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Effect of socioeconomic inequality in access to healthcare facilities in Kicukiro district-Rwanda

Daniel Mukunzi, Dr. Nasiru Sani, Jean Nepo Nsengiyumva

Author Details

Mr. Daniel Mukunzi is a public health candidate specialization of epidemiology and disease control at Mount Kenya University, Rwanda.

Email: mudany004@gmail.com,

Co-Author name Author Details (optional)

Dr. Nasiru Sani : Public Health, College of Basic Medical Sciences Federal, Ph +250788475231

E-mail: nasinusanimusa@gmail.com , University Dutse Jigawa State of Nigeria

Jean Nepo Nsengiyumva is an assistant lecturer at Rwanda Polytechnic, Ph *+250788783520*

E-mail: *jeannepo40@gmail.com* Rwanda University - IPRC Gishari

Key Words

Effect, socioeconomic status, Inequality, Accessibility, Healthcare Facilities, Population, Kicukiro district, Rwanda

ABSTRACT

Inequities in health constitute one of the main challenges for public health globally. In all countries people of lower socioeconomic status (SES), as measured by social determinants such as education, income or occupation, are in a worse state of health compared to those from higher SES across the entire range. Around 1.3 billion people around the world are unable to access affordable and effective healthcare. For households with access, approximately 170 million people have been forced to spend more than 40% of their household income on medical treatment, which forces them into financial catastrophe. Economic deficiency and access to

health care facilities are most development constraints in Africa. Even in Rwanda, income inequality has been implicated as a potential risk to population health due to lower provision of healthcare services in deeply unequal communities. The aim of this study was to assess the effect of socioeconomic inequality in access to healthcare facilities among people living at Kicukiro district and the specific objectives were covered to determine the factors associated with individual's Social Economic Status on demand for healthcare services, to establish the relationship between socioeconomic status and accessibility to healthcare facilities, and to describe the role of health insurances in resolution of healthcare disparity based to socioeconomic status. The study adopted a descriptive survey research design, targeting all people living at Kicukiro district and sectors falling in research were selected by simple random sampling technique by the use of random number table. Sample size of 384respondents was picked from selected sectors from 318,564 total targeted population**.** Validated questionnaire were used while collected data being analysed by use of quantitative techniques. Descriptive statistics were used for data analysis and presentation, whereas, inferential statistics were introduced to test the hypotheses based on specific objectives. Logistic regression model was used hypothesis derived from research questions one and two. Among 384 respondents 57.0% were males 35.4% aged between 41-50 years old followed by 32.3% aged between 31-4- years old, 34.1% attended primary school followed by 26.8 and 26.3% university and secondary respectively, 76.3% married, 72.9% with family size between 3 to 6 family members, 55.7% are self-employed, 74.0% with informal source of income, 76.8% from low middle income cat.[ubudehe), 66.7% subscribed for CHI. The research findings revealed that the factors associated with medical services demand: 54.4% of respondents use 30 min to 1 hour to reach HCFs, 63.0% use public transport vehicles to reach HCFs, the majority 96.1% enrolled for CHI, 85.2% are being charged copay, 54.2% wait 4-6 hour for medical service. Education (AOR=0.010; 95%CI [0.004-0.0240]) at p<0.001, (AOR=0.011; 95%CI [0.003-0.043]) at p<0.001 and (OAR= 0.085; 95%CI [0.041-0.178] at p<0.001, formal-salaried worker (OAR=17.341; 95%CI [9.509-31.641] at p<0.001, private transport use (AOR= 36.429; 95%CI [11.194-118.552] at p<0.001. regular renewal of health insurance (AOR=4.469; 95%CI [1.951-10.237] at p<0.001), The findings indicated that time waiting for medical service is remarkably high for the majority and again accessibility was accrued for some advantaged people due to health insurance scheme and family income. , it is recommended policymakers, practitioners develop and implement health action programs that focus on equity to reduce healthcare inequality through strategies and interventions focused on care pathways, intersectoral ad multidisciplinary that include all sectors of the health system

