Health Seeking behavior; perspective of the Marginalized Somali Community in Garissa County, a Semi-Arid Region of North Eastern Kenya

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ABSTRACT

Appropriate medical care seeking could prevent a significant number of deaths and complications due to ill health. Unfortunately, healthcare seeking behaviors (HSB) differs according to place, the affected, disease types, beliefs and the opportunities to seek care. These decisions are not isolated to individuals but are embedded in a broader household and social organizational decision process and the capacity to allow seeking of care. This descriptive cross-sectional community-based study used a multistage cluster sampling method to enrol consenting adults from different households located in the seven (7) sub-counties in Garissa County. The data were collected by interviewing 405 adult population and the answers reported in pretested structured questionnaires. Among the surveyed respondents, the mean age (±SD) was 35.17 (12.9) years, 68.1% had no formal education, 72.8% were female and 81.2% were married. Health care seeking during the latest illness was reported by three quarters of the respondents (n=293, 72.3%). The treatment or advice during the latest illness was sought by the majority in the Government / public hospitals (n=226, 55.5%), followed by in the private hospitals (n= 37, 9.1%) and among Traditional or homeopathic or spiritual healers (n = 28, 6.9%). In multivariate analysis, household headship, possession of health insurance, reasons for choosing preferred healthcare facility, durations prior to seeking treatment and the perceived three common illnesses in the community were associated with seeking treatment during the latest illness both in any of the healthcare facility and in the government/public hospitals. Gender, occupation and reasons for choosing preferred healthcare facility independently influenced seeking treatment during the latest illness both in any of the health facility and in private hospitals. Durations prior to seeking treatment was the only independent factor associated with seeking treatment both in any of the healthcare facility and among Traditional or homeopathic or spiritual healers. During the latest illnesses among this marginalized population, appropriate health seeking behavior was significantly high with the majority preferring the government/public facilities. Gender, occupation, household headship, possession of health insurance, reasons for choosing preferred hospital, availability and the preference of current health facility, duration with illness and perceived illnesses in the community are the predictors of HSB. Improvement in education, health facilities and medical services in the community, introduction of community based integrated management of common community illness are imperative to improve HSB among the Somali community in this Semi-arid region of Kenya.
Keywords: Health seeking, Latest illnesses, Somali community, Semi-arid County of Kenya

INTRODUCTION

Of the approximate 10 million annual childhood deaths majorly from preventable and treatable infectious diseases, such as pneumonia, diarrhea, and malaria the majority occurs in Africa (Bryce et al., 2005; United nation, 2017). Equally, young adult mortality remains high in many parts of Africa, mostly due to HIV infection (Kubaje et al., 2005). Improving the care pathway for patients regardless of the disease is a key component in reducing both the disease burden and mortality as well (WHO, 2018). Delays in seeking medical care from an appropriate provider are associated with a worse outcome (Kallander et al., 2008). A significant body of evidence demonstrates that access to quality healthcare services promotes population health independent of other social determinants (Rutherford et al., 2010). In particular, provision and subsequent utilization of quality healthcare is integral to improving health outcomes, enhancing user satisfaction and is pivotal in contributing to early childhood development (WHO, 2007; Lee et al., 2015). Effective care pathways for a sick household or

population requires a caregiver to make the initial step of recognizing that one of the household members is unwell, take decision to seek care and have the capacity and means to acquire appropriate medical care (Kirolos et al., 2018). Studies have shown that the ability of caregivers to recognize various diseases in low income countries is poor (Geldsetzer et al., 2014). Caregivers' poor knowledge of the symptoms and danger signs of various disease are also associated with delays or failure to seek care (Noordam et al., 2017). Other factors such as distance to health care facilities, region, which member of the household is affected by the disease, disease types, beliefs and the opportunities to seek care can affect caregivers' ability to seek care (Nonyane et al., 2016).

Care may be sought for various diseases from a wide variety of providers including pharmacies, private care providers, government institutions, community health workers and more informal providers such as traditional healers (Geldsetzer et al., 2014). However, it is important that care is sought from a health provider who can accurately diagnose and initiate prompt treatment appropriately. Most of these interventions, such as standard case management of childhood conditions, are delivered within the healthcare system. However, optimal benefits of cost-effective child health interventions are not realized particularly by the disadvantaged population groups due to limited access to and utilization of health- care services (Nonyane et al., 2016). Ensuring adequate access to and utilization of healthcare therefore remains central to country's health, survival and development.

Both the Kenya's and Garissa county Government's Health Sector Strategic Plan indicate the need to improve healthcare facilities and recruit more Doctors and Nurses in the county in order to promote utilization of appropriate healthcare services (Garissa County Government, 2018). While these and other health strategy documents have identified the rural poor as a vulnerable population group (Lungu et al., 2018), evidence from elsewhere suggests the need to consider the urban poor residing in slums as an important group to target with child health interventions to improve health outcomes (Harpham, 2009; Lungu et al., 2018). Equating to a slum, Garissa is a geographical region marked by lack of one or more of the following five conditions: access to improved water, access to sanitation, durable housing, sufficient living area, and secure tenure essentially presents risk factors for morbidity and mortality (UN-HABITAT, 2006). Evidence from studies in Kenya and a multi-country study in India, Egypt, Kenya and Bangladesh demonstrate that morbidity and mortality in such areas are much higher than the national averages (Kimani-Murage et al., 2014; Bassiahi et al., 2014).

