



Patterns and Correlates of Health Services Utilization in a Rural Setting: Findings from a Community-Based Study in Coastal Kenya

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Abstract

BACKGROUND

Healthcare utilization plays a pivotal role in enhancing healthcare outcomes in the community. However, there is limited evidence on healthcare utilization in Kenya, especially in resource-scarce communities. This study aimed to determine patterns and correlates of health services utilization in the rural settings of the Kenya coast.

METHODOLOGY

This was a cross-sectional study. The study was carried out in the Bomani community in Coastal Kenya using questionnaires to collect socio-demographic data, history of illness in the previous month, and healthcare utilization patterns from various household members. Descriptive statistics were conducted along with Inferential statistics involving Principal Component Analysis (PCA) and multilevel mixed effects logistic regression to understand the correlates of healthcare utilization. The study involved 1240 participants from 264 households. The prevalence of reported illness, factors associated with illness reporting, and patterns of healthcare utilization were assessed and reported.

RESULTS

Slightly above half (53%) of the participants were women. Significantly increased odds of reporting ill health were observed among individuals identifying as Protestant (AOR 6.2, 95%CI: 1.21-31.75, $p=0.03$), Muslim (AOR 7.02, 95%CI: 1.03-47.9, $p=0.05$), and other faiths (AOR 9.12, 95%CI: 1.55-53.67, $p=0.01$), poor health (AOR 3.52, 95%CI: 1.7-7.28, $p<0.001$), along with those who did not utilize preventive and/or promotive services (AOR 3.52, 95%CI: 0.07-0.11, $p<0.001$). Prevalence of healthcare utilization was 88.9%.

CONCLUSION

Factors such as religious affiliation, self-reported health, education level, and preventive service utilization were associated with illness reporting. These findings have implications for targeted interventions and resource allocation to improve healthcare access and outcomes in resource-scarce settings.

Keywords: Healthcare Utilization, Rural, Prevalence, Determinants, Healthcare Services

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Introduction

Healthcare service utilization is the use of health services to treat and cure existing health

problems, prevent and promote health, and obtain information regarding one's health status and prognosis(1). Global, regional, and local



perspectives on utilization patterns for healthcare services may vary (2). In the United States, an estimated three out of every ten uninsured individuals had to forego medical care entirely due to financial constraints (3). Conversely, the increased use of telemedicine consultations in Sweden has been associated with advanced age, high levels of literacy, and high income (4), while in Germany, subjective health needs, underlying chronic health conditions, and low socioeconomic status are associated with greater utilization of healthcare services (5). A study in Indonesia found that occupational status, education level, and access to a health facility influenced the utilization of maternal healthcare services (6). Recently, COVID-19 has negatively impacted the utilization of healthcare services in many regions of the world (7). Fear of infection, movement restrictions, and the shift in attention to the COVID-19 pandemic disrupted routine access to healthcare in low- and middle-income countries (7).

In sub-Saharan Africa (SSA), access to healthcare facilities, level of education, urban residence, and socioeconomic status are strongly associated with the use of healthcare services (8–11). Recent research (10) indicates that women of reproductive age in SSA have an overall healthcare utilization rate of 42.56 per cent. Cost and accessibility (distance) of healthcare services are significant determinants of healthcare service utilization in Kenya (12). In addition, education level, socioeconomic status, gender, and level of knowledge impact the utilization of healthcare services in Kenya (13,14).

It is known that the nature of healthcare service utilization varies at the individual, family, and community levels (2). Numerous factors, including knowledge level, education level, and socioeconomic status, can impact healthcare service utilization (8–10,13,14). At the household level, the relationship to the household head, (15) access to a healthy diet, and income level for health insurance coverage (2) have been

identified as key determinants of healthcare service utilization. Other factors that may impact the utilization of healthcare services at the community level include distance, (12) access to a health facility, (6) urban residences (9) and attitudes of healthcare providers (16).