1.0 Introduction

Access to healthcare is a multi-dimensional concept that involves financial accessibility, availability, acceptability, and geographical accessibility(Paez et al., 2010). The utilization of health facilities comprises all straight visit with these facilities and is understood as the evidence that access has been reached (Paez et al., 2010). However related, the access to and the use of health facilities are not the same, as seen in much of the

literature. The SE characteristics can impact the patterns of use of health facilities. Inequities in health constitute one of the main challenges for public health globally. In all countries people of lower socioeconomic status (SES), as measured by social determinants such as education, income or occupation, are in a worse state of health compared to those from higher SES across the entire range (Paez et al., 2010). The cost of obtaining and accessing proper healthcare in developing countries is relatively higher when compared to richer and more developed countries due to the prevalence of fees or health service charges combined with the high transportation costs encountered by people who have to travel long distances for treatment; these may include both medical and non-medical expenditures. Inadequate accessibility to quality healthcare for poor households is considered an important issue for both low- and middle-income countries. These countries have acknowledged and highlighted the existing gap in accessibility and governments need to develop effective strategies to improve equity (Chopra, 2012). It has been estimated that 1.3 billion people around the world are unable to access affordable and effective healthcare. For households with access, approximately 170 million people have been forced to spend more than 40% of their household income on medical treatment, which forces them into financial catastrophe(Bodhisane, 2019).

According to the BVA Barometer carried out by DREES (the statistical directorate of the Ministry of social affairs) in 2017, 27% of French people believe that inequality in access to healthcare is the least acceptable inequality, ahead of housing and income inequalities(Mignon & Jusot, 2020). Study conducted by Health Barometer, estimated the proportion of those aged 15-30 who refuse healthcare for financial reasons to be 8.7% (with the unemployed being over-represented), with a proportion of 10.5% for those aged 31-75. This social inequality in the access health care service tends to be greater in countries with a private health system, whereby people have to pay for health care and insurance plans or out-of-pocket, than in countries with universal system. Economic deficiency and access to health care facilities are most development constraints in Africa. In Rwanda, more precisely in Western province, the study conducted by Munoz and Källestål confirmed that access to health care facilities is multidimensionality in which 4 dimensions have been described and those are: Geographical accessibility; Availability; Financial accessibility; Acceptability (Huerta Munoz & Källestål, 2012).

2.0 Materials & Methods

The study has adopted a descriptive survey research design to examine the effect of socioeconomic inequality in access to healthcare facilities in Kicukiro district-Rwanda by use of quantitative research design method approach.

Quantitative method was introduced to collect all related information by us of self-administered questionnaire with closed ended questions. Whereas 384 respondents were selected from five different sectors through systematic household sampling. The study had targeted population consist of all men, women and youth aged from 20 years and above from state study area. Raw data were sorted, coded and entered into SPSS 21.0. Quantitative data were analysed by use of quantitative techniques and descriptive statistics presented in frequency tables, and measures of central tendency. Descriptive statistics such as frequency distribution, tables, percentages, graphs were used for data analysis and presentation, whereas, inferential statistics were employed to test the hypotheses based on specific objectives. Specifically, Logistic Regression Analysis, or Multivariate Analysis were employed to test the hypotheses. All analyses was implemented using SPSS Version 21.0 computer packages. All filled questionnaires were checked for completeness and then entered in IBM SPSS statistical software version 21.0. In this study Chi-square test was used to determine the association between independent and dependent variables. By there, association was considered to be statistically significant if they achieve a $p< 0.05$. Odd ratio with corresponding 95%CI was calculated to find the strength of association, obtained from binary logistic regression.

3.0 Results

3.1 Relationship between SES and Access to healthcare Services in Kicukiro Districk

The researcher engaged in the process viewing if sociodemographic features and socioeconomic factors are associated with inequality in access to healthcare facilities in in the studied area.

Table 3.1: Socio demographic and socioeconomic features and healthcare facilities flexibility in access to healthcare services.

Variables	Items	Flexibility of Healthcare facilities in access to health services		Pearson Chi-Square (X2)	P-value
		Yes	No		
Gender	Female	78(47.3)	87(52.7)	8.193	**0.004**
	Male	72(32.3)	147(67.2)		
Age Category	20-30 Years	20(36.3)	35(63.7)	1.658	0.798
	31-40 Years	52(41.9)	72(58.1)		
	41-50 Years	55(40.4)	81(59.6)		
	51-60 Years	19(33.3)	38(66.7)		
	61 and Above	4(33.3)	8(66.7)		
Education Level	No formal education	3(21.4)	11(78.6)	179.425	**<0.001**
	Primary level	10(7.6)	121(92.4)		
	Vocational school (1-2 years)	3(8.6)	32(91.4)		
	Secondary level	42(41.6)	59(58.4)		
	University/College	92(89.3)	11(10.7)		
Marital Status	Single	3(11.5)	43(88.5)	55.066	**<0.001**
	Married	111(37.8)	182(62.2)		
	Divorced	7(100)	0(0.0)		
	Separated	5(100)	0(0.0)		
	Widower	24(72.7)	9(27.3)		
Household Member/Family size	Between 1-3 members	15(24.6)	46(75.4)	12.415	**0.006**
	Between 3-6 members	124(44.3)	156(55.7)		
	Between 6-9 members	9(29.0)	22(71.0)		
	Above 10 members	2(16.7)	10(83.3)		
Settlement status	Urban	145(39.7)	220(60.3)	1.365	0.243
	Rural	5(26.3)	14(73.7)		
Main Occupation	Formal-salaried worker	84(83.2)	17(16.8)	114.706	**<0.001**
	Informal source of Income	66(23.3)	217(76.7)		
Main Source of Income	Salaried worker	84(83.2)	17(16.8)	119.483	**<0.001**
	Farming activities	0(0.0)	10(100.0)		
	Local craft making	0(0.0)	5(100.0)		
	Self employed	59(27.6)	155(72.4)		
	Unemployed	7(13.0)	47(87.0)		
Wealth Index[Ubudehe]	Low Income(E&D)	1(2.9)	34(97.1)	74.285	**<0.001**
	Low Middle Income (C)	102(34.6)	193(65.4)		
	High Middle Income (B)	43(86.0)	7(14.0)		
	High Income (A)	4(100.0)	0(0.0)		
Family income [RWF]/month	<100,000Rwf	4(9.8)	37(90.2)	80.073	**<0.001**
	Between 100,000-250,000Rwf	54(26.5)	150(73.5)		

