

Knowledge of Health Communications Management and Treatment Seeking-Behavior Regarding Malaria in Uganda

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Abstract

In Uganda, there is still insufficient comprehension of malaria as a lethal disease especially in rural areas despite universal bed-net distribution coverage and effective anti-malarial treatment. **Aim:** To get evidence-based knowledge to establish the contribution of an individuals' knowledge from various health communications that could increase their active involvement in health care especially seeking timely appropriate treatment for malaria or suspected malaria. **Method:** A cross-sectional survey using a correlational design was employed on a clustered sample of 380 rural households in 05 sub-counties of Kanungu district. Data were corrected between October 2016-January 2017 using researcher-administered questionnaires, key-informant interviews and focus group discussions. Correlation analysis was done. **Result:** There is a significant positive relationship between knowledge of health communications and treatment-seeking behavior ($r = 0.312$; $p \leq 0.01$). **Conclusion:** Exposure to consistent Behavioral Change Communications messages influences treatment-seeking behaviour. Thus, in malaria-prone communities, it appears that other factors including sufficient targeted persuasive health communication are lacking in influencing personal orientations towards treatment-seeking behaviour. Therefore, proper Health Communications management supplements efforts from other disciplines and players, against malaria in Uganda.

Keywords

Health Communications, Treatment Seeking Behavior

1. Introduction

In Uganda notwithstanding sufficient availability of information on malaria through various media, research [1] [2] [3] shows that even where people (about 95%) know the various malaria prevention and treatment techniques, they (about 68%) still do not apply them in seeking treatment implying that there are huge gaps between knowledge, awareness and behavioral practices. There is thus inadequate treatment-seeking behavioral response regarding malaria in Uganda notwithstanding sufficient availability of information on malaria through various media. Research [4] revealed that even where people (about 95%) know the various malaria prevention and treatment techniques; they (about 68%) still do not apply them in seeking treatment. Reference [5] found out that there are huge gaps between knowledge, awareness and behavioral practices. Therefore, in malaria-prone communities, it appears that other factors including sufficient targeted persuasive health communication are lacking in influencing treatment-seeking behavior. This is coupled with the fact that despite Uganda government efforts to combat and eradicate malaria, it remains one of the main causes of death [6]. By 2016 efforts to combat and eradicate malaria in Uganda are mainly on the supply-side and include use of ACTs, giving out insecticide-impregnated mosquito nets, integrated communications and inside the house residual spraying of insecticides [4] plus a host of health communication messages through channels like radio-shows and adverts, community drama, village meetings and interpersonal communication.

According to the Uganda Stop Malaria Project, the behavioral communications campaigns (BCC) [7] undertaken in this period were meant to reinforce four key malaria messages through various channels such as radio shows and adverts, community drama village meetings and interpersonal communication. The four messages included: proper and consistent use of long lasting nets (LLINs); increased uptake of IPTp; early treatment-seeking behavior within 24 hours on the onset of signs and symptoms of malaria; and male involvement in malaria prevention and treatment services. Nonetheless, the gap between knowledge, awareness and practice has continued to exist [5].

Health Communicators need to search and filter information from various other academic faculties like a business, procurement, marketing, psychology or similar behavioural sciences. Such an exercise helps professionals to select from a variety of methods and strategies of communication that they suppose can best pass over their intended message. In recent times it is common to find communicators engaged in health campaigns, media advocacy, drama, entertainment advocacy, plus interpersonal communication.

Alternatively, communicators can set communication objectives and propose plans to meet the expected outcomes or analyse the targeted audiences by determining their interests, their attitudes, their behaviours, benefits, and barriers to message assimilation. Other modes could be through choosing communication channels and materials for information exchange given what would most conveniently reach target audiences. They can also originate, pilot message ideas

and concepts to establish comprehension, acceptability and views about the message; monitor reactions and exposure to selected messages then, lastly evaluate the impact level of the message.

