A SURVEY OF THE KNOWLEDGE OF CHRONIC DISEASES OF LIFESTYLE AMONG MEMBERS OF A UNIVERSITY COMMUNITY IN SOUTH AFRICA

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ABSTRACT

BACKGROUND: The increase in the prevalence of chronic disease among people of different colours, religion, age group and economic status has been documented. Having adequate knowledge of chronic disease is a major impetus towards behavioural changes that lead to prevention and management of chronic diseases.

METHODS: This was a cross-sectional online survey that examined the knowledge of a University community on the risk factors and signs and symptoms of chronic diseases of lifestyle. Chronic disease of lifestyle assessment questionnaire was administered, online, on the Community. A list-based sampling frame survey was conducted via the emails.

RESULTS: A total of 124 (50.2%) respondents were females and 132 (53.7%) of our respondents were within 21–30 years of age. About 13.1% of our respondents were single while 41.6% completed tertiary education. Also, 26.9% were employed and vast majority of them were from black (92.2%) racial affiliation. The majority of them knew that smoking (92.2%), obesity (87.3%), alcohol consumption (84.1%) and stress (88.2%) are the causes of chronic diseases of lifestyle. More than half (52.66%) of the participants had adequate knowledge of the chronic diseases of lifestyle while 21.63% had poor knowledge of chronic diseases of lifestyle.

CONCLUSION: The majority of the participants had good knowledge about the risk factors of chronic diseases of lifestyle but their overall knowledge was poor.

KEYWORDS: stroke, hypertension, diabetes, knowledge, chronic diseases of lifestyle.

INTRODUCTION

The rising prevalence of chronic diseases of lifestyle (CDL) has been a major concern for health practitioners and policy makers.[1] Chronic diseases of lifestyle are now a serious threat to the health and longevity globally.[2] It is documented that chronic diseases account for about 60% of global deaths and almost one-third of the global disease burden.[2] In high-income countries, the prevalence has been reported to be rising. In the United States, chronic diseases result in more than 70% of deaths and about 75% of health care spending costs are from chronic diseases treatment.[3] Also, the total direct and indirect health care cost for the major chronic diseases in Canada is about $83 billion per year.[4] In sub-Saharan Africa, there is increasing morbidity and mortality from chronic diseases. This accounts for at least 69% of death observed in the African continent.[1]

There is documented evidence of an increase in the prevalence of chronic diseases of lifestyle among low/medium income countries. About 79% of all deaths in developing countries are attributable to chronic diseases.[5] According to WHO (2005) projections, Africa continent will experience the largest increase in the death rates from chronic diseases.[6] In fact, it has been projected that by the year 2020, chronic diseases like stroke will account for 75% of deaths, diabetes will account for 70% death and ischaemic heart disease will account for 71% deaths in

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low/medium income countries[7] and that the number of people with diabetes in low/medium income countries will increase to 228 million by 2025.[8] The reasons for this increase in the burden of chronic diseases in Africa might be attributed to urbanisation, globalisation, acculturation, lifestyle modifications and increase in life expectancy.[6] These figures call for immediate action by health practitioners and policy makers in sub-Saharan Africa in order to reduce the scourge of chronic diseases. Our health and research entities need to develop awareness programmes which shall be aimed at the reduction of the prevalence of non-communicable diseases.

Chronic diseases of lifestyle are preventable diseases and share similar risk factors. The public health approach to prevention is considered to be the most cost-effective, affordable and sustainable course of action to curb the chronic disease epidemic worldwide.[9] Optimal management of the risk factors for chronic diseases of lifestyle can be achieved only when everyone possesses adequate knowledge of these risk factors. Studies have demonstrated that individuals with chronic diseases of lifestyle possess poor knowledge of their conditions.[10] This has led to premature deaths and high rates of disability.[11] In a review of the literature, it was reported that lay knowledge of chronic disease is poor among the Ghanaians and Cameroonians.[11] Level of awareness about diseases does affect the health seeking behaviour of people. Low level of awareness has been reported to affect health seeking behaviour of TB patients in Ethiopia[12], Western Kenya[13] and Zambia[14]. Invariably, people seek health intervention when they are aware and knowledgeable about a disease.