There is a paucity of epidemiological evidence on the burden of health conditions and utilization of appropriate health services in Garissa County. This study becomes necessary after the 2013 devolution of political power and economic resources from the Central government to the Country's 47 Counties. Garissa County is ranked top 10 among Counties receiving the largest share of budgetary allocation. In the 2016/2017 financial year (FY) Garissa County received KES 6.8 billion (about USD 67 million) which was increased from KES 6.3 billion (about USD 63 million) in the 2015/2016 FY, representing 2.22% of Kenya total revenue collection (Republic of Kenya, 2016). Several international communities have also contributed significantly to this region's health needs. These funds are allocated to mitigate the health challenges in this region; upgrade of existing hospitals and construction of others, increase supplies of both pharmaceutical and non-pharmaceutical items, increased health personnel, enable free maternal health care, public health education campaign, improve public education, service delivery, restore public confidence in public health facilities and improve service utilization (Garissa County Government, 2018). A focus on Garissa county health targeting the entire Somali Community is therefore imperative. Granted that the healthcare system is an important determinant of health (Rutherford et al., 2010), understanding preferences of household heads/caregivers in this County is integral to organizing healthcare services to be responsive to their needs and priorities.

MATERIALS AND METHODS
Study setting and design
This was a descriptive cross-sectional community-based study that enrolled consenting adults from different households located in the seven (7) sub-counties in Garissa County. Assuming 50% of the population has been unwell (at least one member of the household in the last 14 days) and seeking healthcare treatment or advice. Applying the formula for estimating the population proportion with specified relative precision described by Lemeshow et al. (1990), setting the α at 0.05, and a 50% of unwell population seeking health advice or treatment in the last 14 days, a total of 405 households were recruited to achieve 0.95 power.

Sampling strategy
A two-stage cluster sampling method was then used to select these households. Seven (7) sampling frames were created with the primary sampling units being all of the sub-locations within the 7 sub counties. From each of these sampling frames, one sub-location was randomly selected. The second stage sampling frame involved

generating a list of the villages and populations obtained from the local administrative head in which one village from each sub-location was randomly selected. Households which participated in the study were then selected randomly. All eligible (aged ≥18 years, residing within the geographic boundaries of selected villages and had been residing in the area for a minimum of five years) were consented and enrolled into the study.

Data Collection

Interviewer administered questionnaires were used to collect data related to the study categorized as: demographic attributes, preferred health services and barriers to access of health services.

Ethical considerations

The research protocol was presented for scientific and ethical approvals by the Scientific Steering Committee and the Ethical Review Committee of Kenya Medical Research Institute (KEMRI) prior to commencement of field activities. Written informed consent was obtained from each participant. Confidentiality was maintained by assigning all participants with a unique identification number and all paper research records stored in a locked cabinet stationed in a secured room only accessible to the principal investigator.

Statistical analysis

Quantitative data was analyzed using STATA version 13 (StataCorp LP, College Station, TX, USA). Descriptive statistics frequency (%), mean, standard deviation and medium (interquartile ranges at 25% and 75%) were used to express quantitative data. The overall health seeking behavior was determined for all participants. In bivariate analyses, odds ratios (OR) and 95% confidence intervals (CI) for the association between health seeking behavior and socio-demographic, household related factors, healthcare accessibility, availability and healthcare related problems characteristics were calculated using Poisson regression. In multivariate analyses, a manual backward elimination approach was used to reach the most parsimonious model including factors that were associated with healthcare seeking behavior among Somali community in Garissa County at the significance level of $P \leq 0.05$.

RESULTS
Demographic characteristic

The mean age (±SD) of the respondents was 35.17 (12.9) years ranging between 18 to 84 years. There were two age group peaks; (n = 157, 38.8%) aged between 21 to 30 years and (n = 130, 32.1%) aged 31 to 40 years. The majority of the responds 72.8% were female, 68.1% had none- formal type of education, 54.4% were unemployed. The mean number (±SD) of the household population was 6.65 (3.02) persons ranging between 1 to 21 persons. The majority 31.9% had monthly income of ≤4800 Ksh, 91.4% of the households spent ≤ 3000 Ksh for their monthly healthcare expenditure (Table 1).

Healthcare seeking behavior

As summarized in Table 2, out of the 405 participants, majority (n=293, 72.3%) sought treatment/advice during their last illness while about (n = 112, 27.7%) did not seek any treatment/advice. For those who sought treatment, the majority (n=226, 55.5%) were in the Government hospital/clinics followed by (n=37, 9.1%) in private hospital/clinic and (n=28, 6.9%) among Traditional or homeopathic or spiritual healers.

The majority of participants (n = 211, 52.1%) reported the Government hospitals/clinics as the most common health service providers available to the Somali Community. Others included (n = 95, 23.5%) stating the availability of three different health service providers to the Somali Community including Private clinic \ Government clinic or hospital and Traditional or homeopathic healer, followed by (n=33, 8.1%) who stated the availability of Government and Private clinic or hospital while the least (n =15, 3.7%) reported the availability of private clinics.

Among the reasons the participants would choose or prefer a certain health facility included; the majority (n = 180, 44.4%) being due to cost (cheaper than the others), (n=42,10.4%) due to trust for the service providers' workers, (n=37,9.1%) due to proximity (near thus ease of transportation/distance to clinic) while there were others (n=16,4%) who would prefer healthcare facility because of different combined reasons: Cost/Proximity/Trust/Attitude/Time saver and availability of equipment.