Despite the global and regional research that has been reported on the patterns of healthcare utilization, there remains a paucity of research on the prevalence of healthcare utilization in rural Kenya. Therefore, we aimed to characterize reported illness in a rural community in the coastal region of Kenya as well as evaluate their patterns and determinants of healthcare services utilization.

Methodology

Study design, area, and population

This was a quantitative community-based cross-sectional study. The research was conducted in the Bomani community within Kilifi County one of Kenya's poorest counties with about 70% of the inhabitants of Kilifi living below the poverty line (17). There are approximately 1100 households in the community consisting of Christians, Muslims, and traditionalists in the community. The respondents were the household heads who provided information on other household members. In case the household head was unable to participate or was absent, the next elder person (primary caregiver at the time of data collection) was interviewed.

Sample size and sampling method

The current study used the cluster-sampling method to recruit participants. First, the community was divided into seven administrative villages. According to a study conducted in a comparable setting, the prevalence of ill episodes in the preceding month was 19% (15). Initially, using 95% confidence limits and 5% precision, a sample size of 237 households was estimated to adequately characterize illness episodes and healthcare utilization in this community. Due to the small sampling frame of 1100 households, it

was assumed the population was homogeneous. We, therefore, assumed a design effect of 1. To account for nonresponse, the sample size was increased by 10%. Thus, a total sample size of 264 households was adopted. Starting at the centre of each village (as directed by the respective community health promoter) we selected 38 households from six villages (Bodoi, Marereni, Kireme, Palepale, and Chidongo) and 36 households from the relatively smaller Bomani Center.

Data collection procedure

Data was collected between 29th July and 4th August 2022, using an interviewer-administered structured questionnaire. Initially, the data enumerators obtained informed consent from the household's head or the senior resident. The household head or senior most resident acted as the principal respondent, meaning that he/she would give the relevant information on him/herself and other household members. Information collected included socio-demographic factors, each household member's illness history in the previous month, whether healthcare was sought for the complaint, whether healthcare recommendations were followed if care was sought, reasons for not seeking care, and reasons for noncompliance.

Data management and analysis

All data were entered and validated in an Excel spreadsheet by trained data entry clerks. The data were then exported to the statistical software Stata Version 15 (18) for analysis. Categorical variables were reported as counts with their respective percentages. We compared the demographic characteristics of those who reported illness during the previous month to those who did not then we used principal component analysis (PCA) to create two categories of household socioeconomic status (SES) based on the reported ownership of 15 items and properties. To identify independent factors associated with illness reporting, a

multilevel mixed-effects logistic regression model was used, considering any household heterogeneity. Different bivariable regression models were performed for each independent variable. In the multivariable model, variables with a p-value of 0.25 were retained from the bivariable models. The prevalence of healthcare utilization was reported as a percentage with a 95% confidence interval. We computed and expressed as percentages the absolute frequencies of the reasons for non-utilization of healthcare and non-compliance.

Ethical and logistical considerations

The study was approved by the Ethical Review Committee of Pwani University (Ref No. ERC/PU-STAFF/008/2022). The Kenyan National Commission for Science, Technology, and Innovation issued an additional permit for the study (License No: NACOSTI/P/22/22389). Before data collection, written informed consent was required from all study participants. To ensure confidentiality, identifiers like the names of the participants were not collected.

Results

Participant's characteristics and reported illness

The enumerators collected data on 1240 individuals from 264 households. Of the 1240 individuals (participants), fifteen percent (N=189) were household heads, eighteen per cent (N=222) were their spouses, about forty-six per cent (N=570) were children of the household head and approximately 21 per cent (N=257) were other relatives. There were more females (53%, N=659) and about a third of (33%, N=414) of the participants were younger than 15 years old and about thirty-nine per cent (N=481) were at various levels of schooling. On the highest level of education, most reported having attended or were in primary school (60%, N=745). Most participants were protestants (79.92%, N=991), while unmarried participants were the majority at sixty-two percent (N=763).