Interpersonal communications have continued to form a significant component of health communication [8]. It is common in Uganda now to find each local authority with a Village Health Worker (VHW) popularly called a Village Health Team (VHT), providing person-to-person or face-to-face health information sharing. This new development has the potential of affecting and influencing health outcomes [9], behaviours and decisions at household and individual levels. Thus, Interpersonal communication creates close relationships that wouldn't be possible with other forms of communication like radio and Television mainly because of the power to give instant explanations and additions on specific communication messages.

It is against this background that this study sought to seek knowledge and establish reality about the relationship between an individual's knowledge of health communication and their treatment seeking behavior when they experience symptoms or have actual malaria.

2. Methods and Materials

This study investigated knowledge of Health communications as the independent variable and Treatment seeking behavior (either delayed action or immediate action in seeking treatment) as the dependent variable. A cross-sectional survey [10] correlational and descriptive, community-based among a randomly clustered sample of 380 rural households in five randomly selected sub-counties of Kanungu was done using pre-tested questionnaires and focus group discussions between October 2016 and January 2017. Respondents were required to give responses based on a recall period of approximately one-year back. The parishes were located in five rural sub-counties (Kambuga, Rugyeyo, Nyamirama, Kirima and Kanyantorogo) of Kanungu District Local Government. Simple random sampling was used to zero on the five sub-counties for the study (Kambuga, Rugyeyo, Nyamirama, Kirima and Kanyantorogo). All the sub-counties of Kanungu had a minimum of four parishes and a maximum of six. Therefore, to ensure balanced representation, four parishes were considered for this study. Quantitative approaches involved the use of a questionnaire while Qualitative approaches were used in focus group and key informant interviews.

Then, for the choice of households in each parish, no sampling was done because of the uncertainty of finding participants at home. So, the data collectors relied on the availability of "qualified" respondents to get a maximum of 19 households in each of the 4 parishes of the 5 selected sub-counties (19 households \times 4 parishes \times 5 sub-counties = 380 respondents). Nonetheless, care was taken to avoid concentrated interviews in concentrated homesteads.

This study was confined to adults aged 18 years and above mainly house heads who would satisfy the "inclusion criteria" (having experienced fever that turned out to be malaria or was suspected to be malaria during the one-year recall pe-

riod).

Close-ended structured questionnaires (n = 380 households) were administered, focus group discussions (n = 5) and semi-structured interviews with key informants (n = 30) were held. Responses were recorded in two forms of 5-point Likert scales. One scale used Strongly Agree = 5, Agree = 4, Not sure = 3, Disagree = 2, Strongly Disagree = 1. Another scale also had 5 points as; Always = 5, Frequently = 4, Sometimes = 3, Rarely = 2, Never = 1). One section of the Households questionnaire was composed of some statements (n = 20) that were expected to represent a respondents' disposition towards health communication and how it is managed to their benefit. Respondents were required to indicate the frequency to which the statements represented their experiences by ticking the most applicable scale. Another section (n = 20) sought to find out a respondent's treatment seeking behavior classified as either delayed action (self-medication then later visiting health care facility) or immediate action (visiting a healthcare facility). Respondents were required to indicate the extent to which the provided statements applied to them by ticking the most applicable choice on the Likert scale. The section of demographics had 10 items to document respondent personal characteristics. Lastly, with SPSS statistics version 23, items in the questionnaire were given types (numeric or not), labels (the questions to respondents) values (highest 5 and lowest 1, 6 as missing value) and type of measures (scale, ordinal, nominal). The relationship between study variables was accordingly established through correlation analysis.

Validity for each of the research instruments, nine Subject Matter Experts were engaged and required to provide their honest views on whether items in the research instrument represented the variables in question (knowledge of health communication or treatment-seeking behavior) in terms of readability, clarity and comprehensiveness. The feedback was calculated into a *cvi* for the entire questionnaire (highest *cvi* was 1.0 while the lowest was 0.86) implying that all questions lay within the limits.

Reliability of the questionnaire was determined through a pre-test on 40 respondents who were not to be included in the main study sample. Then, for the validity test, the KII checklist and FGD checklist were evaluated by 09 researchers (subject matter experts) before use for data collection.

