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Prevalence and Associated Factors of Endemic Diseases: A Case Study of Kijumo Village-Western Uganda

Tambwe Patrick Rodrigue, Nakajiri Somaiya, Dominique Bigabwa and Musafiri Simba Lionel

Department of Public Health Kampala International University-Western Campus Uganda

ABSTRACT

This research presents the findings of a study conducted in Kijumo Village, Bushenyi District/ Western Uganda which assesses the prevalence and the contributing factors of endemic diseases. The study aimed to identify the most common endemic diseases in the region and the factors influencing their prevalence. The data was collected through surveys, and interviews of 69 households on socio-demographic characteristics, hygienic variables, health-related variables, and health conditions. Malaria was the major health condition that households had experienced one month preceding the survey, hypertension diseases were the second most common ailment; other specific health conditions included typhoid fever, diarrheal conditions, and respiratory disease. Regression analysis was directed to explore socio-demographic characteristics, hygienic characteristics, health related factors, and health conditions. Results indicate a significant association between family size, profession, household wealth index, and health conditions. However, sources of water for domestic use, having a net, and sleeping under a net were strictly associated with health conditions. There was also a significant difference between health conditions with seeking initial treatment, However, many respondents tried at least to use traditional medicine or patient medicine dealers. Endemic diseases are a major public health concern in Kijumo village thus, a need for targeted interventions like improving sanitation and hygiene, strengthening healthcare services, poverty alleviation programs, and health education and promotion.
Keywords: Endemic disease, prevalence, factors associated, health conditions, Kijumo village

INTRODUCTION

According to the Institute of Health Metrics and Evaluation (IHME) and the Disease Burden Unit at the World Health Organization (WHO), an endemic disease is a disease that is always present in a particular population or region [1]. According to the World Health Organization (WHO), the global burden of disease is primarily caused by non-communicable diseases (NCDs), which account for over 60% of the total burden of disease. The largest disease burden in 2019 came from the four major NCDs, namely cardiovascular disease (17.9 million deaths), cancer (9.3 million deaths), chronic respiratory disease (4.1 million deaths), and diabetes (2.0 million deaths), collectively killed about 33.3 million people in 2019 [2]. The sub-Saharan Africa region faces an array of health challenges that are corrosive to economic development and regional stability. The World Health Organization (WHO) estimates that HIV/AIDS, tuberculosis, and malaria claim approximately 3 million lives in the region each year. Parasitic diseases, such as hookworm and schistosomiasis, also are prevalent, mostly among children, and cause hundreds of thousands of deaths and widespread suffering [3]. According to the Global Burden of Disease report, Sub-Saharan Africa is still grappling with communicable, maternal, nutritional, and newborn diseases. Malaria remains a significant public health challenge in the region, with 234 million malaria cases and 593,000 deaths in 2021 [4].
In uganda, communicable diseases account for over 50% of morbidity and mortality and the leading causes of illness and death are malaria, HIV/AIDS, tuberculosis, respiratory, diarrhoeal, epidemic-prone, and vaccine-preventable diseases [5]. In 2020, Uganda had the 3rd highest global burden of malaria cases and deaths (5.4%) and the 5th highest proportion of malaria cases in East and Southern Africa (23.2%) [6]. According to a recent study conducted by the Rural Uganda Non-Communicable Disease (RUNCD) cohort, non-communicable diseases (NCDs) are an increasing global concern, with morbidity and mortality largely occurring in low- and middle-income settings and

