factors.

Discouragement by friends or family ($p<0.001$), the perceived influence of age on RHS accessibility ($p<0.001$), the perceived influence of education level on RHS choices ($p=0.014$), and the perceived role of a spouse in influencing RHS ($p=0.002$) were all significant social factors associated with accessibility to the reproductive health services.

Table 1: Socio-demographic characteristics of the respondents.

Characteristic		N	Percentages (%)
Age (in years)	18-29	146	48.7
	30-39	90	30.0
	40-49	64	21.3
	Total	300	100
Education	Primary	185	61.7
	Secondary	94	31.3
	Tertiary	21	7.0
	Total	300	100
Marital status	Married	176	58.7
	Unmarried	74	24.7
	Divorcee	32	10.7
	Widowed	18	6.0
	Total	300	100
Employment	Unemployed	208	69.3
	Employed	92	30.7
	Total	300	100

Table 2: Association of selected socio-demographic characteristics with access to RHS.

Variables		Accessibility of RHS						Significant at p≤0.05
		Low		High		Total		
		N	%	N	%	N	%	
Age (in years)	18-29	120	72.3	26	19.4	146	48.7	χ²=83.013, df=1, p<0.001
	>29	46	27.7	108	80.6	154	51.3	
	Total	166	100	134	100		100	
Education	Primary	166	100	19	14.2	185	61.7	Fisher’s exact p<0.001
	≥Secondary	0	0.0	115	85.8	115	38.3	
	Total	166	100	134	100	300	100	
Marital status	Married	156	94	20	14.9	176	58.7	p<0.001
	Unmarried	10	6	64	47.8	74	24.7	
	Divorcee	0	0	32	23.9	32	10.7	
	Widowed	0	0	18	13.4	18	6	
	Total	166	100	134	100	300	100	
Employment	Unemployed	166	100	42	31.3	208	69.3	Fisher’s exact, p<0.001
	Employed	0	0.0	92	68.7	92	30.7	
	Total	166	100	134	100	300	100	

Table 3: Health facility and social factors related to RHS accessibility.

Factors		N	Percentage (%)
Health facility factors			
Distance to health facilities far	Yes	91	30.3
	No	209	69.7
	Total	300	100
Transportation cost challenge	Yes	196	65.3
	No	104	34.7
	Total	300	100
Terrain is a transportation obstacle	Yes	46	15.3
	No	254	84.7
	Total	300	100
Health facility matched needed service	No	89	29.7
	Yes	211	70.3
	Total	300	100
Availability of required medication	No	143	47.7
	Yes	157	52.3
	Total	300	100
Affordable services	No	112	37.3
	Yes	188	62.7
	Total	300	100
Social factors			
Discouragement by friends/family	Yes	76	25.3
	No	224	74.7
	Total	300	100
Age affects RHS accessibility	No	66	22
	Yes	234	78
	Total	300	100
Age increases RH awareness	No	103	34.3
	Yes	197	65.7
	Total	300	100
Education influences RHS choice	No	120	40
	Yes	180	60
	Total	300	100
Spouse influences RHS	No	79	26.3
	Yes	221	73.7
	Total	300	100
My financial resources impact RHS	No	100	33.3
	Yes	200	66.7
	Total	300	100
My spouse respects my rights	No	146	48.7
	Yes	154	51.3
	Total	300	100
Discusses reproductive health issues with spouse	No	175	58.3
	Yes	125	41.7
	Total	300	100

Table 4: Health facility and social factors versus RHS accessibility.

Variables		Accessibility of RHS						Significant at p≤0.05
		Low		High		Total		
		N	%	N	%	N	%	
Difficulty reaching the RH center	Yes	166	100	0	0	166	55.3	Fishers' exact p<0.001
	No	0	0.0	134	100	134	44.7	
	Total	166	100	134	100	300	100	
Distance to health facilities far	Yes	91	54.8	0	0	91	30.3	Fishers' exact p<0.001
	No	75	45.2	134	100	209	69.7	
	Total	166	100	134	100	300	100	

Continued.