	Between 250,000-400,000Rwf	60(58.8)	42(41.2)		
	> 400,000Rwf	32(86.5)	5(13.5)		
Health Insurance	Community Health Insurance (CHI)	60(23.4)	196(76.6)	110.468	**<0.001**
	RSSB	46(80.7)	11(19.3)		
	MMI	3(100)	0(0.0)		
	UAP/ Old mutual	13(81.3)	3(18.7)		
	Sanlam	11(64.7)	6(35.3)		
	Radiant	6(75.0)	2(25.0)		
	Britam	6(75.0)	2(25.0)		
	Prime	1(100.0)	0(0.0)		
	In house insurance	3(100.0)	0(0.0)		
	Non - insured	1(6.7)	14(93.3)		

Source: Primary data (2022)

According to the research findings from bivariate analysis as presented in the table 3.1, found that all features studies were strongly significant associated with inequality in access to healthcare facilities, whereas age category, education level, marital status, settlement status, occupation, source of income, wealth index (Ubudehe), monthly family income and insurance in use (P<0.001) and household/ family size (P=0.006) and gender (P=0.004).

Table 3.2: Factors influencing access to healthcare facilities and healthcare facilities flexibility in access to healthcare services.

Variable	Item	Flexibility of Healthcare facilities in access to health services		Pearson Chi-square (X2)	P-value
		Yes	No		
How long time does it take from home to health care facility?	< 30 min	48(80.0)	12(20.0)	68.137	**<0.001**
	Between 30 min to 1 hour	83(39.7)	126(60.3)		
	Between 1 hour to 1 hour and a half	12(13.6)	76(86.4)		
	>1 hour and a half	7(25.9)	20(74.1)		
What is the mode of transport do you use when visiting health care facility (transport)?	Private Transport	51(87.9)	7(12.1)	79.503	**<0.001**
	Public transport vehicle	69(28.5)	173(71.5)		
	Motorbike	24(50.0)	24(50.0)		
	Walk/Feet	6(16.7)	30(83.3)		
Have you enrolled for health insurance?	Yes	148(40.1)	221(59.9)	4.341	**0.037**
	No	2(13.3)	13(86.7)		
Insurance name	Community Health Insurance (CHI)	60(23.4)	196(76.6)	110.648	**<0.001**
	RSSB	46(80.7)	11(19.3)		
	MMI	3(100)	0(0.0)		

	UAP/ Old mutual	13(81.3)	3(18.7)		
	Sanlam	11(64.7)	6(35.3)		
	Radiant	6(75.0)	2(25.0)		
	Britam	6(75.0)	2(25.0)		
	Prime	1(100.0)	0(0.0)		
	In house insurance	3(100.0)	0(0.0)		
	Non - insured	1(6.7)	14(93.3)		
Are you being charged copayment when visiting the healthcare facilities?	Yes	131(39.7)	199(60.3)	0.397	0.529
	No	19(35.2)	35(64.8)		
	Less than 1 hour	2(100.0)	0(0.0)	47.862	**<0.001**
	Between 1 hour to 2 hours	14(70.0)	6(30.0)		
	Between 2 hours to 4 hours	79(55.2)	64(44.8)		
How long time does it take for service at healthcare facility?	Between 4 hours to 6 hours	55(26.4)	153(73.6)		
	Above 6 hours	0(0.0)	11(100.0)		
Are you being charged 100% for all healthcare services rendered by all healthcare facilities?	Yes	1(6.7)	14(93.3)	6.882	**0.009**
	No	149(40.4)	220(59.6)		

Source: Primary data (2022)

From bivariate analysis, findings showed as presented in the table 3.2, that all studies factors influencing accessibility of healthcare facilities were strongly significant associated with inequality in access to healthcare facilities except one of being charged co-payment.