the study found that hypertension (HTN) was the most prevalent NCD in the region, with a prevalence of 6.3% 1. The prevalence of diabetes, asthma, COPD, and kidney disease were 1.1%, 1.1%, 0.7%, and 0.4%, respectively [7]. The prevalence of endemic diseases is influenced by a variety of factors, including environmental, social, and economic factors. Environmental factors such as climate change, deforestation, and urbanization can contribute to the spread of endemic diseases by altering the habitats of disease vectors and increasing human exposure to them. Social factors such as poverty, overcrowding, and poor sanitation can also contribute to the spread of endemic diseases by increasing the risk of transmission and limiting access to healthcare [8]. In sub-Saharan Africa, the prevalence of non-communicable diseases (NCDs) is on the rise; According to a report by the World Health Organization (WHO), the leading NCDs in the region are cardiovascular diseases, diabetes mellitus type 2, chronic obstructive lung disease, and cancer and the report also identifies four key risk factors for these NCDs: tobacco use, harmful use of alcohol, unhealthy diet, and physical inactivity and The WHO estimates that about 4 million NCD-related deaths will occur in the African Region by 2020 [9]. The prevalence of endemic diseases is influenced by several factors, according to a study published in BMC Public Health, non-clinical risk factors such as living in a tropical climate, poor personal hygiene, and contact with infected persons are associated with the prevalence of tropical diseases such as malaria, yellow fever, typhoid, chickenpox, measles, hepatitis B, and urinary tract infections [10]. In Uganda, the burden of disease is attributed to several factors such as poor sanitation, inadequate access to clean water, poor nutrition, and limited access to healthcare services [11]. In Western Uganda, several factors contribute to the prevalence of endemic diseases; a study published in BMC Public Health, living in a tropical climate is a major risk factor associated with tropical diseases such as malaria, yellow fever, typhoid, chickenpox, measles, hepatitis. The remote and pictures of Kijumo village is not only known for its stunning landscapes but is also home to a complex and often challenging health landscape. Nestled within this community are unique and enduring challenges related to the prevalence of endemic diseases. The purpose of this study was to unveil the health realities faced by the people of Kijumo Village and delve into the associated factors that contribute to the persistence of endemic diseases in this region. Kijumo Village, faces a range of health issues that are deeply intertwined with socio-economic, environmental, and behavioral factors. The prevalence of diseases underscores the pressing need for a comprehensive assessment and understanding of the health dynamics within this community.

MATERIALS AND METHODS

This was a cross-sectional survey, using a quantitative design. The study enrolled 69 households in Kijumo Village and the study population was typically individuals living within Kijumo Village community based on socio-demographic characteristics, hygienic factors, health-related factors, and health conditions. A structured questionnaire was used to collect quantitative data from participants, data was summarized and entered using Excel software and analyzed using STATA version 13.

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RESULTS AND INTERPRETATION

Table 1: participants' socioeconomic and demographic characteristics

VARIABLES	FREQUENCY	VARIABLES
Sex		
F	46	66.67
M	23	33.33
Age category		
15-24	0	0
25-34	29	42.03
35-44	7	10.14
45-54	8	11.59
55-64	18	26.09
65-75	7	10.14
Marital Status		
Single	13	18.84
Married	28	40.58
Divorced/separated	10	14.49
Widowed	18	26.09
Education		
Never	15	21.74
Primary	39	56.52
Secondary	12	17.39
Graduate	3	4.35
Profession		
Employed	0	0
Farmer	53	76.81
Private employed	13	18.84
Government	3	4.35
Family Size		
≤ 2	9	13.04
3-4	34	49.28
≥ 5	26	37.68
Religion		
Christian	28	40.58
Muslim	30	43.48
Protestant	11	15.94
Others	0	0
Tribe		
Muganda	3	4.35
Munyoro	6	8.70
Munyakole	60	86.96
Others	0	0
Household wealth index		
Poorest	4	5.80
Poorer	23	33.33
Middle	42	60.87
Rich	0	0

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Table 1: this table show that women were majority (66.67%) in the study than men with 33.33%, large of our population study was married but many were not educated with 78.26% and majority were farmer (76.81%). Regarding the household wealth index status, the middle size dominated the study; secondly by poor household.

TABLE 2: HYGIENIC VARIABLES OF THE STUDY PARTICIPANTS

VARIABLES	FREQUENCY	%
Sources of Water for Domestic Use		
Open source	63	91.30
Protected	3	4.35
Treated water	3	4.35
Hand Washing Behavior		
Proper	57	82.61
Improper	12	17.39
Latrine Related Factors		
Presence of latrine	47	68.12
Absence of latrine	4	5.80
Sharing latrine	18	26.09
Cleanliness of toilet		
Has cover	30	43.48
Has VIP	17	24.64
Houseflies	22	31.88
Number of people sharing		
None	22	31.88
1-3	11	15.94
4-6	33	47.83
Above 6	3	4.35
Type of toilet		
Local	44	63.77
VIP	25	36.23
Use separate feeding utensils for the baby		
No	39	56.52
Yes	30	43.48
Boil of feeding equipment		
No	34	49.28
Yes	35	50.72
Sleeping under net		
No	40	57.97
Yes	29	42.02
Having net		
No	31	44.92
Yes	38	55.07

Table 2: this table above represents the hygienic characteristics of our participants and the results show that the participants used open-source water majorly with 91.30%. The washing behavior was proper; there was a local latrine but shared with many people. Participants used to separate feeding utensils for the baby. However, 57.97% of our participants are not sleeping under net while 55.07% have net in their households.