Table 1:
Study Participants' Demographic Characteristics by Reported illness in the Preceding Month

Characteristics		Total N(%)	Illness in the preceding month		P-Value
			Yes N(%)	No N(%)	
Relationship to Household Head	Self	189(15.24)	57(18.51)	132(14.16)	0.003
	Spouse	224(18.06)	69(22.40)	155(16.63)	
	Child	570(45.97)	136(44.16)	434(46.57)	
	Other relative	257(20.73)	46(14.94)	211(22.64)	
	Total	1240	308 (24.8)	932 (75.2)	
Age	0-14	414(33.39)	105(34.09)	309(33.15)	0.001
	15-25	292(23.55)	63(20.45)	229(24.57)	
	25-49	376(30.32)	81(26.30)	295(31.65)	
	50 and above	158(12.74)	59(19.16)	99(10.62)	
	Total	1240	308	932	
Sex	Male	581(46.85)	123(39.94)	458(49.14)	0.005
	Female	659(53.15)	185(60.06)	474(50.86)	
	Total	1240	308	932	
Religion	Catholic	62(5.00)	6(1.95)	56(6.01)	0.013
	Protestant	991(79.92)	247(80.19)	744(79.83)	
	Muslim	71(5.73)	18(5.84)	53(5.69)	
	Others	116(9.35)	37(12.01)	79(8.48)	
	Total	1240	308	932	
School	None	210(16.96)	73(23.70)	137(14.73)	0.000
	Primary	745(60.18)	190(61.69)	555(59.68)	
	Post-primary	283(22.86)	45(14.61)	238(25.59)	
	Total	1238	308	930	
Marital Status	Single	763(61.53)	178(57.79)	585(62.77)	0.120
	Married	477(38.47)	130(42.21)	347(37.23)	
	Total	1240	308	932	
Employment	Working	339(27.34)	79(25.65)	260(27.90)	0.394
	Not working	303(24.44)	78(25.32)	225(24.14)	
	Student	481(38.79)	115(37.34)	366(39.27)	
	Underage	117(9.44)	36(11.69)	81(8.69)	
	Total	1240	308	932	
Health status	Very good	588(47.88)	122(40.00)	466(50.49)	0.000
	Good	484(39.41)	106(34.75)	378(40.95)	
	Satisfactory	36(2.93)	12(3.93)	24(2.60)	
	Poor	120(9.77)	65(21.31)	55(5.96)	
	Total	1228	305	923	
Illicit drug use	Yes	78(6.51)	28(9.30)	50(5.57)	0.023
	No	1121(93.49)	273(90.70)	848(94.43)	
	Total	1199	301	898	
Chronic illness	Yes	164(13.23)	69(22.40)	95(10.19)	0.000
	No	1076(86.77)	239(77.60)	837(89.81)	
	Total	1240	308	932	
Household SES	Low	154(58.33)	50(56.82)	104(59.09)	0.724
	high	110(41.67)	38(43.18)	72(40.91)	
	Total	264	88	176	
Preventive/promotive services	Yes	235(19.70)	134(44.08)	101(11.36)	0.000
	No	958(80.30)	170(55.92)	788(88.64)	
	Total	1193	304	889	



Household heads and their spouses significantly constituted a higher proportion of those reporting illness (18.51% and 22.4% respectively) than those not reporting illness compared to other family members ($p < 0.003$) (Table 1). Those aged below 15 years and those aged above 49 years contributed a significantly greater proportion of those reporting illness ((34.09% and 19.16% respectively) than those not reporting illness ($p = 0.001$). A majority (60.06%) of those who reported illness were female. Compared to other religions, only Catholics contributed a smaller proportion of

those reporting illnesses than those not reporting illness. The distribution of the demographic characteristics across the two categories of reported illness in the preceding month among participants is shown in Table 1.

Factors associated with reported illness

In the bivariable analyses (Table 2), eleven factors were significantly associated with reported illness in the preceding month. Compared to household heads, other relatives were 52% less likely to report illness ($OR = 0.48$, 95%CI: 0.28-0.8, $p = 0.005$).