Table 3.3: Healthcare facilities Use Satisfaction and Flexibility of healthcare facilities in access to healthcare services.

Variable	Item	Flexibility of Healthcare facilities in access to health services		Pearson Chi-square (X2)	P-value
		Yes	No		
Rating the effectiveness of HCF in treating, curing and or preventing diseases	Poor	12(26.1%)	34(73.9%)	26.329	**<0.001**
	Satisfactory	32(27.1%)	86(72.9%)		
	Good	61(41.5%)	86(58.5%)		
	Very Good	45(61.6%)	28(38.4%)		
Time Visiting to healthcare facility in a year	At least once a year	9(16.7)	45(83.3)	63.309	**<0.001**
	2 to 4 times a year	40(24.0)	127(76.0)		
	More than 4 times a year	101(62.0)	62(38.0)		
Most Health Service attended	General Practitioner (GP)	39(23.1)	130(76.9)	34.648	**<0.001**
	Paramedical Services	10(45.5)	12(54.5)		
	Gyneco-Ops Services	21(48.8)	22(51.2)		
	Pediatric Services	65(56.0)	51(44.0)		
	Other Specialized Services	15(44.1)	19(55.9)		
Rating efficacy/efficiency of	Poor	32(40.5)	47(59.5)	4.850	0.183
	Satisfactory	60(37.7)	99(62.3)		

healthcare facilities in respondent's locality	Good	30(33.0)	61(67.0)		
	Very good	28(50.9)	27(49.1)		
	Poor	31(41.3)	44(58.7)	7.689	0.053
Rating the safety of use of healthcare facilities	Satisfactory	54(36.5)	94(63.5)		
	Good	32(32.3)	67(67.7)		
	Very good	33(53.2)	29(46.8)		
Rating the flexibility of use of healthcare facilities	Poor	26(39.4)	40(60.6)	4.249	0.236
	Satisfactory	49(33.1)	99(66.9)		
	Good	40(42.6)	54(57.4)		
	Very good	35(46.1)	41(53.9)		
	Poor	26(37.1.9)	44(62.9)	1.900	0.593
Rating the attitude behavior of healthcare facilities towards their clients	Satisfactory	57(38.8)	90(61.2)		
	Good	32(35.6)	58(64.4)		
	Very good	35(45.5)	42(54.5)		
Rating level of comfort when accessing healthcare facilities (during the use of Insurance)?	Poor	14(22.2)	49(77.8)	38.239	**<0.001**
	Satisfactory	35(25.7)	101(74.3)		
	Good	72(51.8)	67(48.2)		
	Very good	29(63.0)	17(37.0)		

Source: Primary data (2022)

In the bivariate analysis as state from the table 3.3, rating the effectiveness of HCF in treating, curing and or preventing diseases, time visiting to healthcare facility in a year, most health Service attended, rating level of comfort when accessing healthcare facilities (during the use of Insurance) relating to flexibility of HFC in access to Health service (p=<0.001) have been found to be statistically significant associated with inaccessibility to healthcare facility.

Table 3.4: Health-related data and Health Insurance Role and Flexibility of healthcare facilities in access to healthcare services.

Variable	Item	Flexibility of Healthcare facilities in access to health services		Pearson Chi-square (X2)	P-value
		Yes	No		
Rating of current state of health	Bad	9(18.4)	40(81.6)	38.117	**<0.001**
	Fair	16(19.8)	65(80.2)		
	Good	45(40.9)	65(59.1)		
	Excellent	80(55.6)	64(44.4)		
History of chronic/Non-communicable diseases	Yes	2(50.0)	2(50.0)	10.847	**0.04**
	No	148(40.7)	216(59.3)		
	Don't know	0(0.0)	16(100.0)		
Capability in renewing health insurance cover on regular basis	Yes	143(42.7)	192(57.3)	14.485	**<0.001**
	No	7(14.3)	42(85.7)		