Table 3: participant's Health Related Factors

VARIABLES	FREQUENCY	%
Distance to Healthcare Centre		
Too far	25	36.23
Far	33	47.83
Near	4	5.80
Missing	3	4.35
nearer	4	5.80
Health Conditions/Illnesses Encountered		
Malaria	28	40.58
HIV/AIDS	0	0
Typhoid fever	14	20.29
Respiratory disease	6	8.70
Tuberculosis	0	0
STI/STD	0	0
Diarrheal disease	4	5.80
Hypertension	17	24.64
Where Initial Treatment Were Sought		
Traditional healer	22	31.88
Patent medicine dealer	15	21.74
Health center	24	34.78
Hospital/clinic	8	11.59
Type Of Admission		
emergency	17	31.49
elective	37	68.52
Type Of Discharge		
improved	40	74.07
referred	8	14.81
Self-discharge against medical care	6	11.11

Table 3: table 3 shows that Malaria was the major health condition (40.58%) that households had experienced one month preceding the survey. This table disclosure also that hypertension diseases was the second most common ailment reported by households with 24.64%. Other specific health conditions included respiratory disease, typhoid fever, and diarrheal disease.

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Table 4: correlation between socio-economic and demographic characteristics and health conditions

VARIABLES	Coef.	Std. Err.	P>|T|	[95% Conf. Interval]
Age category	-0.1013053	0.2148989	0.639	-.5302454_0.3276347
Marital status	-0.0691548	0.299243	0.818	-0.6664464_0.5281368
Education	-0.6185682	0.420634	0.146	-1.458157_0.2210208
Profession	-2.256598	0.5320945	0.000	-3.318663 _-1.194533
Family Size	1.722954	0.4313961	0.000	0.8618838_2.584024
Religion	0.4858451	0.4476734	0.282	-0.4077147_1.379405
Tribe	0.6393443	0.6633469	0.339	-0.6847017_1.96339
Household wealth index	0.9086705	0.5204105	0.045	-0.1300732_1.947414

Table 4 shows the relationship between socioeconomic and demographic characteristics and health conditions of respondents and that there was a statistically significant difference (P<0.05) in the reported of occurrence malaria in the middle and poor households and in the farmer category of respondents.

Table 5: correlation between hygienic characteristics and health conditions

VARIABLES	Coef.	Std. Err.	P>|t|	[95% Conf. Interval]
Sources of Water for Domestic Use	-0.038117	0.0203017	0.045	-0.0786394_0.0024054
Hand Washing Behavior	0.9912281	0.8375508	0.241	-0.6805304_2.662987
Latrine Related Factors	-0.2634468	0.365227	0.473	-0.9924429_0.4655494
Cleanliness of toilet	-0.1804767	0.3721801	0.629	-0.9233513_0.5623979
Number of people sharing	0.2242732	0.3350737	0.506	-0.4445367_0.893083
Type of toilet	-0.1690909	0.6670023	0.801	-1.500433_1.162251
Use separate feeding utensils for the baby	0.5641026	0.6433711	0.384	-0.7200716_1.848277
Boil of feeding equipment	-0.7638655	0.634768	0.233	-2.030868_0.5031368
Sleeping under net	0.0436102	0.1250497	0.006	-0.1237414_0.4149618
Having net	0.1048764	0.1577259	0.028	-0.2156371_0.4147881

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Table 5 defines that there was a correlation between hygienic features and health conditions of respondents thus, there was a statistically significance difference (P<0.05) in the reported of happening of malaria and in the sleeping under the net and having a net. There was no significant difference (P>0.05) in the occurrence of other diseases. The concentration index shows that typhoid fever and respiratory and diarrheal problems were more common among the better-placed socio-economic and demographic groups.

Table 6: the correlation between health related factors and health conditions of participants

VARIABLES	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
Distance to Healthcare Centre	-0.0224693	0.1964995	-0.11	0.909	-0.4146838_0.3697453
Where Initial Treatment Were Sought	-0.3774457	0.1473612	-2.56	0.013	-0.6715798_-0.0833116
Type Of Admission	0.1888384	0.4896733	0.39	0.701	-0.793763_1.17144
Type Of Discharge	0.2213855	0.5273442	0.42	0.676	-0.836808_1.279579

Table 6 shows the existence of socio-economic differences in the general actions that people took when they were ill. There was a significant difference (P<0.05) in seeking initial treatment, However, many respondents tried at least to use traditional medicine or patent medicine dealers.