Table 1: Descriptive characteristics of study participants

Variables	Frequency	Percentage
Age		
Mean (± Standard deviation - SD)	*35.17*	*± 12.9*
Range	*66*	*(18-84)*
<20	28	6.9
21 - 30	157	38.8
31 - 40	130	32.1
41 - 50	36	8.9
> 51	54	13.3
Gender		
Male	110	27.2
Female	295	72.8
Education level		
Primary	14	3.5
Secondary	25	6.2
Tertiary	9	2.2
Non-Formal	276	68.1
Religious Classes	81	20
Marrital status		
Single	24	5.9
Married	329	81.2
Divorced/Separated	27	6.7
Widowed	25	6.2
Religion		
Muslim	404	99.8
Christian	1	0.2
Occupation		
Employed	22	5.4
Self employed	74	18.3
Unemployed	184	54.4
Monthly Income		
<4800 Ksh	129	31.9
4800 - 9600 Ksh	112	27.7
9601 - 19200 Ksh	109	26.9
>19201 Ksh	55	13.6
Household headship		
Yes	143	35.3
No	262	64.7
Household population		
Mean (± SD)	*6.65*	*± 3.02*
Range	*20*	*(1-21)*
< 4	95	23.5
5 to 10	270	66.7
> 11	40	9.9
Healthcare Expenditure		
Mean (± SD)	*1462.74*	*± 1655.48*
Range	*14900*	*(100 - 15,000)*
>3000 Ksh	370	91.4
3001 - 6000 Ksh	28	6.9
>6001 Ksh	7	1.7
Availability of Healthcare insurance		
Yes	30	7.4
No	375	92.6

The mean (±SD) duration after the onset of illness that the participants sought treatment was 2.94 (4.2) days ranging from 0 to 30 days. The majority (n=203, 50.1%) of the participants sought treatment/advice 1 to 5 days post the onset of illness followed by (n=126, 31.1%) who sought treatment immediately and some (n=76, 18.8%) participants sought treatment > 6 days post onset of illness.

The majority (n = 366; 90.4%) of the participants adhered to medication instructions during their last ailment versus (n=39, 9.6%) who did not.

The majority (n=264, 65.2%) of the participants reported having not taken any medication prior to seeking medical treatment or advice during their last illness versus (n=141, 34.8%) participants who self-medicated prior to seeking medical intervention.

Table 2. Healthcare seeking characteristics of the study participants (n = 405)

Variables	Frequency	Percentage
Treatment place for the last illness		
Private clinic	37	9.1
Government clinic or hospital	226	55.8
Traditional or homeopathic or spiritual healer	28	6.9
Did not attend any	114	28.1
Hospital/Clinic available in the community		
Government clinic or hospital	211	52.1
Private clinic	15	3.7
Government and Private clinic or hospital	33	8.1
Traditional or homeopathic or spiritual healer	24	5.9
Private/Government clinic or hospital/Traditional or homeopathic healer	95	23.5
Private clinic/Traditional or homeopathic healer	27	6.7
Reasons for choosing health faclity		
Cost	180	44.4
Proximity	37	9.1
Trust	42	10.4
Attitude	11	2.7
Time saver	21	5.2
Well Equipped	31	7.7
Cost/proximity	34	8.4
Cost/Proximity/Trust	33	8.1
Cost/Proximity/Trust/Attitude/Time saver /Equipped	16	4
Time to visit formal health facility		
When self treatment does not work	37	9.1
Prolonged symptoms	81	20
Availability of adequate money	14	3.5
Disease severity	127	31.4
Immediately	146	36
Adherence to medication during last illness		
Yes	366	90.4
No	39	9.6
Days after illness sought advice/treatment		
Mean (± SD)	*2.94*	*± 4.2*
Range	*30*	*(0 - 30)*
Immediately	126	31.1
1 to 5 Days	203	50.1
>6 Days	76	18.8
Taken Medication during illness before seeking advice/treatmen		
Yes	141	34.8
No	264	65.2

Multivariate analyses

In Table 3, the multivariable logistic regression compares sociodemographic, household and hospital availability and the health seeking behavior of the participants across different facility ownership.

Table 3A. Multivariable logistic regression of healthcare seeking behavior during latest illness by provider facility type