Rating of current health insurance	Poor	16(25.0)	48(75.0)	36.944	**<0.001**
	Satisfactory	40(29.0)	98(71.0)		
	Good	67(53.2)	59(46.8)		
	Very Good	26(61.9)	16(38.1)		
	Not concerned	1(7.1)	13(92.9)		
Influence of health insurance cover to use healthcare facility	Yes	90(70.9)	37(29.1)	80.633	**<0.001**
	No	60(23.3)	197(76.7)		
Perception of health insurance cover as a way to reduce inequality in access to healthcare service in respondent locality	Yes	76(71.7)	30(28.3)	72.889	**<0.001**
	No	57(23.6)	185(76.4)		
	Sometime	17(47.2)	19(52.8)		
Authorization of Insurance cover to use private healthcare facilities	Yes	89(78.8)	24(21.2)	106.010	**<0.001**
	No	61(22.5)	210(77.5)		
Authorization of Insurance cover to be served all types of medicines as prescribed	Yes	86(79.6)	22(20.4)	104.078	**<0.001**
	No	54(76.2)	173(76.2)		
	Sometime	10(20.4)	39(79.6)		
Experience in mistreatment when using insurance while accessing healthcare services	Yes	62(27.9)	160(72.1)	43.459	**<0.001**
	No	77(63.1)	45(36.9)		
	Sometime	11(27.5)	29(72.5)		

Source: Primary data (2022)

Relating to the findings from the above table 3.4, all variables have been analysed and found statistically significant associated with inaccessibility to healthcare facilities (p=0.004) and (p<0.001).

Table 3.5: Predictors of Flexibility of healthcare facilities in access to healthcare services

Variables	Items	Crude OR (95%CI)	P-value	Adjusted OR (95%CI)	P-value
Gender	Female	1.101(0.573-2.116)	0.772	1.830(1.208-2.774)	0.004
	Male	Ref.			
Education Level	No formal education	0.222(0.020-2.419)	0.217	0.033(0.008-0.135)	<0.001
	Primary level	0.013(0.003-0.052)	**<0.001**	0.010(0.004-0.024)	**<0.001**
	Vocational school (1-2 years)	0.018(0.003-0.102)	**<0.001**	0.011(0.003-0.043)	**<0.001**
	Secondary level	0.071(0.021-0.240)	**<0.001**	0.085(0.041-0.178)	**<0.001**
	University/College	Ref.			
Marital Status	Single	0.147(0.015-1.498)	0.106	0.026(0.006-0.106)	<0.001
	Married	1.197(0.328-4.371)	0.785	0.229(0.103-0.510)	<0.001
	Divorced	_	0.994	_	0.998

	Separated	_	0.995	_	_
	Widower	Ref.			
Household Member/Family size	Between 1-3 members	6.471(0.342-1222.273)	0.213	1.630(0.321-8.290)	0.556
	Between 3-6 members	3.740(0.260-53.732)	0.332	3.974(0.855-18.472)	0.078
	Between 6-9 members	2.897(0.168-49.930)	0.464	2.045(.372-11.250)	0.411
	Above 10 members	Ref.			
Main Occupation	Formal-salaried worker	_	<0.001	17.341(9.509-31.641)	**<0.001**
	Informal source of Income	Ref.			
Main Source of Income	Salaried worker	_	_	33.176(12.833-85.772)	<0.001
	Farming activities	_	0.991	_	0.998
	Local craft making	_	0.995	_	_
	Self employed	1.904(0.466-7.779)	0.370	2.556(1.094-5.972)	0.030
	Unemployed	Ref.			
Wealth Index[Ubudehe]	Low Income(E&D)	_	0.995	_	<0.001
	Low Middle Income (C)	_	0.996	_	<0.001
	High Middle Income (B)	_	0.996	_	_
	High Income (A)	Ref.			
Family income [RWF]/month	<100,000Rwf	1.272(0.042-38.537)	0.890	0.017(0.004-0.068)	<0.001
	Between 100,000-250,000Rwf	0.489(0.029-8.320)	0.621	0.056(0.021-0.152)	<0.001
	Between 250,000-400,000Rwf	0.642(0.041-10.156)	0.753	0.223(0.080-0.620)	0.004
	> 400,000Rwf	Ref.			
Type of Health Insurance	Community Health Insurance (CHI)	0.881(0.091-8.528)	0.913	4.286(0.552-33.266)	0.164
	RSSB	0.575(0.022-14.774)	0.738	58.545(6.938-494.004)	<0.001
	MMI	_	0.996	_	0.998
	UAP/ Old mutual	0.244(0.010-6.122)	0.391	60.667(5.583-659.281)	0.001
	Sanlam	0.0292(0.012-7.198)	0.451	25.667(2.680-245.842)	0.005
	Radiant	0.405(0.009-19.238)	0.646	42.000(3.170-556.476)	0.005
	Britam	0.410(0.005-34.521)	0.694	42.000(3.170-556.476)	0.005
	Prime	_	0.998	_	_
	In house insurance	_	0.996	_	0.998
	Non - insured	Ref.			
How long time does it take from home to health care facility?	< 30 min	1.566(0.423-5.799)	0.502	11.429(3.927-33.258)	<0.001
	Between 30 min to 1 hour	0.946(.357-2.507)	0.910	1.882(0.762-4.649)	0.170
	Between 1 hour to 1 hour and a half	0.327(0.109-0.983)	0.046	0.451(0.157-1.295)	0.139