Ethical clearance was obtained from the University Research and Ethics Committee, Uganda National Council for Science and Technology (UNCST), Office of the President of Uganda, Resident District Commissioner (RDC) Kanungu, District Health Officer, and Local Council Chairpersons of the sub-counties where data was collected. Study recruits were explained to what the study was all about before consent to participate was requested. All respondents were told clearly that they could decline to respond to any question or were free to pull-out of the interactions at any stage.

3. Results

Socio-demographic data: The study participants were required to provide a few

responses relating to their socio-demographics. The questions were on gender, age, highest level of formal education, marital status, religion, standard monthly income, main occupation, immediate family size, residential status and main source of family income. The result of that inquiry is presented in **Table 1** and **Table 2**.

In **Table 3**, the responses to each statement about the knowledge of health communication as presented to the respondents are shown. The responses are explained in terms of descriptive statistics which included; mean, standard deviation and percentage of the responses on the extreme side “Never” or combined responses on either “Sometimes/Rarely” or “Frequently/always” score. The following scale was used during the interpretation of mean.

<i>Mean range</i>	<i>Response rating</i>
<i>Mean 1.50</i>	<i>Never</i>
<i>1.5 < mean 3.50</i>	<i>Sometimes/ Rarely</i>
<i>Mean > 3.50</i>	<i>Frequently/ Always</i>

Table 1. Biographic data.

Variable	Levels	N	%
Gender	Male	222	58.4
	Female	158	41.6
	Total	380	100.0
Age	18 - 22	1	0.3
	23 - 27	70	18.4
	28 - 32	94	24.7
	33 - 38	57	15.0
	39 - 42	58	15.3
	43 and above	100	26.3
	Total	380	100.0
	Formal education status	No formal education	0
Primary		273	71.8
Secondary		74	19.5
Certificate		20	5.3
Diploma		11	2.9
Degree and above		1	0.3
Total		380	100
Marital status	Was married	146	38.4
	Now married	194	51.1
	Never married	27	7.1
	System	13	3.5
Total	380		

Table 2. Socio-factors.

Variable	Levels	N	%
Religion	Catholic	135	35.5
	Protestant	214	56.3
	Pentecostal	19	5.0
	Seventh Day	6	1.6
	Muslim	6	1.6
	Total	380	100
Standard monthly income	Shs 30,000 and below	141	37.1
	Shs 30,000 - 50,000	54	14.2
	Shs 60,000 - 100,000	82	21.6
	Shs 100,000 and more	103	27.1
	Total	380	100
Main occupation	Salaried employee	15	3.9
	Casual worker	32	8.4
	Business person	69	18.2
	Family worker/peasant	250	65.8
	Commercial farmer	11	2.9
	None of the above	3	0.8
Total	380	100.0	
Family size	1 - 2 people	53	13.9
	3 - 4 people	147	38.7
	5 - 6 people	103	27.1
	7 and above	77	20.3
	Total	380	100
Residential status	Family home	306	80.5
	Renting	70	18.4
	Total	376	100
Source of family income	Farm produce	181	47.6
	Trade/business	186	48.9
	Salary	13	3.4
	Total	380	100

In **Table 3**, there are some salient revelations about health communications regarding malaria in Kanungu district. The majority (333: 87.9%) of the respondents at House Hold level said that they listen to health-related programs on radios and these included topics like Safe motherhood, safe male circumcision, child nutrition, healthy feeding and child spacing. Particularly for malaria, 322 (85%) respondents said they listen to malaria-related broadcasts. This tallied

Table 3. Knowledge of health communications management.