Variables	Total population	All the facilities % Seeking	P	Multivariate aOR (95% CI)	Government facilities % Seeking	P	Multivariate aOR (95% CI)	Private facilities % Seeking	P	Multivariate aOR (95% CI)	Traditional\Spiritual facilities % Seeking	P	Multivariate aOR (95% CI)
Gender													
Male	110	92.7	0.002	1.5(1.2 - 2.1)	67.3	NS	NS	16.4	0.004	2.5(1.4 - 4.9)	9.1	NS	NS
Female	295	64.7	Referent	Referent	51.5	Referent	Referent	7.1	Referent	Referent	6.1	Referent	Referent
Occupation													
Employed	22	90.9	0.472	1.2(0.7 - 1.9)	45.5			36.4	0.004	3.9(1.5 - 9.9)	9.1		
Self employed	74	89.2	0.048	1.3(1.0 - 1.7)	74.8	NS	NS	9	0.277	1.5(0.7 - 3.3)	5.4	NS	NS
Unemployed	184	64	Referent	Referent	48.9	Referent	Referent	7.7	Referent	Referent	7.4	Referent	Referent
Monthly Income													
<4800 Ksh	129	73.6			57.4			9.3	0.256	0.5(0.2 - 1.1)	7		
4800 - 9600 Ksh	112	73.2	NS	NS	59.8	NS	NS	8.9	0.123	0.4(0.2 - 1.1)	4.5	NS	NS
9601 - 19200 Ksh	109	67.9			50.5			5.5	0.027	0.3(0.1 - 0.9)	11.9		
>19201 Ksh	55	76.4	Referent	Referent	54.5	Referent	Referent	20	Referent	Referent	1.8	Referent	Referent
Household population													
< 4	95	68.4	NS	NS	56.8	NS	NS	7.4	0.008	0.3(0.09 - 0.7)	4.2	NS	NS
5 to 10	270	70.4			54.8			7	0.001	0.2(0.1 - 0.5)	8.5		
> 11	40	95	Referent	Referent	60	Referent	Referent	32.5	Referent	Referent	2.5	Referent	Referent
Household headship													
Yes	143	88.8	0.003	1.5(1.1 - 1.9)	69.2	0.006	1.5(1.2 - 2.1)	14	NS	NS	5.6	NS	NS
No	262	63.4	Referent	Referent	48.5	Referent	Referent	7.3	Referent	Referent	7.6	Referent	Referent
Availability of Healthcare insurance													
Yes	30	40	0.014	0.5(0.3 - 0.9)	20	0.003	0.3(0.2 - 0.7)	20	NS	NS	0	NS	NS
No	375	74.9	Referent	Referent	58.7	Referent	Referent	8.8	Referent	Referent	7.5	Referent	Referent
Healthcare Expenditure													
>3000 Ksh	370	72.7			56.2	0.023	0.4(0.2 - 0.8)	8.9			7.6		
3001 - 6000 Ksh	28	60.7	NS	NS	42.9	0.018	0.3(0.1 - 0.8)	17.9	NS	NS	0	NS	NS
>6001 Ksh	7	100	Referent	Referent	85.7	Referent	Referent	14.3	Referent	Referent	0	Referent	Referent
Major contributer to Healthcare Expenditure													
Father	274	66.8			51.1			10.9			4.7	0.045	0.4(0.2 - 0.9)
Mother	55	87.3	NS	NS	67.3	NS	NS	9.1	NS	NS	10.9	0.891	0.9(0.3 - 2.6)
Others Children/Relatives	76	81.6	Referent	Referent	64.5	Referent	Referent	5.3	Referent	Referent	11.8	Referent	Referent
Hospital/Clinic available to Somali community													
Government clinic or hospital	211	88.6			82	0.016	2.3(1.2 - 4.6)	5.2	0.604	1.7(0.2 - 14.1)	1.4	0.006	0.1(0.02 - 0.5)
Private clinic	15	86.7			13.3	0.212	0.4(0.08 - 1.7)	60	0.006	19.5(2.3 - 165.8)	13.3	0.979	0.9(0.2 - 5.7)
Government and Private clinic or hospital	33	48.5	NS	NS	15.2	0.193	0.5(0.2 - 1.4)	33.3	0.018	12.9(1.5 - 109.4)	0	0.991	ND
Traditional or homeopathic or spiritual healer	24	100			58.3	0.342	1.6(0.6 - 3.6)	4.2	0.985	0.9(0.05 - 16.1)	37.5	0.9191	1.1(0.3 - 3.9)
Private/Government clinic or hospital/Traditional or homeopathic healer	95	41.1			24.2	0.416	0.7(0.3 - 1.6)	6.3	0.619	1.7(0.2 - 14.7)	10.5	0.753	1.2(0.3 - 4.5)
Private clinic/Traditional or homeopathic healer	27	51.9	Referent	Referent	33.3	Referent	Referent	3.7	Referent	Referent	14.8	Referent	Referent
Hospital/Clinic preferred to Somali community													
Private clinic	53	96.2			37.7	0.352	1.7(0.6 - 5.3)	56.6	0.004	8.1(1.9 - 33.4)	1.9	0.036	0.06(0.005 - 0.8)
Government clinic or hospital	320	67.2	NS	NS	62.8	0.01	3.4(1.3 - 8.7)	1.3	0.127	0.3(0.06 - 1.4)	3.1	0.001	0.1(0.04 - 0.4)
Traditional or homeopathic or spiritual healer	32	84.4	Referent	Referent	15.6	Referent	Referent	15.6	Referent	Referent	53.1	Referent	Referent

% - Percentage; CI - confidence interval; NS - Not Significant; aOR - Adjusted odds ratio; P - Level of significance; P ≤ 0.05 indicates the relationship is significant

Table 3B. Multivariable logistic regression of healthcare seeking behavior during latest illness by provider facility type