	>1 hour and a half	Ref.			
What is the mode of transport do you use when visiting health care facility (transport)?	Private Transport	9.816(2.437-39.541)	**0.001**	36.429(11.194-118.552)	**<0.001**
	Public transport vehicle	1.349(0.489-3.724)	0.563	1.994(0.795-5.003)	0.141
	Motorbike	1.516(0.458-5.021)	0.496	5.000(1.762-14.192)	0.002
	Walk/Feet	Ref.			
Have you enrolled for health insurance?	Yes	_	0.997	4.353(0.968-19.571)	0.550
	No	Ref.			
Are you being charged copayment when visiting the healthcare facilities?	Yes	2.501(1.060-5.902)	0.036	1.213(0.665-2.211)	0.529
	No	Ref.			
How long time does it take for service at healthcare facility?	Less than 1 hour	_	0.993		0.993
	Between 1 hour to 2 hours	_	**<0.001**	_	<0.001
	Between 2 hours to 4 hours	_	**<0.001**	_	<0.001
	Between 4 hours to 6 hours	_	_	_	_
	Above 6 hours	Ref.			
Are you being charged 100% for all healthcare services rendered by all healthcare facilities?	Yes	_	0.996	0.105(0.014-0.811)	0.031
	No	Ref.			
Rating the effectiveness of HCF in treating, curing and or preventing diseases	Poor	0.602(0.149-2.426)	0.476	4.554(2.026-10.233)	<0.001
	Satisfactory	0.345(0.127-0.943)	**0.038**	4.319(2.318-8048)	**<0.001**
	Good	0.307(0.111-0.850)	**0.023**	2.266(1.275-4.025)	**0.005**
	Very Good	Ref.			
Time Visiting to healthcare facility in a year	At least once a year	0.161(0.065-0.398)	**<0.001**	8.145(3.725-17.812)	**<0.001**
	2 to 4 times a year	0.282(0.152-0.522)	**<0.001**	5.172(3.214-8.323)	**<0.001**
	More than 4 times a year	Ref.			
Most Health Service attended	General Practitioner (GP)	0.346(0.128-0.939)	0.037	2.632(1.224-5.659)	0.013
	Paramedical Services	1.014(0.258-3.989)	0.984	0.947(0.322-2.785)	0.922
	Gyneco-Ops Services	1.420(0.446-4.516)	0.553	0.827(0.335-2.041)	0.680
	Pediatric Services	1.931(0.682-5.468)	0.215	0.619(0.287-1.338)	0.223
	Other Specialized Services	Ref.			

Rating efficacy/efficiency of healthcare facilities in respondent's locality	Poor	1.029(0.122-8.690)	0.979	1.532(0.761-3.048)	0.235
	Satisfactory	0.951(0.151-5.989)	0.957	1.711(0.922-3.175)	0.890
	Good	1.203(0.236-6.130)	0.824	2.109(1.062-4.178)	0.033
	Very good	Ref.			
Rating the safety of use of healthcare facilities	Poor	1.981(0.205-19.162)	0.555	1.615(0.820-3.183)	0.166
	Satisfactory	1.298(0.165-10.200)	0.804	1.981(1.086-3.612)	0.026
	Good	0.049(0.007-0.332)	**0.002**	2.383(1.240-4.577)	**0.009**
	Very good	Ref.			
Rating the flexibility of use of healthcare facilities	Poor	0.371(0.078-1.773)	0.214	1.313(0.673-2.563)	0.424
	Satisfactory	0.414(0.102-1.679)	0.217	1.725(0.979-3.038)	0.059
	Good	9.855(2.250-43.173)	0.002	1.152(0.627-2.118)	0.648
	Very good	Ref.			
Rating the attitude behavior of healthcare facilities towards their clients	Poor	1.492(0.253-8.803)	0.659	1.410(0.729-2.730)	0.308
	Satisfactory	2.089(0.608-7.176)	0.242	1.316(0.753-2.299)	0.335
	Good	2.486(0.606-10.204)	0.206	1.510(0.810-2.815)	0.191
	Very good	Ref.			
Rating level of comfort when accessing healthcare facilities (during the use of Insurance)?	Poor	0.328(0.108-0.997)	**0.049**	5.971(2.569-13.876)	**<0.001**
	Satisfactory	0.483(0.196-1.193)	0.115	4.923(2.417-10.028)	<0.001
	Good	1.310(0.546-3.143)	0.546	1.587(0.800-3.149)	0.186
	Very good	Ref.			
History of chronic/Non-communicable diseases	Yes	_	**0.998**	_	<0.001
	No	_	<0.001	_	_
	Don't know	Ref.			
Capability in renewing health insurance cover on regular basis	Yes	2.931(1.058-8.122)	**0.039**	4.469(1.951-10.237)	**<0.001**
	No	Ref.			
Rating of current health insurance	Poor	2.248(0.220-22.960)	0.494	4.333(0.525-35.785)	0.173
	Satisfactory	2.172(0.225-20.984)	0.503	5.305(0.672-41.921)	0.114
	Good	2.304(0.223-23.759)	0.483	14.763(1.874-116.272)	0.011
	Very Good	1.301(0.111-15.248)	0.834	21.125(2.518-177.259)	0.005
	Not concerned	Ref.			
Influence of health insurance cover to use healthcare facility	Yes	0.276(0.031-2.430)	0.246	7.986(4.944-12.902)	<0.001