	Never N (%)	Sometimes N (%)	Always N (%)	Mean	Std S
I listen to health programs on radio	46 (12.1)	173 (45.6)	160 (42.3)	3.19	1.324
I have viewed Malaria related health programs on TV	327 (86.3)	42 (11.1)	10 (2.6)	1.22	0.674
I listen to malaria related programs on radio	57 (15)	216 (57)	106 (28)	2.68	1.269
I read about health programs in newspapers	328 (86.8)	46 (12.2)	6 (1.2)	1.17	0.518
I hear local leaders talk about malaria	100 (26.4)	217 (57.2)	62 (16.4)	2.20	1.138
I can identify radio station that usually discusses malaria issues	57 (13.5)	223 (58.8)	105 (27.7)	2.64	1.181
I am aware of the days when malaria programs are on radio	63 (16.6)	214 (58)	96 (25.4)	2.53	1.169
I am aware of the time when malaria programs are on radio	63 (16.6)	219 (57.8)	97 (25.6)	2.53	1.176
I hear a lot of talk about malaria	37 (9.8)	264 (40.9)	78 (20.6)	2.63	1.036
I find Malaria related messages on TV irritating	274 (72.3)	102 (16.9)	5 (0.9)	1.42	0.753
I am aware of a government program on malaria prevention	57 (15)	174 (45.9)	148 (39.1)	2.98	1.208
Malaria-related messages are clear to me	123 (32.5)	170 (45)	85 (22.5)	2.36	1.239
There are many things I would like to learn about malaria	9 (2.4)	117 (30.8)	253 (66.7)	3.79	0.950
We usually discuss malaria related issues at home	170 (45)	157 (41.5)	51 (13.5)	2.03	1.202
I have seen a bill-board in Kanungu district with malaria messages	258 (68)	111 (29.3)	10 (2.6)	1.43	0.757
Malaria messages are confusing	180 (57.4)	170 (42.7)	30 (7.9)	1.81	0.950
We hold regular village meetings to discuss health issues including malaria	201 (52.9)	131 (34.3)	48 (12.6)	1.83	1.146
I like to know more about malaria	5 (0.3)	75 (19.8)	298 (78.8)	4.04	0.893
I have heard a message called “Obulamu” on Radio	121 (31.8)	207 (54.4)	52 (13.7)	2.13	1.114
Our local leaders update us on government related programs on health	172 (45.3)	172 (45.3)	36 (9.5)	1.92	1.064

Source: Primary data, 2017. Note: Figures in brackets represent the percentage of valid response.

well with 279 people who said they actually can identify a radio station that relays malaria-related messages especially Kanungu Broadcasting Services (KBS). Consequently, an equally big number of respondents (322: 85%) knew at least one government program on malaria (mainly sleeping under mosquito bed nets).

Notwithstanding this listenership scenario, 370 (97%) respondents still wanted to know more about malaria (mean: 4.04) and thus, 180 (57.4%) believed that malaria-related messages in the media were clear, in addition to 123 (32.5%) who said the messages communicated on malaria were not clear. The views on the clarity of messages were also echoed in the Focus Group Discussion (FGD):

“The messages related to malaria are good. Even those on the prevention of HIV/AIDS through adult male circumcision are good.” (FGD member, female, Kambuga)

“Yes. Malaria related messages are good because they talk about prevention and early treatment, distribution of bed-nets and how best to use the nets. They talk about family choice and child spacing for good mother and child health. For HIV, it is mainly on testing and adult safe male circumcision” (FGD member,

male, Kirima)

More issues about health communications management can be seen in where 327 (86.3%) respondents had never seen a malaria-related program on Television in Kanungu (TV coverage is limited to Satellite subscribers) or read a malaria-related communication from a Newspaper (328: 86.8%).

When asked about the kind of media that broadcasts/gives health information in Kanungu district, all the 30 Key Informants mentioned radio as the primary source.

“Kanungu is now blessed with FM radio stations. It used to be difficult to tune radio Uganda (referring to government owned Uganda Broadcasting Corporation (UBC)) and the time was tricky. People can now move with radios in the banana plantation or tea plantation or wherever they are working during the day and continue listening to the radio. The reception is good everywhere. However, most will be targeting radio-based personal announcements and musical entertainment” (KI, Town Council member)

There was a low rating of TV and newspapers as sources of information in Kanungu. This also tallies with the responses from the households where 86.3% said they never watch TV.

“...TV? It is difficult to maintain subscription on these paid channels. If you want a solar panel that powers TV, you have to buy an inverter, then a monthly subscription. That is very expensive. For Newspapers, that one is also not possible. It is those people at the district who can get newspapers in time for us we read very old newspapers without updates.” (KI, Drug shop operator)

On the issue of what kind of communications/topics mainly covered in the media in Kanungu, 100% Key Informants mentioned Malaria prevention, HIV Prevention, Food and Nutrition and Family Planning. 83% mentioned Maternal Health and on Mosquito Nets. 66% Key informants mentioned Sexually Transmitted Diseases, safe Male Circumcision and Immunization.