Variables		Accessibility of RHS						Significant at p≤0.05
		Low		High		Total		
		N	%	N	N	%	N	
Transportation cost challenge	Yes	166	100	30	22.4	196	65.3	Fishers’ exact p<0.001
	No	0	0	104	77.6	104	34.7	
	Total	166	100	134	100	300	100	
Terrain is a transportation obstacle	Yes	46	27.7	0	0	46	15.3	Fishers’ exact p<0.001
	No	120	72.3	134	100	254	84.7	
	Total	166	100	134	100	300	100	
Health facility matched needed service	No	0	0	89	66.4	89	29.7	Fishers’ exact p<0.001
	Yes	166	100	45	33.6	211	70.3	
	Total	166	100	134	100	300	100	
Availability of required medication	No	9	5.4	134	100	143	47.7	Fishers’ exact p<0.001
	Yes	157	94.6	0	0.0	157	52.3	
	Total	166	100	134	100	300	100	
Affordable services	No	0	0.0	112	83.6	112	37.3	Fishers’ exact p<0.001
	Yes	166	100	22	16.4	188	62.7	
	Total	166	100	134	100	300	100	
Discouragement by friends/family	Yes	76	45.8	0	0	76	25.3	Fishers’ exact p<0.001
	No	90	54.2	134	100	224	74.7	
	Total	166	100	134	100	300	100	
Age affects RHS accessibility	No	22	13.3	44	32.8	66	22	χ ² =16.570, df=1, p=0.000
	Yes	144	86.7	90	67.2	234	78	
	Total	166	100	134	100	300	100	
Age increases RH awareness	No	57	34.3	46	34.3	103	34.3	χ ² =0.000, df=1, p=0.999
	Yes	109	65.7	88	65.7	197	65.7	
	Total	166	100	134	100	300	100	
Education influences RHS choice	No	56	33.7	64	47.8	120	40	χ ² =6.078, df=1, p=0.014
	Yes	110	66.3	70	52.2	180	60	
	Total	166	100	134	100	300	100	
Spouse influences RHS	No	32	19.3	47	35.1	79	26.3	χ ² =9.539, df=1, p=0.002
	Yes	134	80.7	87	64.9	221	73.7	
	Total	166	100	134	100	300	100	
my financial resources impact RHS	No	44	26.5	56	41.8	100	33.3	χ ² =7.795, df=1, p=0.005
	Yes	122	73.5	78	58.2	200	66.7	
	Total	166	100	134	100	300	100	
My spouse respects my rights	No	82	49.4	64	47.8	146	48.7	χ ² =0.079, df=1, p=0.778
	Yes	84	50.6	70	52.2	154	51.3	
	Total	166	100	134	100	300	100	
Discusses reproductive health issues with spouse	No	101	60.8	74	55.2	175	58.3	χ ² =0.963, df=1, p=0.326
	Yes	65	39.2	60	44.8	125	41.7	
	Total	166	100	134	100	300	100	

DISCUSSION

The majority of respondents belonged to the 18-29 years' age group, had primary education, were married, and were unemployed. Notably, significant associations were observed between accessibility and factors such as age, education level, marital status, and employment status. Specifically, higher accessibility was more prevalent among women aged above 29 years compared to those aged between 18 and 29 years. This finding corroborates previous literature that underscores the challenges faced by young women.

Annually, approximately 16 million females aged 15 to

19 give birth, often experiencing unplanned pregnancies.¹¹ Teenage women frequently possess less comprehensive knowledge about reproductive health, placing them at elevated risk of unsafe abortions, STIs, teenage pregnancies, and HIV/AIDS. Marital status and women's income levels significantly influence their reproductive health. In Africa, the majority of married women are often economically dependent on their spouses, limiting their ability to assert their reproductive health rights. This implies that women's reproductive health is also contingent on their partner's acceptance and understanding of its importance.¹² Additionally, uneducated women are more likely to seek traditional reproductive health treatments.¹³

This study identified various challenges in reaching RH centers, including long distances to health facilities, transportation cost constraints, and difficult terrain. The alignment of health facilities with needed services and the availability of required medications were also crucial factors. Affordability of services played a significant role in accessibility. Social factors associated with accessibility to reproductive health services included discouragement by friends or family, perceptions of age affecting RHS accessibility, perceptions of education influencing RHS choice, and the perceived role of a spouse in influencing RHS. High accessibility was noted in women whose spouses were involved in RH matters, women who believed that education was a key determinant of RHS service seeking, and women who reported discussing RHS issues with their spouses. These findings align with previous studies. Cost may deter women from accessing RH services because they are unable to pay them and are hesitant to ask friends or family for financial assistance.¹⁴ Furthermore, RH service providers may be located far from where women live, work, or go to school, and women may have restricted access to transportation.¹⁵ According to Usonwu et al it is unfortunate that the healthcare system that should be a source of hope for women has instead become a source of disillusionment for them, partly due to healthcare workers' critical attitudes and the unfriendly quality of the services themselves.¹⁶ While studies have highlighted healthcare institutions as a feasible location for adolescent women to seek sexual health information and services, they claim that many adolescent women avoid using healthcare institutions for this purpose.¹⁶ According to Rosenberg et al, the infrastructure in health systems may not be tuned to the interests of women, with providers who are hesitant or unequipped to attend to women and facilities with inadequate resources to ensure discreet services.¹⁶

Limitations

Being a cross-sectional survey, this study can only infer association, but not causal-effect relationships. Findings in the study can only be interpreted in the context of the Mathare slums and may not be generalizable to non-slum dwellers or the rest of the country. Administering the questionnaires proved challenging, as convincing women to participate required significant persuasion. Additionally, there were difficulties navigating the unfamiliar terrain in the slum. To address these limitations, local enumerators familiar with the landscape were employed to establish rapport, facilitate easier entry, and persuade women to participate.

CONCLUSION

The determinants of accessibility included various characteristics, with age emerging as a significant factor even after adjusting for control variables. Older women aged above 29 were significantly more likely to have high accessibility compared to their younger counterparts.