Teaching and learning institutions are integral part of the society. High prevalence of non-communicable diseases has been documented amongst adolescent and young people.[15] There is, however, dearth of information on the levels of knowledge of risk factors in a University community in South Africa. Assessment of the knowledge of Nigerian female undergraduates on obesity as a risk factor for cardiovascular disease shows that they possess average to good knowledge on obesity as a risk factor for cardiovascular disease.[16] This study used the Health Belief Model (HBM) which was designed by Rosenstock in 1950s.[17] The HBM is based on the premise that people take actions to protect their health in the presence of threat. The HBM is a combination of knowledge, opinion, and actions taken by individuals. There are five factors that influence preventive and protective actions according to HBM. These are perceived susceptibility, perceived severity, perceived benefits, perceived barriers and cues to action. Healthcare professionals owe it as a point of duty to educate the population on the risk factors for chronic diseases as a means of controlling and managing them.[15] School health programmes that enhance and facilitate healthy behaviour are one of the most cost-effective and efficient ways of reducing chronic diseases among the University staff, students, and their immediate families.[18] However, effective implementation of health education programmes requires assessment of the target population knowledge about the diseases prior the intervention implementation and after implementation.[15]

This study sought to evaluate the knowledge of University students and staff of different risks associated to chronic diseases of lifestyle. The outcome of this study might lead to planning and administration of chronic diseases of lifestyle preventive interventions within the university community.

METHODOLOGY
This was a cross-sectional survey study that assessed the knowledge of students and staff of a South African University on their knowledge of chronic diseases of lifestyle. The population for this study were registered students and staff of a North West University (NWU) Mafikeng Campus, South Africa. The instrument employed in this study was earlier used in a different academic setting and its validity and reliability with a Cronbach's alpha of 0.897.[15] The instruments had the following domains: bio-demographic data, general knowledge, specific knowledge about hypertension, diabetes and stroke (Appendix 1). The questionnaire was prepared using Google form and sent to the participants using the University email addresses. As at the time of this study, there were 12795 staff and students in NWU Mafikeng Campus which were the studied population. Sample size was calculated from the population of 12795 using

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G*Power3 sample size calculator.[19] A sample size of 373 was arrived at. A reminder was sent a week after the first Google form was sent. The survey ended after the third day the last response was received which corresponded with the third week of the survey commencement.

ANALYSIS

Data were analysed using descriptive statistics of percentages and frequency. Graphs and bar charts were also used where necessary. Differences in knowledge between participants' gender and marital status were determined using independent t-test for continuous variables and Chi-square for categorical variable (chronic diseases of lifestyle knowledge classification and educational status, employment status, age and race). Relationships between gender, age, marital status, educational status, employment status, race and knowledge were determined using Pearson correlation coefficient. One-way ANOVA was used to determine the significant differences of participants' knowledge regarding hypertension, diabetes and stroke. The level of significance was set at 0.05. SPSS version 23 was used to analyse the data.

RESULTS

Socio-demographic characteristics of the participants are presented in Table 1. The response rate was 68.63%. About 124 (50.2%).The detailed marital status, level of education and employment are presented in Table 1

Table 1: Socio-demographic Characteristics of participants

Variables	N	%	Mean±SD
Gender			
Male	122	49.8	
Female	124	50.2	
Age(yrs)			
<20	57	23.2	
21−30	132	53.7	
31−40	26	10.6	
41−50	19	7.7	
51−60	6	2.4	
61−70	4	1.6	
N/A	1	0.4	26.64±10.07
Marital Status			
Married	32	13.1	
Single	214	86.9	
Educational Level			
No Formal Education	2	0.8	
Primary School Completed	2	0.8	
Secondary School Completed	142	57.6	
Tertiary Education Completed	102	41.6	
Employment Level			
Employed	66	26.9	
Unemployed	178	72.2	
Pensioner	2	0.8	
Race			
Black	227	92.2	
Coloured	8	3.3	
Indian	1	0.4	
White	10	4.1	

Differences in Demographic Variables and Knowledge Scores

There were no significant statistical differences between gender and marital status of participants and knowledge as shown in Table 2. Chi-square tests for independence showed no significant association between chronic diseases of lifestyle knowledge classification and educational status [X2(4, n=245)=4.70, p=0.32)], employment status [X2(4,n=245)=3.61,p=0.46], age [X2(4,n=245)=10.61, p=0.38] and race [X2(4, n=245)=5.08,p=0.53].

Table 2: Chronic Diseases of Lifestyle and Demographic Variables

	Mean	SD	t
Gender			
Male (n=122)	58.91	±16.91	0.084
Female (n=123)	61.91	±14.69	
Marital Status			
Married (n=32)	62.081	±18.42	0.76
Single (n=213)	60.17	±15.51	

Chronic Disease Risk Factors Knowledge

The knowledge of the participants regarding factors that contribute to the development of chronic diseases is presented in Figure 1. The majority of them knew that smoking (92.2%), obesity (87.3%), alcohol consumption (84.1%) and stress (88.2%) are the causes of chronic diseases of lifestyle.