For the details of the diseases that are mainly discussed or focused on in the media, 66% mentioned Typhoid, STDs and measles. 100% mentioned malaria and HIV/AIDS while 50% mentioned Diarrhoea and Tuberculosis while 33% mentioned Brucella and Hepatitis B.

FGDs were held at 5 locations in the sampled sub-counties. In Ruyeyo, participants said they mainly got information on health programs from Radios through Health Talks by practitioners in the field. They identified radios as Kanungu Broadcasting Services (KBS), Kanungu Frequency Modulator (FM) and Kinkizi FM. They also mentioned the newspaper advertisements from the Ministry of Health and some NGOs that were involved in reproductive health programs especially family planning and safe male circumcision. This information corroborated what the key informants were also saying on the same subject of health communications.

“In Ruyeyo, we mainly get information on health programs from Radios through Health Talks by practitioners in the field. There is Kanungu Broadcast-

ing Services (KBS), Kanungu FM and Kinkizi FM. In the newspapers, there are always advertisements from Ministry of Health and some NGOs that are involved in reproductive health programs especially family planning and safe male circumcision”. (FGD member, male)

“The common source of information about malaria are the radio adverts on KBS, Kinkizi FM and Kanungu FM. Once in a while we watch TV.” (FGD member, female)

Furthermore, it came out prominent in the discussions that the Ministry of Health was heavily involved in malaria prevention through the distribution of mosquito bed-nets and teaching people how to use the bed-nets. Also, that the ministry was “loud” on HIV/AIDS prevention and treatment plus medication adherence. They said that currently, there was a program called “Obulamu” and it was through it that most of the health communications were channelled (mean: 2.13). So, whereas this knowledge on the ministry of health program called “Obulamu” was prominent in this focus group discussion, 172 (31.8%) respondents in the households had said they didn’t know it.

“Ministry of Health is heavily involved in malaria prevention through distribution of mosquito bed-nets and teaching people how to use the bed-nets. Also, for HIV/AIDS prevention and treatment plus medication adherence. Currently, there is a program called ‘Obulamu’ and it is through it that most of these communications are channelled. They are always on the radio at different times of the day so I think most people should be able to once in a while get some message from this ‘Obulamu’ announcements.” (FGD member, male)

On the timing of the health programs on radio, discussants agreed that health talks were always on the radio at different times of the day so most people should be able to once in a while get some message, especially from public/official announcements.

Discussants commended Radio presenters as being good because it appeared that they researched before going on air. They were derived from issues like asking good questions to the guests on the program such that listeners got good information and the presenters allowed people to “phone-in” and ask questions on what could not have been clear. It was also noted that some sensitive programs like on STDs and safe-male circumcision were often aired at night when people should be in bed and children already asleep.

At Kambuga sub-county, FGD members also mentioned the radio as the main source of health information. They said that once in awhile they watched TV. The health information programs were said to be usually about Family Planning, HIV/AIDS prevention, Tuberculosis, Child Nutrition and Maternal health. This tallied with what Key informants also mentioned on the same subject. Participants said that featured programs were very pleasant and educative.

“The common source of information about malaria are the radio adverts on KBS, Kinkizi FM and Kanungu FM. Once in a while we watch TV.” (FGD member, male)

“The programs are usually about Family Planning, HIV/AIDS prevention, TB, Child Nutrition and Maternal health.” (FGD member, female)

Members said presenters told the audiences about what was on the ground like if people wanted to be provided with mosquito nets, how to prevent malaria through clearing bushes and closing windows early enough in the evenings. Programs also covered good nutrition.

“... The featured programs are very pleasant and educative. They tell us about what is on the ground like if we want to be provided with mosquito nets, how to prevent malaria through clearing bushes and closing windows early enough in the evenings. They also talk about good nutrition for children and taking children to hospital quickly if they detect signs of fever” (FGD member, female)

On the health communications program called “Obulamu” that was currently engaged in health communications, participants agreed that it was good and somehow conveniently aired in the evenings and at night.