Variables	Total population	% Seeking	P (All)	Multivariate aOR (95% CI) (All)	% Seeking (Govt)	P (Govt)	Multivariate aOR (95% CI) (Govt)	% Seeking (Priv)	P (Priv)	Multivariate aOR (95% CI) (Priv)	% Seeking (Trad)	P (Trad)	Multivariate aOR (95% CI) (Trad)
Reasons for choosing health facility													
Cost	180	58.3	0.219	1.8(0.7 - 4.4)	56.1	0.207	1.9(0.7 - 5.3)	1.1			1.1		
Proximity	37	81.1	0.07	2.4(1.0 - 6.3)	51.4	0.141	2.3(0.8 - 6.7)	5.4			24.3		
Trust	42	100	**0.027**	**2.9(1.1 - 7.4)**	95.2	**0.036**	**3.1(1.1 - 8.7)**	0	NS	NS	4.8	NS	NS
Attitude	11	100	0.052	2.8(0.9 - 8.4)	90.9	0.052	3.2(0.9 - 10.3)	0			9.1		
Time saver	21	95.2	0.116	2.3(0.8 - 6.7)	52.4	0.053	3.5(0.9 - 12.8)	42.9			0		
Well Equipped	31	100	0.067	2.5(0.9 - 6.7)	45.2	0.19	2.1(0.7 - 6.9)	48.4			6.5		
Cost/proximity	34	64.7	0.212	1.8(0.7 - 4.9)	35.3	0.414	1.6(0.5 - 5.1)	17.6			11.8		
Cost/Proximity/Trust	33	81.8	0.083	2.4(0.9 - 6.3)	45.5	0.201	2.1(0.7 - 6.3)	12.1			24.2		
Cost/Proximity/Trust/Attitude/Time saver /Equipped	16	31.3	Referent	Referent	25	Referent	Referent	6.3	Referent	Referent	0	Referent	Referent
Time to visit formal health facility													
When self treatment does not work	37	70.3			37.8	0.431	0.8(0.5 - 1.4)	16.2	**0.031**	**3.3(1.1 - 10.2)**	16.2		
Prolonged symptoms	81	56.8			48.1	0.352	0.8(0.6 - 1.2)	7.4	0.522	0.5(0.2 - 1.2)	1.2	NS	NS
Availability of adequate money	14	64.3	NS	NS	14.3	0.15	0.4(0.08 - 1.4)	14.2	0.536	0.9(0.2 - 4.1)	35.7		
Disease severity	127	64.6			53.5	**0.002**	**1.7(1.2 - 2.4)**	2.4	*0.046*	*0.3(0.07 - 0.9)*	8.7		
Immediately	146	89	Referent	Referent	70.5	Referent	Referent	15.1	Referent	Referent	3.4	Referent	Referent
Days after illness sought advice/treatment													
Immediately	126	78.6	0.45	1.1(0.8 - 1.5)	54.2	0.254	1.2(0.8 - 1.8)	12.7			5.6	0.343	0.6(0.2 - 1.7)
1 to 5 Days	203	67	**0.004**	**0.5(1.2 - 2.1)**	52.6	**0.002**	**1.7(1.2 - 2.4)**	8.9	NS	NS	3.9	*0.014*	*0.3(0.2 - 0.8)*
>6 Days	76	76.3	Referent	Referent	60.3	Referent	Referent		Referent	Referent	17.1	Referent	Referent
Three most common illnesses found within your community													
Diarrhea\Malaria	60	80	**0.001**	**2.8(1.7 - 4.7)**	68.3	**0.001**	**2.5(1.4 - 4.3)**	3.3	0.295	3.7(0.3 - 42.1)	8.3		
Diarrhea\Malaria\Acute malnutrition	68	97.1	**0.001**	**3.1(1.9 - 5.1)**	83.8	**0.001**	**2.5(1.5 - 4.2)**	8.8	0.039	9.7(1.1 - 84.9)	4.4	NS	NS
Diarrhea\Malaria\Acute malnutrition\Hypertension\Diabetes\Helminths\Anemia	75	88	**0.001**	**2.8(1.7 - 4.6)**	57.3	**0.024**	**1.8(1.1 - 3.1)**	21.3	**0.002**	**28.8(3.5 - 235.1)**	9.3		
Diarrhea\Malaria\Pregnancy complication\Anemia	107	83.2	**0.001**	**2.7(1.6 - 4.3)**	57.9	**0.016**	**1.9(1.1 - 3.1)**	13.1	**0.015**	**12.4(1.7 - 106.7)**	12.1		
Malaria	95	25.3	Referent	Referent	24.2	Referent	Referent	1.1	Referent	Referent	0	Referent	Referent
Differences in accessing healthcare between men and women in the community													
Yes	40	87.5	NS	NS	50	NS	NS	10	NS	NS	27.5	**0.001**	**5.1(2.1 - 12.3)**
No	365	70.7	Referent	Referent	56.4	Referent	Referent	9.6	Referent	Referent	4.7	Referent	Referent
Healthcare services to be brought closer to community by the county government													
More Health staff	12	66.7			33.3	0.288	0.5(0.2 - 1.6)	16.7			16.7		
More Health facilities	157	93.6			68.2	0.558	0.9(0.6 - 1.4)	14			11.5		
Transport/Ambulance	21	52.4	NS	NS	28.6	0.114	0.4(0.1 - 1.2)	4.8	NS	NS	19	NS	NS
Maternity services	22	100			90.9	0.946	0.9(0.5 - 1.8)	9.1			0		
Drugs	160	46.9			*38.8*	*0.012*	*0.5(0.3 - 0.9)*	6.3			1.9		
Laboratory services	33	90.9	Referent	Referent	81.8	Referent	Referent	6.1	Referent	Referent	3	Referent	Referent

% - Percentage; CI - confidence interval; NS - Not Significant; aOR - Adjusted odds ratio; P - Level of significance; P ≤ 0.05 indicates the relationship is significant