Figure 1: Knowledge of Chronic Diseases Risk Factors

Knowledge of Chronic Diseases Risk Factors
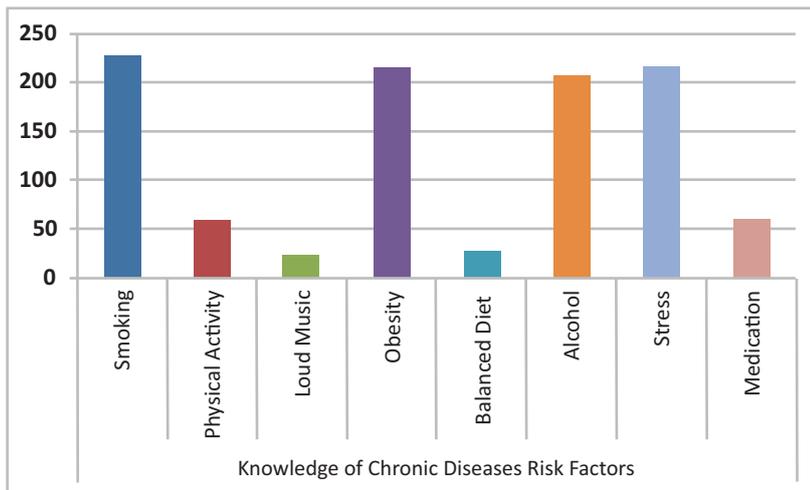
Chronic Disease Knowledge

The general knowledge of the participants about hypertension is presented in Figure 2. About 33.47% of the participants possessed good knowledge of hypertension and about 25.71% had poor knowledge of hypertension. Forty percent of the participants had poor knowledge of diabetes mellitus while about 21.22% had good knowledge of diabetes mellitus and about 39.59% possessed good knowledge of stroke and 26.94% poor knowledge of stroke as shown in Figure 2.

Figure 2: Chronic Disease Knowledge

■ POOR KNOWLEDGE
■ ADEQUATE KNOWLEDGE
■ GOOD KN0WLEDGE
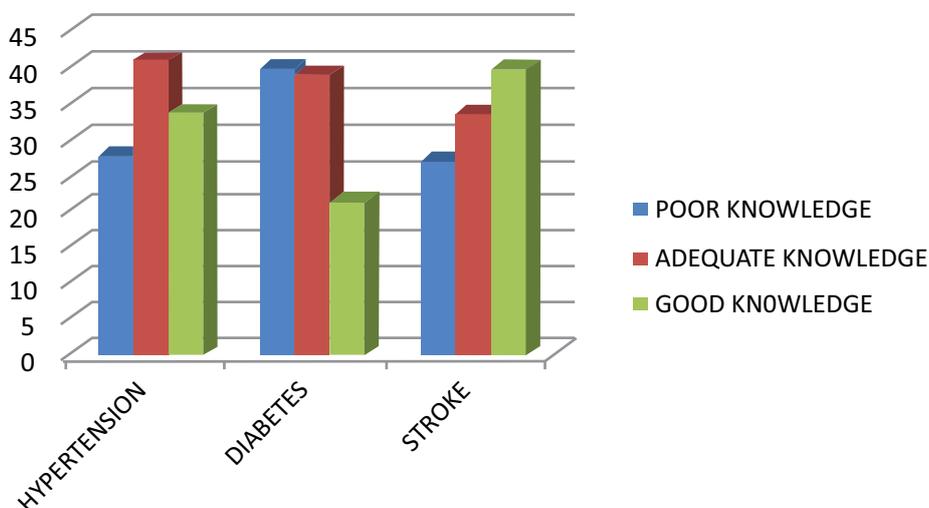
Classification of Overall Chronic Diseases of Lifestyle Knowledge

The overall classification of knowledge of our participants is presented in Figure 3. More than half (52.66%) of the participants had adequate knowledge of the chronic diseases of lifestyle while 21.63% had poor knowledge of chronic diseases of lifestyle.