Table 2:
Factors Associated with Reporting Illness

Characteristics		Bivariable analysis		Multivariable analysis	
		Odds Ratio OR (95%CI)	P-value	Adjusted Odds Ratio AOR (95%CI)	p-Value
Relationship to Household Head	self	Reference	.	Reference	.
	spouse	1.1(0.68-1.77)	0.699	1.1(0.53-2.29)	0.8
	child	0.66(0.43-1.01)	0.058	1.01(0.43-2.33)	0.99
	Other relatives	0.48(0.28-0.8)	0.005	0.5(0.23-1.08)	0.08
Age	0-14	Reference	.	Reference	.
	15-25	0.85(0.55-1.29)	0.437	1.14(0.61-2.14)	0.69
	25-49	0.86(0.58-1.26)	0.44	0.57(0.23-1.44)	0.24
	50 and above	2.54(1.56-4.13)	<0.001	1.08(0.38-3.07)	0.88
Sex (male)		1.66(1.23-2.25)	0.001	1.44(0.94-2.2)	0.09
Religion	Catholic	Reference	.	Reference	.
	Protestant	3.86(1.24-12.03)	0.02	6.2(1.21-31.75)	0.03
	Muslim	3.48(0.85-14.24)	0.083	7.02(1.03-47.9)	0.05
	Others	7.55(2.16-26.46)	0.002	9.12(1.55-53.67)	0.01
School	Informal	Reference	.	Reference	.
	Primary	0.48(0.32-0.72)	<0.001	0.92(0.47-1.79)	0.81
	Post-primary	0.29(0.18-0.49)	<0.001	0.42(0.19-0.95)	0.04
Marital Status (married)		1.29(0.95-1.76)	0.103	1.5(0.73-3.08)	0.26
Employment	Working	Reference	.	Reference	.
	Not working	1.17(0.77-1.78)	0.468	0.72(0.4-1.28)	0.27
	Student	0.85(0.578-1.26)	0.422	1.1(0.46-2.63)	0.83
	Underage	1.70(0.97-2.98)	0.064	0.75(0.27-2.11)	0.59
Health status	Very good	Reference	.	Reference	.
	Good	1.17(0.77-1.76)	0.461	1.23(0.74-2.04)	0.42
	Satisfactory	2.19(0.89-5.40)	0.086	1.72(0.58-5.06)	0.33
	Poor	6.20(3.66-10.51)	<0.001	3.52(1.7-7.28)	<0.001
Drug use (no)		0.54(0.29-0.99)	0.044	0.6(0.24-1.48)	0.27
Chronic illness (no)		0.30(0.19-0.46)	<0.001	0.55(0.3-1.03)	0.06
SES (high)		1.11(0.61-2.03)	0.725	..	..
Preventive/promotive services (no)		0.08(0.05-0.12)	<0.001	0.07(0.04-0.11)	<0.001

..not included in the multivariable model

The odds of reporting illness in those aged 50 years and above were more than two times the odds in those under fifteen years old (OR=2.54 95%CI: 1.56-4.13, $p<0.001$). Being male was significantly associated with reporting illness (OR 1.66, 95% CI: 1.23-2.25, $p=0.001$). Compared to those with informal education, those with primary level education were 52% less likely to report illness, similarly, those with post-primary level education were 72% less likely to report illness.

Those who rated their health as poor had more than six times the odds of reporting illness than those who rated their health as very good (OR 6.20, 95%CI: 3.66-10.51, $p=0.001$). Nonuse of illicit drugs was significantly associated with reduced odds of reporting illness (OR 0.54, 95%CI: 0.29-0.99, $p=0.044$). Those not utilizing

preventive and /or promotive services had reduced odds of reporting illness (OR 0.08, 95%CI: 0.05-0.12, $p=0.044$).