All health facilities or interventions: The following variables showed likelihood of seeking treatment in any health facility or intervention during participants' latest illness including: male gender 5% more likely (OR= 1.5, 95% Cl [1.2 to 2.1], p = 0.002), self-employment, 3% more likely (OR= 1.3, 95% Cl [1.0 to 1.7], p = 0.048), household headship 5% more likely (OR= 1.5, 95% Cl [1.1 to 1.9], p = 0.003) trust as a reason for choosing health facility 9% more likely (OR= 2.3, 95% Cl [1.1 to 7.4], p = 0.027), waiting 1 to 5 days before seeking advice (OR= 0.5, 95% Cl [1.2 to 2.1], p = 0.004), stating Diarrhea\ Malaria (OR= 2.8, 95% Cl [1.7 to 4.7], p = 0.001), Diarrhea\Malaria\Acute malnutrition (OR= 3.1, 95% Cl [1.9 to 5.1], p = 0.001), Diarrhea\ Malaria\ Acute malnutrition\ Hypertension\ Diabetes\Helminths\ Anemia (OR= 2.8, 95% Cl [1.7 to 4.6], p = 0.001), Diarrhea\ Malaria\ Pregnancy complication\ Anemia (OR= 2.7, 95% Cl [1.6 to 4.3], p = 0.001) as the three common illness facing the community. On the other hand, respondents who had health insurance were 5% less likely (OR= 0.5, 95% Cl [0.3 to 0.9], p = 0.014) to seek treatment in any health facility or intervention during their latest illness.

Government hospitals or clinics

Factors that showed likelihood of seeking treatment in the government hospital during participants' latest illness included: household headship (OR= 1.5, 95% Cl [1.2 to 2.1], p = 0.006), stating Government clinic or hospital as the only available facilities in the community (OR= 2.3, 95% Cl [1.2 to 4.6], p = 0.016), preferring Government clinic or hospital in the community (OR= 3.4, 95% Cl [1.3 to 8.7], p = 0.01), trust as a reason for choosing health facility (OR= 3.1, 95% Cl [1.1 to 8.7], p = 0.036), visiting health facility due to disease severity (OR= 1.7, 95% Cl [1.2 to 2.4], p = 0.002), taking 1 to 5 days before visiting health facility (OR= 1.7, 95% Cl [1.2 to 2.4], p = 0.002), stating Diarrhea\ Malaria (OR= 2.5, 95% Cl [1.4 to 4.3], p = 0.001), Diarrhea\Malaria\Acute malnutrition (OR= 2.5, 95% Cl [1.5 to 4.2], p = 0.001), Diarrhea\ Malaria\ Acute malnutrition\ Hypertension\ Diabetes\Helminths\ Anemia (OR= 1.8, 95% Cl [1.1 to 3.1], p = 0.024), Diarrhea\ Malaria\ Pregnancy complication\ Anemia (OR= 1.9, 95% Cl [1.3 to 3.1], p = 0.016) as the three common illness facing the community. On the other hand, factors that were less likely to influence seeking treatment in the government hospital during their latest illness included: Possession of health insurance (OR= 0.3, 95% Cl [0.2 to 0.7], p = 0.003), spending > 3000 Ksh on healthcare (OR= 0.3, 95% Cl [0.2 to 0.7], p = 0.003) and 3001 to 6000Ksh

(OR= 0.3, 95% Cl [0.2 to 0.7], p = 0.003) on healthcare expenditure and suggesting improvement in drugs within community (OR= 0.5, 95% Cl [0.3 to 0.9], p = 0.012)

Private clinic or hospital
In multivariate analysis, male gender (OR= 2.5, 95% Cl [1.4 to 4.9], p = 0.004), formal employment (OR= 2.5, 95% Cl [1.5 to 9.9], p = 0.004), availability of private clinic (OR= 1.5, 95% Cl [1.2 to 2.1], p = 0.006) and Government and Private clinic or hospital (OR= 12.9, 95% Cl [1.5 to 109.4], p = 0.018) in the community, preferring private clinics (OR= 12.9, 95% Cl [1.9 to 33.4], p = 0.004), seeking treatment when self-medication does not work (OR= 3.3, 95% Cl [1.1 to 10.2], p = 0.031), Diarrhea\Malaria\Acute malnutrition (OR= 9.7, 95% Cl [1.1 to 84.9], p = 0.039), Diarrhea\ Malaria\ Acute malnutrition\ Hypertension\ Diabetes\ Helminths\ Anemia (OR= 28.8, 95% Cl [3.5 to 235.1], p = 0.002) and Diarrhea\Malaria\Pregnancy complication\Anemia (OR= 12.4, 95% Cl [1.7 to 106.7], p = 0.015) as the three most common illness found in the community were more likely to seek in the private hospital during their latest illness .
On the other hand, independent factors that were less likely to be associated with seeking treatment in the private hospital during their latest illness included: monthly income of 9601 to 19200 Ksh (OR= 0.3, 95% Cl [0.1 to 0.9], p = 0.027), spending > 3000 Ksh on healthcare (OR= 0.3, 95% Cl [0.2 to 0.7], p = 0.003), household population of less than 4 persons (OR= 0.3, 95% Cl [0.9 to 0.7], p = 0.008) and household population between 5 to 10 persons (OR= 0.2, 95% Cl [0.1 to 0.5], p = 0.001) and visiting health facility due to disease severity (OR= 0.3, 95% Cl [0.2 to 0.9], p = 0.046).