Figure 3: Overall Knowledge about Chronic Diseases of Lifestyle
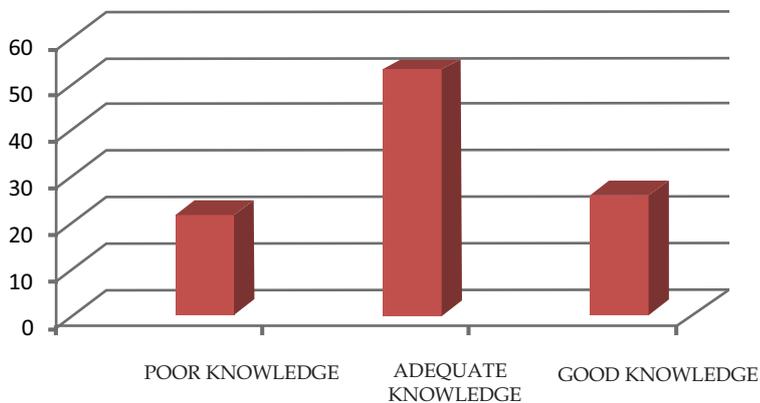
Table 3: Differences in the Knowledge of Chronic Diseases of Lifestyle

Lifestyle Diseases	df	SS	MS	F	P
Hypertension					
Between	2	57454.148	287.074	73.550	0.001*
Within	242	94519.729	390.577		
Total	244	151973.878			
Diabetes					
Between	2	43260.212	21630.106	161.586	0.001*
Within	242	32394.328	133.861		
Total	244	75654.540			
Stroke					
Between	2	535.841	267.920	144.458	0.001*
Within	242	448.829	1.855		
Total	244	984.669			

DISCUSSION

This study sought to evaluate the knowledge of students on risks of chronic diseases of lifestyle in a university community on risks of chronic diseases of lifestyle. The outcome of this study shows that majority of our participants had knowledge of smoking, obesity, alcohol consumption and stress as the risk factors associated chronic diseases of lifestyle. Regarding knowledge about each of the chronic diseases, less than half of the participants had adequate knowledge of hypertension while the majority of the participants had poor knowledge of the type of diabetes mellitus as a form of chronic disease of lifestyle. The majority of the participants reported that stroke could result as a disease of lifestyle. Overall, the majority of our participants had adequate knowledge of chronic diseases of lifestyle.

Awareness of the risk factors for chronic diseases of lifestyle is a precursor to its prevention and management. Progression of chronic diseases of lifestyle risk factors has been attributed to urbanization, lack of knowledge and robust preventive strategy.[20] The majority of these risk factors are modifiable ones. It is expected that students of colleges and universities would possess adequate knowledge of diseases because of their access to information. Most of the participants are aware of the risk factors of chronic diseases of lifestyle. This might be due to their access to information from many sources about health issues. However, the findings in this study are at variant to those of Nigerian undergraduate students who had poor knowledge of obesity as a risk factor for CVD.[16] The participants in the previous study were only

females unlike this present study that had both male and female participants. The inclusion of males in their study might have produced different results. In assessing the knowledge of college students on metabolic syndrome, Yahia et al.[21] reported that more than 80% of the participants recognized and identified diabetes, hypertension, arteriosclerosis, myocardial infarction and stroke, and 92% identified adiposity as a risk factor for heart disease. Salaudeenet al.[22] reported that Nigerian bankers and traffic wardens were aware that alcohol, obesity, smoking and stress were risk factors for hypertension. While the commonest risk factors identified by over four-fifths of the Kuwaitis were smoking, obesity, unhealthy diet and physical inactivity.[23]The participants' knowledge of the risk factors for chronic diseases of lifestyle in this study is in line with the previous studies and this might be due to the similarity of sites and sampled population.

The overall level of awareness of the participants regarding hypertension was adequate. The overall knowledge was assessed based on the name, high blood pressure normal value, treatment, high blood pressure and lifestyle changes, and kidney damage as a sign of hypertension. The results in this study agrees with that of Malik et al.[24] who found that about 54.6% of the participants in their study had adequate knowledge of hypertension.It was, however, observed that despite our participants' access to many sources of information on health issues, their knowledge on hypertension was adequate. In view of this, more still needs to be done to increase the awareness of various risk factors as well as the sign and symptoms of high blood pressure. This might encourage better attitude to prevention and management of hypertension and other non-communicable diseases. The weighted prevalence of self-reported diagnosis of high blood pressure by health professionals among adult South Africans is reported to be 10.4% and it increases significantly with age in both men and women.[25] Knowledge has been identified as an important component for hypertension control which eventually leads to behavioural change and better treatment outcome.[26] The result of this study showed that less than half of our participants had adequate knowledge about hypertension.