	No	Ref.			
Perception of health insurance cover as a way to reduce inequality in access to healthcare service in respondent locality	Yes	0.336(0.061-1.861)	0.212	2.831(1.299-6.170)	0.009
	No	0.539(0.192-1.515)	0.241	0.344(0.168-0.706)	0.004
	Sometime	Ref.			
Authorization of Insurance cover to use private healthcare facilities	Yes	47.254(1.861-1199.856)	**0.019**	12.766(7.489-21.763)	**<0.001**
	No	Ref.			
Authorization of Insurance cover to be served all types of medicines as prescribed	Yes	4.420(0.564-34.644)	0.157	15.245(6.596-35.237)	<0.001
	No	1.937(0.750-5.001)	0.172	1.217(0.570-2.600)	0.612
	Sometime	Ref.			
Experience in mistreatment when using insurance while accessing healthcare services	Yes	3.168(1.106-9.075)	0.032	1.022(0.481-2.170)	0.956
	No	2.022(0.563-7.261)	0.281	4.511(2.057-9.895)	<0.001
	Sometime	Ref.			

Source: Primary data (2022)

Referring to the figure 4.8 portrays that, all variables found statistically significant trough bivariate analysis were transferred to multivariate logistic analysis to find out to which extent variables are associated jointly. Based to the results from table 4.8, the researcher had concluded that respondents with education level of primary, Vocational school (1-2 years) and secondary were less likely (AOR=0.010; 95%CI [0.004-0.0240]) at p<0.001, (AOR=0.011; 95%CI [0.003-0.043]) at p<0.001 and (OAR= 0.085; 95%CI [0.041-0.178] at p<0.001 to access healthcare facilities than those with university attainment. And the accessibility to healthcare facilities increases more you increase level of education as revealed by variation odds of the usage. The odds of accessing healthcare facilities were 17.341 times (OAR=17.341; 95%CI [9.509-31.641] at p<0.001 from the respondent with formal-salaried worker than those with informal source of income.

In crude analysis, the findings show that visiting healthcare facilities using private transport was found as a significant predictor of healthcare facilities flexibility in access to healthcare services (COR=9.816; 95%CI [2.437-

39.541] at p<0.001, the statistical significant remained even after adjusting for potential confounders (AOR= 36.429; 95%CI [11.194-118.552] at p<0.001

Compared to those with incapability in renewing health insurance cover on regular basis in access to healthcare service, respondents who renew their health insurance cover on regular basis, the crude analysis (COR=2.931; 95%CI [1.058-8.122] at p=0.039) in adjusted analysis (AOR=4.469; 95%CI [1.951-10.237] at p<0.001), the odds of respondents who are authorized by insurance cover to use private healthcare facilities have been accessing healthcare services 12.766 times (AOR= 12.766; 95%CI [7.489-21.763] at p<0.001 than those who are not allowed to use private healthcare facilities.

From crude analysis, the findings showed that Wealth Index [Ubudehe], Family income (Rwf)/month, Insurance type in use were not found to be predictors of inequality in access to healthcare facilities but were found statistically significant associated in adjusted analysis.

