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Knowledge and awareness of common non-communicable diseases among some rural communities in Kenya

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Abstract
Background: According to World Health Organization (WHO), out of the 56.9 million global deaths in 2016, 71% were due to non-communicable diseases (NCDs). Additionally, over three quarters of NCD deaths occurred in low- and middle-income countries with about 46% of deaths occurring before the age of 70 in these countries. The burden of these diseases is rising disproportionately among low income countries and populations. Over 50% of all hospital admissions and 55% of hospital deaths in Kenya are due to NCDs. It is therefore imperative to take active measures in combating NCDs.
Aim: To assess the awareness of communicable diseases in comparison to non-communicable diseases among rural communities in Kenya.
Method: Cluster random sampling with convenient sampling was employed to identify sample populations. Data was collected using questionnaires that inquired on awareness of Communicable Diseases - CDs (including Malaria, HIV, TB, and Diarrheal diseases) and NCDs (Diabetes, Hypertension, and Cancer).
Results: Out of all respondents, 70% reported to be aware of the NCDs. When probed further, 73% of those aware could not list any known causes and/or risk factors. Among the remaining 27% who attempted to state a cause and/or risk factor, 15% gave correct responses. Among the NCDs, the best known was diabetes with 75% of respondents reporting to be aware of the disease, and among them 18% having correctly stated a cause and/or risk factor. The least known NCD was cancer, with 52% of respondents aware, among them more than 90% not knowing any cause and/or risk factors. Majority (91%) of the respondents were; however, aware of the CDs, and even correctly indicated their causes. The best known CD was malaria, having an awareness of 97% while the least known was HIV/AIDS, known by 75% of the respondents, which may be an an underestimate given the stigmatization of the disease among the communities.
Discussion: The world is experiencing an NCD epidemic as the burden surpasses that of CDs. The awareness of NCDs among the public is however not representative of this. Majority of NCDs; therefore, go un-prevented, unnoticed, and are diagnosed at late stages of complication leading to severe morbidity and mortality. This can be anticipated to the bias in extensive publicity and awareness enjoyed by CDs at the expense of NCDs. Communities are therefore not adequately informed on NCDs and only become aware of them once diagnosed and are severely ill.
Conclusion: Creating awareness is the first step to curb increased prevalence of NCDs in our communities.

Keywords: Non-communicable diseases, knowledge, awareness, morbidity, rural Kenya

1. Introduction

Non-communicable diseases (NCDs) are the leading cause of morbidity and mortality worldwide [1]. According to WHO, out of the 56.9 million deaths that occurred worldwide in 2016, 40.5 million (71%) were as a result of Non-Communicable Diseases (NCDs). Evidence suggests that greater than 75% of deaths due to NCDs occur in low- and middle-income countries [2]. In addition, there has been an increase in the burden of NCDs in sub-Saharan Africa, driven by an increasing prevalence of risk factors such as tobacco use, unhealthy diet, physical inactivity, and harmful use of alcohol. NCDs are set to overtake communicable, maternal, neonatal, and nutritional diseases combined as the leading cause of mortality in sub-Saharan Africa by 2030 [3]. According to the Ministry of Health of Kenya, data from a survey in 2015 shows that over 50% of all hospital admissions and 55% of hospital deaths in Kenya are due to NCDs [4].

Several studies have quantified the prevalence and risk factors of NCD's in different parts of Kenya. A study by Haregu *et al.* [5] showed that one out of five people in the urban slum settings of Nairobi had co-occurrence of NCD risk factors. Joshi *et al.* [6] determined a high prevalence of hypertension, in association with excess body weight in poor urban slum communities in Kenya. In a study by Mwenda *et al.* [7] to determine the dietary risk factors for non-communicable diseases in Kenya, it was established that unhealthy diet was more common in males, people aged below 46 years, and students. In another study in 2018 by Wekesah *et al.* [8], 89.5% of Kenyan adults were found to consume high salt in their diet, thereby increasing their risk of hypertension; whereas, 80.3% of adults did not engage in sufficient physical activity. Agyemang *et al.* [9] found 7.7% of Kenyans to be overweight while 0.1% of men and 2.2% of women were obese (BMI $\geq$ 30 kg/m^2). In addition, the rate of obesity is steadily on the rise. In a study by Githinji *et al.* [10] diabetes and its complications were found to be prevalent in rural and semi-urban areas of Kenya, with

women seemingly more affected by the disease. Hypertension was the most common comorbidity.