Traditional or spiritual healer
In multivariate analysis, the respondents who stated the existence of differences in the access of healthcare services between men and women in the community were more likely to seeking treatment among the traditional or spiritual healers during their latest illness (OR= 5.1, 95% Cl [2.1 to 12.3], p = 0.001) compared to those who stated the lack of gender differences in accessing healthcare. On the other hand, independent factors that were less likely to be associated with seeking treatment among the traditional or spiritual healers during their latest illness included: mothers being the major contributor to healthcare expenditure (OR= 0.4, 95% Cl [0.2 to 0.9], p = 0.045), stating the existence of only government hospital to the community (OR= 0.1, 95% Cl [0.02 to 0.5], p = 0.006), preferring private (OR= 0.06, 95% Cl [0.005 to 0.8], p = 0.036) and government hospitals (OR= 0.1, 95% Cl [0.04 to 0.4], p = 0.001) and visiting health facility 1 to 5 days post onset of current illness (OR= 0.3, 95% Cl [0.2 to 0.8], p = 0.014).

DISCUSSION
This study is among the first of its kind to assess health care seeking behavior putting into account individual choices between modern health care systems (either government or private facility) and traditional or spiritual settings. Specifically, we examined the level of health care seeking patterns, preferred health facility type, and factors driving these individual choices among initially marginalized community in the semi-arid region of North Eastern region of Kenya. Currently, Garissa County has 205 health facilities. Out of these, 68 are level two facilities, seven are level four, 85 are private clinics, 13 level three private, 4 are private Nursing Homes, one is private Hospital, 21 are level three facilities and one is a level five facility based in Garissa Town (Garissa County Government, 2018). Most of the health facilities are along the river and urban centers where there are settlements, with an average distance to the nearest health facility being 25Km. The number of doctor population ratio being currently 1:41,538 while the nurse population ratio is 1:2,453 (Garissa County Government, 2018). This study becomes necessary owing to the above stated facts hence its findings could be valuable for policymakers.

The level of seeking healthcare intervention (treatment or advice) was significantly high in this population (72.3%). This was especially encouraging because most of participants sought medical treatment from modern or formal healthcare setting (55.5% Government and 9.1% in private hospitals) versus only (6.9%) seeking medical treatment\advices from traditional or homeopathic or spiritual healers. Even though we did not specify the last disease or illness in which participant sought treatment for, the high level of seeking modern medical intervention is worth noting given that this county is known for five most prevalent diseases associated with morbidity and mortality in Kenya; including Upper Respiratory Tract Infections (30.9%), Urinary Tract Infection (15.2%), Diarrheal diseases (9.5%), Diseases of the skin (7.4%) and Pneumonia (6.7%) (Garissa County Government, 2018). Literature reports various level of health care utilization pattern; In a Nigerian study, 22% of children with pneumonia sought care first from inappropriate health care providers (pharmacies/chemists, friends/relatives) (Kirolos et al., 2018). In a Zambian household survey, mothers reported a high proportion of sick children sought skilled provider for care, including 76% of rural children and 62% of urban children (Carter et al., 2018). In Burkina Faso, Beogo et al., (2018) showed that participants who had severe medical conditions,

almost equally sought care from for-profit or not-for-profit facilities, only 36.4% preferred nurses compared to MDs. In Uganda, Atwine & Hjelm, (2017), reported that persons with diabetes buy medicine from a drug shop or pharmacy and use home self-medication or search for help from private health facilities or from traditional healers, but to a lesser extent before they seek help from formal health facility. This and our study reiterate the need for continuous education on the importance of seeking appropriate medical intervention in tandem with the onset of symptoms and signs.

In this study, the predisposing and enabling factors (gender, employment, household headship, trust, waiting and turnaround time, common disease type, availability of health insurance) were generally associated with seeking treatment in any health facility or intervention during their latest illness. Overall, a wealth of existing literature concurred on similar findings. Andersen's (1995) behavioral model identifies three levels of factors that contribute to the decision to seek care or not. For Everett et al. (2009), predisposing and enabling factors (gender, age, metropolitan residence, or uninsured or on public insurance) were associated with seeking health care. For others, the drivers are related to efficiency (cost/quality, mother's level of education, Distance to the nearest health facility, Financial barriers) (Running et al., 2006; Sreeramareddy et al., 2006; Feikin et al., 2009; Getahun et al., 2010). Lastly, there are a number of factors that contributed to the perceived and evaluated need to seek care, including the perception of symptoms as severe or presence of easily identifiable symptoms have been shown to prompt care-seeking for sick infants and children (Shah et al., 2014). In addition, preference for seeking informal care, such as self-medication or traditional healers can also delay seeking formal care (Nonyane et al., 2016).

The unique feature of this study, was the ability to evaluate factors predisposing participants to visiting the formal (government and privately owned) versus informal health facility. Seeking care from privately owned formal healthcare facilities was generally marked by high socio-economic status and power indirectly shown by employment and male gender. The availability of healthcare insurance in Kenya generally known as National Hospital Insurance Fund (NHIF) a state operated scheme mandated to provide medical insurance cover to all its members and their declared dependents, was less likely to influence seeking care from government facility. Further, health care involving payments even as little as >3000 ksh was associated with poor care seeking from government facilities. The importance of socio-economic scale as a driver for healthcare seeking behavior was also reported by other studies. Dhillon et al., (2012) noted that healthcare associated costs are often a barrier for care-seeking. In Rwanda Kagabo et al., (2018) noted that none of indicators of poor socioeconomic status were associated with care-seeking and for those who did not seek care, very few indicated limited finances as a barrier. This Rwanda studies may be explained by the focus of Rwanda's health policies on reducing social inequity (Kagabo et al., 2018) The community-based health insurance, called *mutuelle de santé*, has increased care-seeking by reducing financial barriers to care, with enrolled families having twice the healthcare utilization rates compared to uninsured families (Schneider and Hanson, 2007). This was on the contrary to our study where those who had the NHIF cover were unlikely to seek care from the government facility. This should be an avenue for rigorous investigation in this region, because the importance of NHIF in seeking treatment in other regions of Kenya has been observed (Maina et al., 2016).