After adjusting for covariables in the multivariable analysis (Table 2), only six factors remained significantly associated with reporting illness in the preceding month. Being protestant (AOR 6.2, 95%CI: 1.21-31.75, $p=0.03$), being Muslim (AOR 7.02, 95%CI: 1.03-47.9, $p=0.05$), other faiths (AOR 9.12, 95%CI: 1.55-53.67, $p=0.01$), and reporting poor health (AOR 3.52, 95%CI: 1.7-7.28, $p<0.001$) were significantly associated with increased odds of reporting ill health. Having a post-primary level education (AOR 0.42, 95%CI: 0.19-0.95, $p=0.04$), and not utilizing preventive and /or promotive services (AOR 3.52, 95%CI: 0.07-0.11, $p<0.001$) were associated with reduced odds of reporting illness.

Table 3:
Prevalence of Healthcare Utilization

Characteristics		Sick in the previous month N(%)	Utilized care when sick N(%)	Utilization prevalence per 100 people (95%CI)
Total		306	272	88.9 (84.8-92.0)
Relationship to Household Head	self	57(18.63)	49(18.01)	86.0(74.2-92.9)
	spouse	69(22.55)	61(22.43)	88.4(78.3-94.1)
	child	135(44.12)	121(44.49)	89.6(83.2-93.8)
	Other relative	45(14.71)	41(15.07)	91.1(78.3-96.7)
Age	0-14	103(33.66)	92(33.82)	89.3(81.7-94.0)
	15-25	63(20.59)	54(19.85)	85.7(74.6-92.5)
	25-49	81(26.47)	72(26.47)	88.9(79.9-94.2)
	50 and above	59(19.28)	54(19.85)	91.5(81.0-96.5)
sex	Female	122(39.87)	109(40.07)	89.3(82.4-93.7)
	Male	184(60.13)	163(59.93)	88.6(83.1-92.5)
Religion	Catholic	6(1.96)	6(2.21)	100
	Protestant	245(80.07)	217(79.78)	88.6(83.9-92.0)
	Muslim	18(5.88)	15(5.51)	83.3(58.1-94.7)
	Others	37(12.09)	34(12.50)	91.9(77.3-97.4)
School	None	73(23.86)	63(23.16)	86.3(76.2-92.5)
	Primary	188(61.44)	169(62.13)	89.9(84.7-93.5)
	Post-primary	45(14.71)	40(14.71)	88.9(75.7-95.4)
Marital Status	Single	176(57.52)	157(57.72)	89.2(83.7-93.0)
	Married	130(42.48)	115(42.28)	88.5(81.7-93.0)
Employment	Working	79(25.82)	71(26.10)	89.9(80.9-94.9)
	Not working	78(25.49)	70(25.74)	89.7(80.7-94.8)
	Student	113(36.93)	100(36.76)	88.5(81.1-93.2)
	Underage	36(11.76)	31(11.40)	86.1(70.3-94.2)

Prevalence of healthcare utilization

A total of 306 participants reported being ill in the preceding month. Out of these, 88.9% (95%CI: 84.8-92.0) of participants sought healthcare. Compared to other age groups, the prevalence of healthcare utilization was highest among those aged 50 years and above. Prevalence in other socio-demographic categories is presented in Table 3. The prevalence of healthcare utilization had overlapping confidence intervals indicating no significant differences.

Of the 11.1% who did not seek healthcare, 28% self-medicated by buying non-prescription drugs from either shops or pharmacies while 21% lacked the money to afford care. Another 13% did not seek health care from facilities as it was too costly, or the drugs were not available. For 18% the sickness was not serious enough to necessitate visiting a health facility, for 5% the nearest health facility was too

far, and for 3 % there was fear of discovering a serious illness (Figure 1).

Compliance with health recommendations

Of the 272 participants who utilized health care, 270 responded to questions on compliance with healthcare recommendations they received from the healthcare provider. A total of 66 (24.44%) participants did not comply with the health recommendations.

Table 4 illustrates the prevalence of noncompliance across different socio-demographic categories. All the categories were insignificantly associated with noncompliance ($p>0.05$). Of those who did not comply with healthcare recommendations, 30% attributed it to lack of money, 29% due to unavailability of drugs, and 17% self-medicated among other reasons as illustrated in Figure 2.