Cancer, another non-communicable disease, is the third leading cause of deaths in Kenya, after infectious diseases and cardiovascular diseases with an annual incidence of approximately 28000 cases [11]. This makes the knowledge of its risk factors essential. As it is apparent, most of the studies done in Kenya focused on the epidemiology and risk factors for non-communicable diseases, creating paucity of data on the awareness of these diseases. This study therefore aimed to assess awareness of NCDs among rural communities in Kenya.

2. Materials and Methods

Cluster random sampling with convenient sampling was employed to identify 1000 respondents from rural towns in Kenya. Researcher administered structured questionnaires were used to collect data on their awareness and knowledge of communicable diseases (CDs) and Non-communicable diseases (NCDs). Questions on CDs targeted malaria, HIV, TB, and diarrhoeal diseases, while those on NCDs inquired on Diabetes, Hypertension, and Cancer. These diseases were identified to be among the common causes of each category from literature review.

Awareness was identified as the mere familiarity of the respective disease to a respondent while knowledge was assessed by the ability of a respondent to correctly state causes and/or risk factors for the diseases. Personnel recruited for data collection underwent prior training to ensure standardization of methodology. Confidentiality was upheld and no personal information was collected during the study. Data was analysed using SPSS version 26.0 (Chicago, Illinois, USA) and presented using descriptive statistics.

3. Results

Out of all the respondents, 70% reported to be aware of the non-communicable diseases (NCDs). When probed further to assess knowledge, 73% of those reporting to be aware could however not list any known causes and/or risk factors. Among the 27% who attempted to state a cause and/or risk factor, only 15% gave correct responses. Among the NCDs, the best known was diabetes with 75% of respondents reporting to be aware of the disease, and among them 18% having correctly stated a cause and/or risk factor. On the other hand the least known NCD was cancer, with 52% of respondents aware, among them more than 90% not knowing any cause and/or risk factors. Majority (91%) of the respondents were however aware of the CDs, and even correctly indicated their causes. The best-known CD was malaria, having an awareness of 97% while the least known was HIV/AIDS, known by 75% of the respondents. These results are summarized in figure 1.

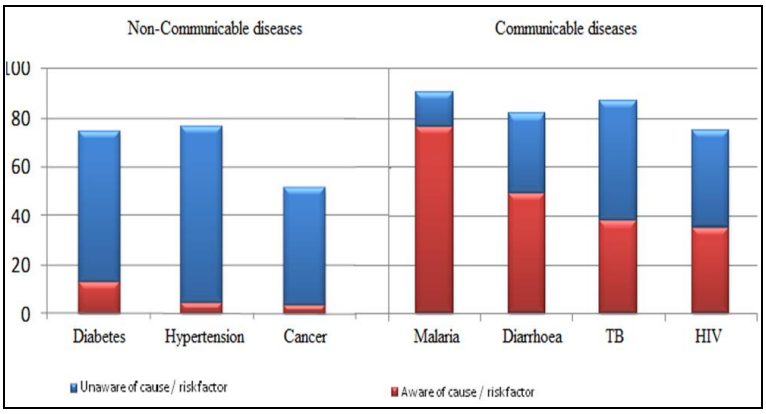

Fig 1: Percentage of respondents unaware or aware of cause and risk factors of communicable and non-communicable diseases.

4. Discussion

The world is experiencing a non-communicable (NCD) epidemic, while Africa experiences a double epidemic with the emerging NCD burden adding on to the rampant uncontrolled communicable disease (CD) predicament [12]. It is ironical to note that despite the high prevalence and increasing incidence, the majority of the afflicted population is highly ignorant of the same [13]. With communities lacking basic knowledge, NCDs are given leeway to progress un-prevented, and are only diagnosed at late stages of their sequel which are commonly irreversible and bear high morbidity and mortality [14]. This therefore makes NCDs a very expensive category of diseases not only financially but also from lost productivity among communities [15].