“... Yes, the program called ‘Obulamu’ is currently engaged in health communications and it is good and conveniently aired in the evenings.” “But somehow people sleep early so they may not hear a lot of it.” (FGD member, male)

Commenting on most programs on health, participants concurred that radio stations and program presenters featured professionals in the health field and they gave good technical explanations to questions when people called-in asking.

“... On most programs on health, they bring professionals in the health field and they give real technical explanations to questions when people call-in. Even the radio presenters are good. They ask good and educative questions” (FGD member, male)

The third FGD was held at Kanyantorogo Health Centre. Participants common source of health-related programs were the FM radios especially through a health talk program called **Obulamu** that was mentioned as bringing “a lot” of good health-related messages especially those on malaria prevention and prevention of HIV/AIDS through adult male circumcision.

*“... The common source of health-related programs are the FM radios here. There is a program called **Obulamu** and this brings a lot of health-related messages.” (FGD member, female, Kanyantorogo)*

“... Here, the common sources are the radios and village health teams. The health programs in this area include: the maternal health voucher project, nutrition programs, malaria prevention and HIV/AIDS prevention through adult safe male circumcision. The messages on malaria are not threatening. They make people want to implement them and be protective” (FGD member, female, Kanyantorogo)

Members said that consequently, many people responded to the messages and go to get services in health centres for example for safe-male circumcision, family planning, immunizations, HIV/AIDS testing, early childhood development lessons like good breastfeeding and nutritious foods for children. Also, pregnant mothers were said to be going for information about the prevention of mother-to-child HIV transmission and many other reproductive health issues. Par-

ticipants also said the seemingly good attention put on radios was the fact that most small hand-held cell phones have small radios so people can move with them to dig or any other household related chores. It was also a unanimous view that the featured guests on talk-shows were mainly medical doctors who answered call-in questions very well. At Kirima, the FGDs common source of health information was the radios and newspapers.

Members said there was KBS, Kinkizi FM and Kanungu FM. The Newspapers were the New Vision, Monitor and Orumuri. They also said that the programs covered were mainly in the field of family planning, food and nutrition, HIV/AIDS, Malaria, TB and Sexually Transmitted Diseases.

“... The common source of health information here are the radios and newspapers. There is KBS, Kinkizi FM and Kanungu FM. The Newspapers are the New Vision, Monitor and Orumuri.” (FGD member, female)

“... Most of the programs covered are mainly in the field of family planning, food and nutrition, HIV/AIDS, Malaria, TB and Sexually Transmitted Diseases.” (FGD member, male)

“... Most of the programs covered are mainly in the field of family planning, food and nutrition, HIV/AIDS, Malaria, TB and Sexually Transmitted Diseases.” (FGD member, male)

Asked whether malaria messages in the media were pleasant, members concurred adding that indeed Malaria related messages were good because they talked about prevention and early treatment, distribution of bed-nets and how best to use the nets.

“... Yes, malaria related messages are good because they talk about prevention and early treatment, distribution of bed-nets and how best to use the nets. They talk about family choice and child spacing for good mother and child health. For HIV, it is mainly on testing and adult safe male circumcision.” (FGD member, female)

It was also noted that programs in the media covered issues about family choice and child spacing for good mother and child health. For HIV, it was mainly on testing and adult safe male circumcision. Asked to comment on the government health communications program called “Obulamu”, members said that it was true they listened to it and that mostly on weekends when most school-going children are at home and evening when people are already at home, such timing was convenient. Also, members said that even those programs that target the youths were aired over the weekend so that students and teenagers could listen to them at home. On the issue of radio presenters, members said that they were usually good and featured guests/people with field experience and the program moderators gave listeners ample opportunity to call-in.

“... The program called Obulamu? Yes. The health proms are put on air on weekends and evenings when people are already at home so the time is convenient.” (FGD member, female, Kirima)

“... Even those programs that target the youths are aired over the weekend so that students and teenagers can listen to them at home.” (FGD member, male,

Kirima)

The last FGD was held in Nyamirama sub-county. Here, group members, like in other groups identified the common sources of health-related programs as the radios and village health teams.