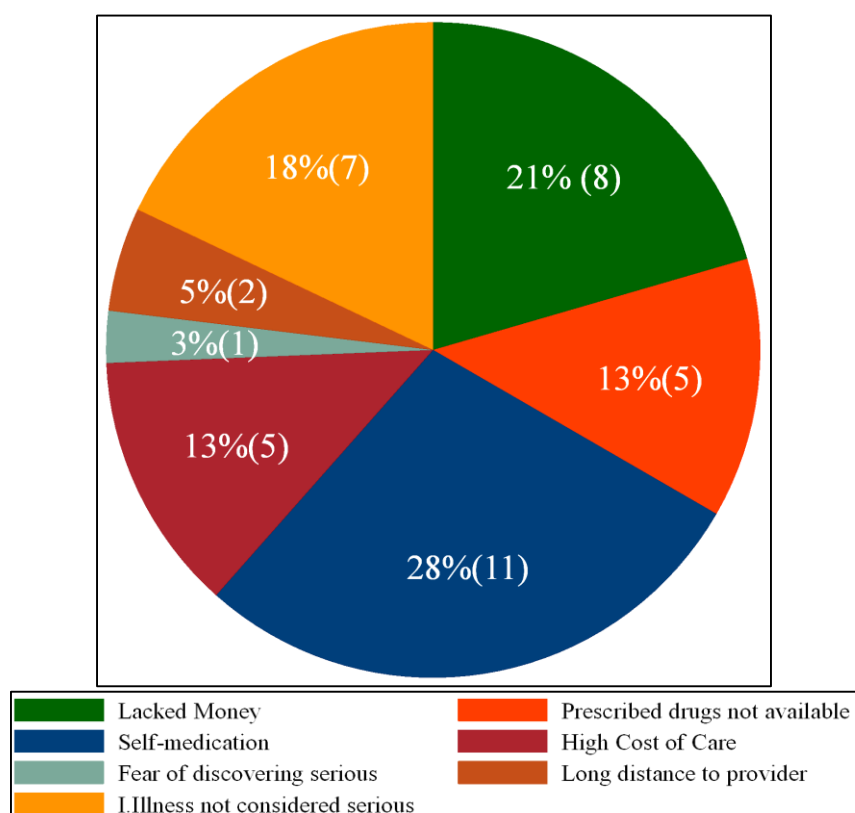


Figure 1:

Main Reasons for not Utilizing Healthcare Services During Illness

Table 4:
Compliance with Health Recommendations by Healthcare Provider

Characteristics	Total N(%)	Health compliance		p-value
		Yes N(%)	No N(%)	
Total	270	204	66(24.44)	
Relationship to Household Head	49(18.15)	41(20.10)	8(12.12)	0.496
	Spouse	60(22.22)	43(21.08)	17(25.76)
	Child	120(44.44)	90(44.12)	30(45.45)
	Other relatives	41(15.19)	30(14.71)	11(16.67)
Age	0-14	92(34.07)	74(36.27)	18(27.27)
	15-25	54(20.00)	39(19.12)	15(22.73)
	26-49	70(25.93)	51(25.00)	19(28.79)
	50 and above	54(20.00)	40(19.61)	14(21.21)
Sex	Female	108(40.00)	86(42.16)	22(33.33)
	Male	162(60.00)	118(57.84)	44(66.67)
Religion	Catholic	6(2.22)	6(2.94)	0(0.00)
	Protestant	215(79.63)	160(78.43)	55(83.33)
	Muslim	15(5.56)	12(5.88)	3(4.55)
	Others	34(12.59)	26(12.75)	8(12.12)
School	None	63(23.33)	52(25.49)	11(16.67)
	Primary	168(62.22)	124(60.78)	44(66.67)
	Post-primary	39(14.44)	28(13.73)	11(16.67)
Marital Status	Single	157(58.15)	122(59.80)	35(53.03)
	Married	113(41.85)	82(40.20)	31(46.97)
Employment	Working	69(25.56)	51(25.00)	18(27.27)
	Not working	70(25.93)	52(25.49)	18(27.27)
	Student	100(37.04)	73(35.78)	27(40.91)
	Underage	31(11.48)	28(13.73)	3(4.55)