This ignorance is partly attributable to the biased extensive publicity enjoyed by CDs. Different modes of education are explored to raise awareness of CDs among communities including and not limited to the media, posters and mass movements [16]. Campaigns are occasionally staged against NCDs where screening camps are conducted to test for them, however little efforts are made to educate the communities on the diseases. Furthermore, at resource poor clinical settings, inadequate counselling is conducted to educate patients on the importance of adherence to medication, and long-term complication of the same, resulting in poorly managed NCDs and progression to irreversible complications [17].

It will be an understatement to say there is paucity of information in the majority of rural populations on non-communicable diseases. There is also incorrect information on this issue, probably emanating from cultural beliefs, superstition or frank ignorance [18].

NCDs are therefore misunderstood and unknown by the rural communities. The range of possible factors the community attributes as the cause of diabetes includes: sugary foods- which might be indicative of factual distortion brought by translation of 'high blood glucose levels' into layman terms, and strong sunlight- which might be as a result of cultural beliefs, folklores or community taboos.

Other responses cited as cause of diabetes include: lack of exercise, diet, genetic predisposition, and stress.

The range of responses for possible causes of hypertension also showed the same degree of misinformation. Some cited mood-related factors such as anger, sadness, thinking, and stress. This possibly has a basis from previously diagnosed persons in these communities who were medically advised to avoid stressful incidences as they serve as precipitating factors to higher blood pressure. Pregnancy was also cited by a few as a cause of hypertension. Probably holding the analogy that carrying another life in one requires adjustment of the body by elevating blood pressure to adequately perfuse both the unborn child as well as the mother. Other responses cited as cause of hypertension by the sample population include: impaired blood flow, poor diet, obesity, and diabetes.

Cancer causes, on the other hand, are largely unknown by most of the rural population with speculation from some individuals that wounds which take long to heal, widen their edges and depth, becoming complicated enough to cause cancer. Radiation from electronic devices such as radios was another explanation with the reasoning that their forefathers never yielded during their days; therefore, such radiation accounts for cancer emergence in the current generation. Some suggested divinity as a cause, as they believe cancer is an act of God's will. Curses was also cited by others. This is because there is a superstitious connotation attached to cancer as there is no definitive cure and its diagnosis means certain death. Another group expressed that lifestyle changes are to account for cancer prevalence as the society becomes more westernized. The idea of supplemented and fortified foods as well as 'high grade animal feeds' are described as pure consumption of chemicals and poisons which eventually causes "mysterious" diseases such as cancer. Other responses cited as causes of cancer include: walking a lot, long standing effects of Tuberculosis, smoking, drugs, infections, food storage in plastic containers, stomach aches, contaminated water and genetic predisposition.

With the rise of non-communicable diseases in the country [19], a small fraction of the rural population have heard of the affliction but majority only have a modicum of knowledge on their aetiology and measures to take prevent their occurrence.

In contrast there is adequate, relevant and factually correct information on communicable diseases such as malaria, tuberculosis, diarrhoea and HIV. This might be based on the bias of publicity campaigns to emphasize prevention and control of communicable diseases at the expense of non-communicable diseases whose incidences are now rife [20].

Many initiatives have been carried out to screen the public of NCDs, but most of them focus on diagnosis and have inadequate impact on the knowledge and awareness of the public to the diseases they are being tested for or queried about [21].

The consequence is that most of these cases go unnoticed, un-prevented and diagnosed at late stages of complication leading to severe morbidity and mortality.

5. Conclusion

Creating awareness of the risk factors and causes of non-communicable diseases is necessary to curb the increased prevalence of the diseases especially in rural communities with limited access to healthcare services.

6. Authors Contribution

This study was conducted in collaboration between all authors. Faraj O. Alkizim designed the study, wrote the protocol, performed data collection, and wrote the first draft of the manuscript. Duncan Matheka and Brian Michira participated in data collection and analysis. Cyril Siringo and Samuel Ngugi managed literature searches. All authors reviewed and approved the final manuscript for publication

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9. Conflict of Interest Declaration

We declare that we have no conflict of interest. This manuscript/data or parts thereof, has not been submitted for possible publication to another journal or previously been published elsewhere.

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