4.0 Discussion

This study documented effect of socioeconomic inequality in access to healthcare facilities in Kicukiro District targeting 384 respondents from five sectors selected randomly to provide participants. All questionnaires for 384 respondents were accurately filled up and captured for analysis. More than half of respondents 219(57%) were males, this is indicated that more respondents were heads of the families and increases the chance of getting accurate family information relating to health. And again, the most respondents 124(32.3%) are from age group 41-50 years and 136(35.4%) age group 31-40 years, this is a good indicator that great number of our respondents are coming from population structure where many people are head of families and filled characteristics. The level of education from studied respondents found to be high with 34.1% for respondents of primary level, 26.8% for university and 26.1% for secondary level. Education believed to be the source of knowledge and skills that a person needs in order to better life and high education attainment can be motivating factor to access to healthcare services. Research findings from this study, revealed that respondents with education level of primary, Vocational school (1-2 years) and secondary were less likely (AOR=0.010; 95%CI [0.004-0.0240]) at p<0.001, (AOR=0.011; 95%CI [0.003-0.043]) at p<0.001 and (OAR= 0.085; 95%CI [0.041-0.178] at p<0.001 to access healthcare facilities than those with university attainment. And the accessibility to

healthcare facilities increases more you increase level of education as revealed by variation odds of the usage. Our results regarding relationship between education attainment and accessibility to healthcare services were consistent with other studies that examined the relationship with between education attainment and healthcare utilization and Self-Care Behavior by Individuals with Diabetes. Individuals with high educational attainment were more likely to have had an ophthalmologic examination, were more likely to report having a specialist or other paramedical professional than those with high educational attainment.(Alguwaihes & Shah, 2009). General the respondents' marital were highly reported of being married with 76.3% married couples and we noticed 72.9% of family size with 3 to 6 members in a family, this implies that people from urban settlement understand and comply with family plan and requested by government of Rwanda. As the study was conducted in Kicukiro district and as it one of Kigali city district, our respondents were more allocated in urban settlement of 95.1% this is seen as good social determinant of health, as this has been proved that the place of residence are all closely linked to people's access to, experiences of, and benefits from healthcare(Andersen et al., 2002). Concerning occupation 74% live with informal source of income while only 26% of respondent are formal-salaried workers. Research finding from occupation status of respondents has been proved statistically significant either from crude or adjusted analysis whereby for respondents with formal-Salaried workers the odds were 17.341 times (AOR=17.341 95%CI [9.509-31.641]) at $p<0.001$ to access easily healthcare facility than those with informal source of income. The results from this study has been consistent with others studies revealed that most of the informal workers suffer from certain challenges (such as unaffordable out-of-pocket payments, time spent traveling to the health facility and long waiting time before they are attended to by health service providers) in using the needed health services(Akazili et al., 2018). 76.8% of our respondents were categorized in Low middle income (C) of Wealth index [Ubudehe] even those this type of indicator of life was not prove significant associated with inequality in healthcare facilities accessibility from crude analysis but was proven strongly significant associated from adjusted analysis whereby the odds of accessing healthcare services increased by wealth indexing scale. And this implied that healthcare can be accrued from people high income than those from low income. Study on inequality in access to healthcare proved that several population groups have significant difficulties in accessing healthcare. The lowest income quintiles are among the most disadvantaged groups in terms of effective access to healthcare(Akazili et al.,

2018). The study had found that 53.1% of monthly family income ranged between 100,000 to 250,000Rwf followed by 26.6% ranged between 250,000 to 450,000Rwf. Even if our research findings, in crude analysis, did not find family income as predictor on healthcare facility inaccessibility but was found significantly associated from adjusted study analysis. This tells that, as per odds from adjusted analysis, more the family earn more it's easily access healthcare facilities. Meaning for services not covered by insurance policy are being paid under out pocket money. This evidence was observed similar as a qualitative study in São Paulo, Brazil proved that there is strong proof linking social inequality in terms of income, and ethnicity to health inequalities(Bloom & Mahal, 1997). A key Health objective of insurance policy is to achieve adequate access to healthcare by all people on the basis of need even from the start of our study we believed this to be predictor of resolution of healthcare facilities inequality but still in our research findings we observed different as the respondents who are using almost private insurances are those from formal-salaried workers and found more advantaged in access to healthcare facilities than those using Community health insurance(CHI). This was quite similar with study result conducted from underdeveloped in Chine, where healthcare utilization and cost were varying significantly by different insurance schemes(Xian et al., 2019).

5.0 Conclusion

This cross-sectional study was aimed to evaluate the effect of socioeconomic inequality in access to healthcare facilities in Kicukiro district. Even though Rwanda has made exceptional progress to improve equal access to medical service to the majority of people include vulnerable ones, the existence significant healthcare service use inequality at sub-national level exists still. The findings from this study indicated that time waiting for medical service is remarkably high for the majority and again accessibility was accrued for some advantaged people due to health insurance scheme and family income. The rate of healthcare facilities time visit a year decreases due to socioeconomically characteristic for each individual.

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