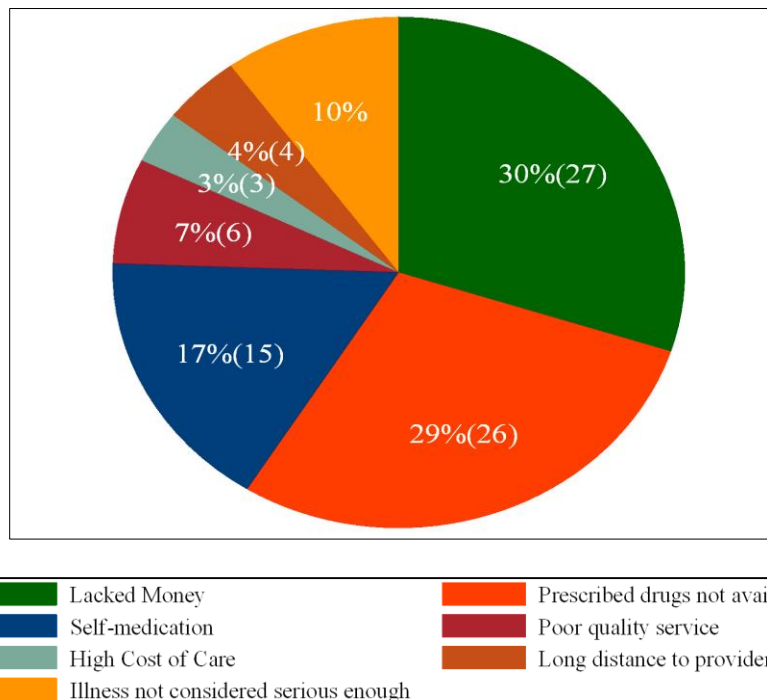


Figure 2:
Main Reason for non-Compliance with healthcare Recommendations

Discussion

This study established that the prevalence of healthcare utilization was 88.9%. This is slightly above a prevalence of 76.7% reported by Ngugi and colleagues in 2017 from a similar setting, (15) perhaps to signify some improvement in healthcare service utilization in the last five years. Moreover, the household heads and their spouses were significantly more likely to report illness than other household members, possibly because as individuals age, their risk of developing certain diseases increases compared to when they were younger(19) 19. The fact that household heads are older than other family members may account for the study's findings that household heads are more likely to report illness. Similar findings have been reported in a previous study(20)20. In addition, the association between the age of the household head and the advanced age concurs with our findings that a greater proportion of those reporting illnesses were aged 50 and older. The higher proportion of children younger than 15 who report being ill may be indicative of an underdeveloped immune system(21) 21. The findings imply that targeted interventions are required to reach those below 15 years of age and over 49 years of age with healthcare services that respond to their needs.

The study found an association between the male gender and an increased likelihood of reporting illness. Across all demographics, there is evidence that females have better healthcare-seeking behaviours than their male counterparts(22)22. Thus, we could argue that the higher prevalence of illness reported by men in this study may reflect their lower healthcare-seeking behaviours. Post-primary education level was associated with a decreased likelihood of illness reporting compared to those with only primary education or no formal education. This is consistent with the existing literature, which indicates that a higher education level is associated with better health and longevity, and

thus lower rates of illness(23)23. Therefore, healthcare stakeholders should place a greater emphasis on providing healthcare services, especially those promoting and protecting health to those with less education. The current study discovered an association between illicit drug use and the likelihood of reporting illness. It is a well-known fact that substance abuse increases susceptibility to infectious diseases(24) 24. In addition, alcohol and substance abuse reduce patient drug adherence, further complicating the healing process. (25,26) To improve the health and well-being of individuals, there is a need for increased drug and substance use avoidance education in rural areas.