Health facilities and social factors presented multifaceted challenges, including geographical barriers, transportation costs, and medication availability. Social factors, such as the influence of friends and family, age perceptions, and education-related choices, were found to impact accessibility. Notably, women whose spouses were involved in RH matters, those who believed in education as a determinant of RHS service seeking, and those who discussed RHS issues with their spouses demonstrated high accessibility.

Recommendations

Further, and given the observation that demographic characteristics, health facilities, and social factors are linked to the accessibility of RHS, the study recommends the ministry of health (national and county governments of Nairobi) implement tailored reproductive health education programs for Mathare slum residents to improve knowledge on RHS among women in the target population, build more RHS centers in the slum areas, and make RHS affordable to the slum dwellers.

ACKNOWLEDGEMENTS

The researchers are very grateful to the Mathare slum women who consented to participate in this study. The Principal investigator is also thankful to the health managers and county and sub-county administrations for allowing this study to be carried out in their respective areas.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Zhou Y, Wang T, Fu J, Chen M, Meng Y, Luo Y, et al. Access to reproductive health services among the female floating population of childbearing age: a cross-sectional study in Changsha, China. *BMC Health Services Res*. 2019;19(1):1-10.
2. Langer A, Meleis A, Knaul FM, Atun R, Aran M, Arreola-Ornelas H, et al. Women and health: the key for sustainable development. *The Lancet*. 2015;386(9999):1165-210.
3. Khayat S. Women's Reproductive Health Status in Urban Slums in Southeast Iran in 2017: A Cross-sectional Study. *J Midwifery Reproduct Heal*. 2020;8:2069-82.
4. Uddin AM, Haque MM, Arafat Y, Roy SK, Khan MZH, Islam K. Study on hygiene practice of the adult domestic household women worker in Urban Slum area of Dhaka City. *Chattagram Maa-O-Shishu Hospital Med College J*. 2015;14(1):52-4.
5. Khan KS, Wojdyla D, Say L, Gülmezoglu AM, Van Look PF. WHO analysis of causes of maternal death:

- a systematic review. *The Lancet*. 2006;367(9516):1066-74.
6. Ezech A, Oyebo O, Satterthwaite D, Chen YF, Ndugwa R, Sartori J, Mberu B, et al. The history, geography, and sociology of slums and the health problems of people who live in slums. *The Lancet*. 2017;389(10068):547-58.
7. Corburn J, Vlahov D, Mberu B, Riley L, Caiaffa WT, Rashid SF, et al. Slum health: arresting COVID-19 and improving well-being in urban informal settlements. *J Urban Heal*. 2020;97(3):348-57.
8. Kisiangani I, Elmi M, Bakibinga P, Mohamed SF, Kisia L, Kibe PM, et al. Persistent barriers to the use of maternal, newborn and child health services in Garissa sub-county, Kenya: a qualitative study. *BMC Pregn Childbirth*. 2020;20(1):1-12.
9. Angeles G, Ahsan KZ, Streatfield PK, El Arifeen S, Jamil K. Reducing inequity in urban health: have the intra-urban differentials in reproductive health service utilization and child nutritional outcome narrowed in Bangladesh? *J Urban Health*. 2019;96(2):193-207.
10. Beguy D, Ezech AC, Mberu BU, Emina JBO. Changes in use of family planning among the urban poor: evidence from Nairobi slums. *Population Development Rev*. 2017;43:216-34.
11. Ma X, Yang Y, Chow KM, Zang Y. Chinese adolescents' sexual and reproductive health education: A quasi-experimental study. *Public Health Nursing*. 2022;39(1):116-25.
12. Coll C, De VN, Ewerling F, Hellwig F, Barros AJD. Contraception in adolescence: the influence of parity and marital status on contraceptive use in 73 low-and middle-income countries. *Reproductive Health*. 2019;16(1):1-12.
13. Binu W, Marama T, Gerbaba M, Sinaga M. Sexual and reproductive health services utilization and associated factors among secondary school students in Nekemte town, Ethiopia. *Reproductive Health*. 2018;15(1):1-10.
14. Lindley KJ, Merz CNB, Davis MB, Madden T, Ki P, American College of Cardiology Cardiovascular Disease in Women Committee and the Cardio-Obstetrics Work Group. JACC Focus Seminar 5/5. *J Am College Cardiol*. 2021;77(14):1823-34.
15. Raghavan MI, Thomas KA, Fulambarker A, Zaricor J, Goodman LA, Bair-Merritt MH. Exploring the needs and lived experiences of racial and ethnic minority domestic violence survivors through community-based participatory research: A systematic review. *Trauma Violence Abuse* 2020;21(5):946-63.
16. Usonwu I, Ahmad R, Curtis-Tyler K. Parent-adolescent communication on adolescent sexual and reproductive health in sub-Saharan Africa: a qualitative review and thematic synthesis. *Reproductive Health*. 2021;18:1-15.

Cite this article as: Rotich JC, Osero JO, Gitonga E. Accessibility of reproductive health services among women living in the informal settlements of Mathare slums, Nairobi City County, Kenya. *Int J Community Med Public Health* 2024;11:2184-90.