“... The common source of health information here are the radios and newspapers. There is Kanungu Broadcasting Services, Kinkizi FM and Kanungu FM. The Newspapers are the New Vision, Monitor and Orumuri.” (FGD member, male)

The health programs listened to commonly in this area included: the maternal health voucher project, nutrition programs, malaria prevention and HIV/AIDS prevention through adult safe male circumcision. It was agreed in the discussions that the messages on malaria were not threatening to listeners. The government health program on radio called “Obulamu” was listened to in this area according to the participants and that it mainly covered topics on Tuberculosis prevention, safe male circumcision and malaria. While discussing the timing of the health programs, members said that the timing of the programs on the radio was usually convenient because it was in the evening when people were supposedly at home. Commenting on program presenters, participants generally agreed that the presenters were knowledgeable and the guests they usually brought on the radio were also knowledgeable:

“... Here, the common sources are the radios and village health teams.” (FGD member, female)

“... The health programs in this area include: the maternal health voucher project, nutrition programs, malaria prevention and HIV/AIDS prevention through adult safe male circumcision.” (FGD member, male)

“... The messages on malaria are not threatening. They make people want to implement them and be protective.” (FGD member, female)

“... Yes, that program is on radio and has topics on Tuberculosis prevention, safe male circumcision and malaria. The timing of the programs on radio is usually convenient because it is in the evening when people are at home.” (FGD member, female)

“... The presenters are knowledgeable and the guests they usually bring on radio are also knowledgeable” (FGD member, male)

Lastly, this study sought to know whether information on malaria was adequate by asking participants whether they would like to know more about malaria. From the HH responses, it was revealed that the majority (298: 78.8%, mean 4.04) wanted to know more about malaria. This scenario was echoed in the FGD thus:

“... We would like to know more about current research results in the prevention or treatment of complicated malaria cases especially when a patient reports late for treatment.” (FGD member, male, Rugyeyo)

“... We would wish to know modern treatment options and research updates” (FGD member, female, Nurse Kambuga)

“... There is a lot. Every time they tell us about new drugs that are better than

the ones we have been using or having on the market and drug shops.” (FGD member, female, Nurse Kanyantorogo)

“... We would like to know new drugs on market for malaria.” (FGD member, female, Nurse Kirima)

“... We would like to know why malaria can't be eliminated totally.” (FGD member, male Nurse, Nyamirama)

As shown in **Table 4** there is a significant relationship between health communication management and treatment-seeking behavior ($r = 0.312^{**}$; $p \leq 0.01$). The interpretation here is that properly relayed and managed communication (strategies) lead to acceptable treatment-seeking behavior to a contribution of 0.312 and the reverse should also hold true. A poorly designed communications environment reduces acceptable behavior by a similar percentage. As a sub-component of Health communications, when you consider an individual's awareness about malaria becomes more significant ($r = 0.405^{**}$, $p \leq 0.01$).

4. Discussion

Health Communication campaigns are the most common and likely effective method [14] for spreading public health messages [1], especially in endorsing disease prevention like malaria and in general health promotion and wellness through creating quick awareness and providing for the basic and common health concerns within the community [12]. Communicators achieve this through creating one central message and thereafter effecting reasonable and specific targeted changes for purposes of reaching intended or targeted audience segments while remaining with the central theme within the original central message. How is this done? Health marketing literature [13] shows that health communicators can create differentiated messages for differentiated audiences and segments through reviews of background information to define what the health problem to be addressed is and who is the object of the problem.

There is an agreement in responses of Key Informants with those from FGDs on their Knowledge of Health Communications. The responses were also in line with those generated from the household respondents. True, that knowledge of health communications influences behaviour. However, communicators should be conscious of situations that lead listeners to take information for granted and react as if it is “business as usual”. Good communication should address situational factors which, according to this study are mainly costs-related. For example,

Table 4. Inter-item correlations.