The healthcare availability, individual preferences and the type of services offered were key in influencing care seeking in both government and privately own facilities. The WHO acknowledges that responsiveness to people's expectations is an essential intermediary goal of a health system and poor responsiveness can negatively affect utilization of services and the effectiveness of interventions (WHO, 2007). Arguably a well-functioning health system delivers quality health services that attain patient/caregiver satisfaction and ultimately elicits demand for the said healthcare services. Evidence from this study and others reiterate the need to strengthen child healthcare systems and in particular to prioritize efforts in promoting access to pharmaceutical supplies, adequate clinical examination of the child, along with improving health worker attitudes towards caregivers and reducing time in waiting for child healthcare services.

The health provider characteristics such as trustworthiness and health facility factors such as improvement in drug stocking were equally important in influencing the choice of health facility type. The dearth of evidence from various studies in health showed relative significance of attributes sometimes differed with some studies. For example, study to elicit people's preferences for attributes of public health facilities in South Africa also found availability of medicines to have the greatest marginal effect with other clinical attributes such as thorough examination and provision of expert advice being more valued than non-clinical quality care attributes including waiting time, staff attitude and treatment by doctors or nurses (Honda et al., 2015). Similarly, a study in rural Ethiopia on women's preference for obstetric care found availability of drugs and equipment as the most

important attributes of a health facility, followed by provider type and attitude of health provider (Kruk et al., 2010). In Zambia, thorough examination was the most important health facility characteristic, followed by avoiding rude staff and availability of drugs (Hanson et al., 2005). In Malawi (Michaels-Igbokwe et al., 2015) and Tanzania (Kruk et al., 2009), provider attitude and reliable access to adequate quantities of drugs and equipment were the two most important utility features of a health facility for reproductive health services for young people and obstetric services for women, respectively.

In our study, longer duration of illness was a strong predictor of care-seeking in formal facility rather than in informal facilities. Household caregivers have reported quick death due to illness for not seeking care (Kagabo et al., 2018). There are several factors identified in other studies that could contribute to the delays in seeking care including lack of awareness of the severity of illness (Burton et al., 2011), first attempting traditional medicines or self-treatment (Diaz et al., 2013), as well as lack of access to timely transportation when an illness occurs quickly (Kassile et al., 2014). Further, strengthening the emergency transport system to facilitate urgent transfers from the community to a health facility is needed in this community.

The perceived differences in accessing healthcare between men and women in the community was a key driver for seeking care among traditional or spiritual healers. Studies have reported the importance of cultural beliefs and practice (Chibwana et al., 2009) and perception of the cause of the illness (Abubakar et al., 2013) in contributing to the delay for caregivers to access medical care for illness. Observations indicate that if caregivers perceive a certain illness to be unrelated to biomedical causes, they are less willing to go for biomedical care, or at the very least, may delay the speed at which they take up biomedical care (Dillip et al., 2012). These observations point to the central role of socio-cultural factors in determining health-seeking behavior.

Our study findings need to be interpreted in light of some limitations. We used in-depth interviews only in our data collection. Triangulating our results with focused group discussions, observations and surveys could have been used to increase validity of our data. However, the patterns of results closely mirroring earlier disease-specific studies (Winkler et al., 2010) attest to the validity of both our data and our conclusions. Information about the care-seeking patterns during the latest illness was based on caregiver's recall. However, we tried to minimize recall bias by probing the caregivers who had been residing in the area for the last 5 years and have themselves or a member of their household been ill in the past 14 days. Within this 14-day period, the circumstances (social, economic, environmental) are likely to have remained the same and the event recall was feasible. The use of a rigorous pre-tested methodological tool, conducting interviews in local dialect, and use of pictograms to aid comprehension of choice sets and the very high response rate, represent strengths for our study.

The following conclusions can therefore be drawn; that the advent of devolved government system in Kenya has seen Garissa county has achieved remarkable progress in health indicators as evident by the significantly high proportion of the households seeking appropriate healthcare. Ongoing efforts by the county government in economic development, food security, and clean water and sanitation will undoubtedly go a long way towards improving the health of the average Somali community. Gender, occupation, household headship, health insurance, health personnel attitude and trustworthiness, availability and the preference of current health facility, duration of illness and perceived illnesses in the community were independent predictors of care seeking patterns in this region. Other than these factors, the socio-cultural beliefs were key in choosing between Traditional healing systems and biomedical treatment. Undeniably, incessant improvement in education, health facilities and medical services in the community, are imperative to improve care seeking pattern in this Semi-arid region of Kenya.

Competing interests

The authors declare no competing interests.

Authors' contributions

This work was part of Master of Science degree for HM in public health at the Jomo Kenyatta University of Agriculture and Technology. HM, PW and AM conceived the study. HM collected and analyzed the data and prepared the draft manuscript. PW and AM provided guidance and mentorship during the implementation of the study. All authors reviewed and approved the final manuscript.

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