Other parameters (distance to health care center, type of admission, type of discharge) among health-related factors in influencing the health conditions of participants had no significant difference (P>0.05)

Table 7: the interaction between socio-economic and demographic characteristics, hygienic factors, and health-related factors on participant's health conditions

Heath condition	Coef.	Std. Err.	P>t	[95% Conf.	Interval]
age	-3.827933	.5948386	0.000	-5.03552	-2.620347
Marital status	5.010336	.7763003	0.000	3.434363	6.586309
education	-3.898313	1.260575	0.004	-6.457417	-1.339209
profession	2.670908	1.253399	0.040	.1263718	5.215444
Family size	2.239313	.940411	0.023	.3301771	4.148449
religion	-.5149375	.6809618	0.455	-1.897364	.8674885
tribe	1.917184	.540528	0.001	.8198542	3.014515
Household wealth index	1.846689	1.307491	0.167	-.8076597	4.501038
Sources of water	-.5046655	1.216497	0.681	-2.974286	1.964955
Hand washing behavior	15.92276	3.354628	0.000	9.112504	22.73302
Latrine related factors	-2.117232	1.227176	0.093	-4.608532	.374068
Cleanliness of toilet	-2.468664	.6684149	0.001	-3.825619	-1.11171
Number of people sharing	.0282979	.7553476	0.970	-1.505139	1.561735
Type of toilet	2.154764	1.876938	0.259	-1.655624	5.965151
Distance to healthcare	-2.079491	.3161681	0.000	-2.721347	-1.437636
Initial treatment	-.0139643	.2758592	0.960	-.5739882	.5460596
Type of admission	1.439755	.4809209	0.005	.4634333	2.416076
Type of discharge	-1.269386	.4378992	0.006	-2.158369	-.3804032
_cons	-16.27535	4.289571	0.001	-24.98364	-7.567059

The multivariate analysis defined in Table 7 shows the interaction between socio-economic and demographic characteristics, hygienic factors, and health-related factors on participant's health conditions where age, marital status, education, profession, family size, tribe, household wealth index, hand washing behavior, latrine related factors, distance to health care, cleanliness of toilet had statistically significance difference on respond's health conditions (P<0.01 and P<0.05).

DISCUSSION

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The findings of this study support previous research, indicating the prevalence and factors associated with endemic diseases. A particular result from KIJUMO Village shows that the prevalence of endemic disease is influenced by socio-economic characteristics (lack of education, middle and poor household, farming profession) and hygienic factors such as use of opening source water, sharing latrines, and no sleeping under the net. Similar findings drawn by Banduki that These diseases maintain a relatively constant prevalence over time; Poverty, limited access to healthcare, inadequate sanitation, and hygiene practices play a role in perpetuating and spreading endemic diseases [12], similarly, another study demonstrated the role of no sleeping under the net and the primary level education of the household head was linked with the prevalence of endemic disease [13]. In KIJUMO village, 78.26% of our participants were not educated, several studies found that lack of education is really a contributing factor of endemic disease; a study highlight that education needs more particular attention because it's one of the fundamental health determinants [14]. Additionally, a study in Nigeria found that malaria prevalence was very high among the population without formal education [15] Our results highlighted also a high rate of malaria among participants one month preceding the surveys followed by hypertension and other diseases such as respiratory disease and typhoid fever, it has been observed that several studies have similar finding, thus; a study in Kenya found out that malaria prevalence was high among kids aged at 11 to 14 years old also higher to rural population compared to urban population as well poor population compared to rich population [13]. Nevertheless, a study in Zambia demonstrated how sleeping under a net reduces the burden of malaria prevalence where the Odds ratio of those who sleep in a treated net was 0.90% [16]. Furthermore, to our finding, a study collected 300 participants, and 165 of them had malaria (55.0%) [15, 16].

RECOMMENDATIONS

1. **Improve Sanitation and Hygiene:** Launch community-based hygiene promotion programs to raise awareness about proper sanitation and hygiene practices.
2. **Access to Clean Water:** Develop water infrastructure projects to provide clean and safe drinking water sources.
3. **Strengthen Healthcare Services:** Invest in the local health facility by providing more medical staff, equipment, and medication. Consider mobile health clinics for remote areas.
4. **Poverty Alleviation Programs:** Initiate poverty alleviation initiatives that provide opportunities for income generation within the communities
5. **Improve health education and promotion:** enabling the population to develop healthy habits.

CONCLUSION

Endemic diseases are a significant public health concern in many regions, particularly in Western Uganda. KIJUMO village is a region with a high risk of infectious diseases. Malaria and hypertension are respectively the endemic and emerging diseases that worst affect KIJUMO village. Respiratory disease, diarrheal disease, and typhoid fever are also diseases that had previously been controlled but have had an increasing incidence over the last two decades.
Neglected tropical diseases (NTDs) pose a heavy burden on poor rural communities in Uganda especially in KIJUMO village. The effect of NTDs may lead to chronic ill-health such as disability, deformity, blindness, and retarded physical or mental growth. If not treated, they will lead to death.

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