In the adjusted analysis, religious affiliation, self-rated health, education level, and utilization of preventive and/or promotive services all emerged as significantly associated with reporting illness factors. Being Protestant, Muslim, or having other faiths showed increased odds of reporting ill health. Similarly, individuals reporting poor health had 3.52 times the odds of reporting illness. On the other hand, having a post-primary level education was associated with reduced odds of reporting illness. Not utilizing preventive and/or promotive services was also associated with reduced odds of reporting illness. These findings indicate that various demographic and healthcare-related factors influence the likelihood of reporting illness in this rural setting and highlight the complex interplay of sociodemographic characteristics, health behaviours, and healthcare utilization in relation to reported illness.

People older than 50 years had the highest prevalence of healthcare utilization. This may be explained by the fact that as people age, their susceptibility to both non-communicable and communicable diseases increases due to a deteriorating immune system, leading to an increase in healthcare use (21). Similar trends in healthcare utilization have been observed in the United States and Canada among people aged 50

and older (1,27). These findings suggest that healthcare services should be brought closer to the elderly to facilitate accessibility and utilization.

This study found that a significant proportion of the population did not seek healthcare, self-medicated, and could not afford care, indicating unmet healthcare needs, therefore, the government and other healthcare stakeholders should improve the rural population's access to healthcare services in terms of cost and distance. Expanding universal health coverage is a crucial approach to mitigate financial barriers; this can be achieved by enhancing the Social Health Insurance Fund to provide financial protection and reduce out-of-pocket expenses. Distance and geographic barriers can be addressed by establishing additional health facilities within communities ensuring that more individuals have access to essential services closer to their homes. Complementarily, implementing telehealth services will bridge the gap for those in hard-to-reach areas, enabling remote consultations and follow-ups. This would ensure that rural residents can easily obtain healthcare. There is also a need to increase community awareness so that people will avoid self-medication and over-the-counter drugs that pose a risk of drug (antibiotic) resistance(28)

The current study found that almost a quarter (24%) of individuals who sought healthcare services did not adhere to the health recommendations. Noncompliance with healthcare recommendations complicates disease treatment (29,30) and increases drug resistance(28)28. These findings indicate that a substantial amount of community sensitization and education is required to improve healthcare compliance additionally, the healthcare stakeholders should also make a concerted effort to eliminate the barriers that have caused continued non-compliance with community healthcare services.

Study Limitations

This being a cross-sectional study, causal-effect inferences on outcomes of the prevalence of healthcare utilization in the rural settings of the Kenyan coast may not be drawn. Second, there is a need to explore perceptions and patient experience with the healthcare system to get a deeper understanding of non-utilization and non-compliance. In this study, the participants were asked about any illness in the preceding month, this could have led to inaccurate reporting because of recall bias. To cure this limitation, future longitudinal studies employing mixed-method approaches are necessary.

Conclusion

Lack of post-primary education, age of above 50 years, being male, and being a household head are determinants of reporting illnesses in the rural settings of the Kenyan Coast according to the study findings. Thus, healthcare providers in the settings should target the above groups with improved healthcare services. This would play a key role in improving both short and long-term healthcare outcomes. Healthcare utilization is higher among those aged above 50 years. Consequently, the Ministry of Health should enhance healthcare service delivery by ensuring accessibility and affordability, for the ageing population.

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Authors' contributions

Berrick Otieno was involved in conceptualization, investigation, methodology, software, data curation, writing (original draft preparation), formal analysis, and visualization. Isaac William Kyalo the project administration. Cyrus Mutie wrote the original draft, validation, & visualization. Marianne Darwinkel and Makorani Y'Dhidha-a-Mjidho performed project administration. Osman Abdullahi, Mwaswere Juma, Nickcy Mbutia and Mateen Kok performed conceptualization, writing (review and editing), and supervision of the study.

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