	Health communications	Awareness	Treatment Seeking Behavior
Health Communications	1.00		
Awareness	0.172**	1.00	
Treatment Seeking Behavior	0.312**	0.405**	1.00

**Correlation is significant at the 0.01 level (2-tailed). Source: extracted from raw data in SPSS.

if the government establishes a Health Centre in a locality, communicators should identify the “local need” being addressed and tailor communications around that. If it is the distance, messages should mirror the advantages of distance in order to change behaviour in that direction. There should not be a situation of assuming that the local people will just understand what the intention of government intervention was unless clear messages accompany that intervention. All stakeholders especially the media and local leaders can benefit from the advantages of *priming* [14] and *message framing* [15] to popularize a healthcare intervention with tangible positive behavioural change [16].

In 2010, the Ministry of Health in Uganda through the National Malaria Control Program found out that health communication messages had a relationship with treatment-seeking behaviour of persons in malaria-prone areas of Uganda. This appeared to have been the basis in that, by 2014, the Ministry of Health was encouraging consistent use of IEC/BCC campaigns to reinforce four key malaria messages through various channels such as radio shows and adverts, community drama village meetings and interpersonal communication.

However, health communication researchers [17], [18] said that behaviour change even so induced was unlikely to persist in the long run unless its beneficial effects were continuously reinforced since the beneficial results from the behaviour change were not apparent in the short run and as there may also be some gratifications attached to the previous negative behaviour.

In Kanungu District, more evidence of linkages in this study between exposure and behavioural change similar to the argument of [19] [20] has come from the introduction of Frequency Modulator (FM) radio stations. 336 (87.8%) of the respondents mentioned radio as their source of health messages and 322 (85%) respondents listen to malaria-related programs on radio. Indeed, the district has three FM stations (Kinkizi Broadcasting Services—KBS, Kanungu FM and Kinkizi FM). Although KBS dominates the others in signal strength and listenership, all of these stations command sizable listenership. The challenge comes upon the people’s choice of programs to listen to. During the data collection period for this study, the Ministry of Health and its partners was implementing a health program named “Obulamu” with malaria-related messages on the radio. However, only 52 (13.7%) of the respondents had heard this message.

Other study findings that explain exposure to health communications included 37.5% (142 people) who were aware of the days when malaria-related programs are aired on the radio; 37.3% (141 people) who said they even knew the time in which malaria programs are on the radio; 41.7% (158 people) said they listen to malaria-related programs on the radio; while 41.4% (157 people) said they knew which radio frequently airs malaria-related programs.

For other media sources of malaria communications, 328 (86.8%) of the respondents did not read newspapers while 327 (87.3%) had never watched Television programs on malaria (maybe had no TV set altogether), although an equally big number (322; 85%) knew about a government program on malaria prevention (sleeping under mosquito nets).

This study is subject to possible limitations. It was a cross-sectional, where data was collected on the whole study population at a single point in time to examine treatment-seeking behavior regarding malaria in light of malaria related messages in the media and individuals personal past experiences. It is impossible to determine the extent of recall bias. All responses are regarded as exact reflections of behavior even where it may not be necessarily true. The study used the questionnaire as a tool of data collection. It becomes relatively difficult to know whether the respondents actually understood the questions in a way the researcher understood the questions. The responses are taken as a true reflection of that “unity of minds” between the researcher and the respondent, which unfortunately may not be the case. The research protocol was mainly composed of Rensis Likert scales. These scales may be subject to inaccuracies due to respondent related factors like an inclination to take a middle position that avoids extreme response categories (central tendency bias). This usually comes up when respondents try to avoid being looked at as possessing extreme views on several item responses, again, this means playing the social-desirability bias. A respondent who chose strongly disagree on five items may feel like choosing the disagree option just for a change even when they should have continued with strongly disagree.

5. Conclusion

All in all, exposure to consistent Behavior Change Communication messages influences treatment-seeking behaviour in line with the Uganda Malaria Commission’s strategic plan (2014-2020) whose objectives include among others, a rapid and synchronized scale-up of cost-effective interventions to achieve universal coverage of malaria prevention and treatment. Thus, proper Health Communications management supplements efforts from other disciplines and players, against malaria in Uganda.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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