However, higher knowledge of hypertension has been reported in some studies. For example, higher knowledge of hypertension was recorded among Jordanian hypertensive participants[27] as well as among staff of a Nigerian University[28] while low knowledge was reported among Iranian adults[27] and in Eastern Sudan[29]. Adequate knowledge possessed by our participants might be due to the fact that they are members of an academic community. Possessing knowledge of hypertension will spur our participants towards it prevention and management thereby reducing the negative sequelae of high blood pressure within our micro academic community.

Though the participants in this study demonstrated adequate knowledge of hypertension they, however, had poor knowledge of diabetes mellitus. It was assumed that in a higher education academic community, general knowledge could be transferred to knowledge about diseases. This is found to be inaccurate. There is a need to provide disease-specific knowledge or information to these communities as part of disease prevention programmes of the various health Departments. In a study conducted on undergraduate physiotherapy students, it was reported that the participants had adequate knowledge of diabetes mellitus.[30] However, Steyl's[30] study needs to be interpreted with caution because the participants were students of health disciplines who are expected to have had knowledge of diabetes mellitus. Though higher knowledge of diabetes mellitus have been reported among UAE students[31] and Nigerian undergraduates[32] but our study conforms to the findings of Demaio et al.[33] who reported low levels of diabetes-related health knowledge among the Mongolians. Also, in a cross-sectional study to determine the knowledge, attitude and practices related to diabetes among community members in four provinces in Kenya, Maina et al.[34] reported only 27.2% of their participants had good knowledge of diabetes. More re-awakening steps need to be taken if the fight against NCDs is to be won.

Stroke is one the chronic diseases of lifestyle assessed in this study and remains one of the most devastating of all neurological diseases, often causing death or gross physical impairment or disability.[35] The majority of our participants possessed good knowledge of stroke. This is

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different from the findings by Awad and Al-Nafisi[23] who reported a low knowledge about the types of CVD, heart attack and stroke symptoms in Kuwaiti population. However, in line with the result of this study, it was reported that about 96.15% of Indians in New Delhi had excellent knowledge of the warning of symptoms of stroke.[36] Also, a good knowledge was reported among medical outpatients regarding stroke risk factors and warning signs in Portugal.[37]

A look at the assessment of the overall knowledge of chronic diseases by our participants showed that they had adequate knowledge of chronic diseases. Their knowledge about hypertension, diabetes mellitus and stroke were assessed. The outcome is similar to that of Sadasivam et al.[38] where the overall knowledge score of medical students was reported to be above average and among the Malawians where it was reported that majority of the hospital clients were not knowledgeable about definitions of stroke, diabetes and hypertension as well as the use of healthy lifestyle for prevention of chronic diseases.[39] Our participants displayed different levels of knowledge of hypertension, diabetes and stroke. They are more knowledgeable on hypertension followed by stroke and lastly on diabetes mellitus. One of the reasons that might be attributed to this is the various health campaigns that our participants are exposed to though not within the findings of this study. This study might be the first to assess the overall knowledge of respondents on diseases of lifestyle in a higher education community. It should be of concern for health care practitioners that the participants did not possess good knowledge of chronic diseases of lifestyle despite access to online information on health matters and literatures. Efforts should be geared towards educating our teaming populace on various risk factors for chronic diseases of lifestyle for us to have a healthy South Africa as a nation. This will enable us to manage and provide adequate awareness about our health as the level of knowledge might influence the adherence to treatment among a population. It has been shown in previous studies that patients' better knowledge about diabetes/ hypertension was associated with better medication adherence and better blood glucose/blood pressure control.[40,42] Sociodemographic variables have been implicated as predictors of knowledge in the previous studies[43,44,23] but this was not so in our study. No reasons could be adduced for this. The data were further subjected to crude logistic regression despite the fact that it was observed there was no relationship between knowledge and sociodemographic variables in our study but none of the demographic variables could predict chronic diseases knowledge.

This study outcome should be interpreted with caution regarding the generalizability of the findings. This is because our participants were from the higher institution of learning and not from the general populace. Their level of education might influence response supplied to the researchers. Also, we were unable to ascertain the level of truthful of the responses since the questionnaires were administered online but not face contact. Since this was a cross-sectional study, the outcome of our study does not depict the changes in the knowledge of our respondents. However, the strength lies in the fact that the respondents were not influenced by the presence of the researchers as well as the fact that the majority of our respondents were youths who would, in turn, disseminate the outcome of our study to their immediate environments.

CONCLUSION
The outcome of this study shows that majority of our participants had knowledge of smoking, obesity, alcohol consumption and stress as the risk factors for chronic diseases of lifestyle. This is a common course in lay population. Regarding knowledge about each of the chronic diseases assessed, less than half of the participants had adequate knowledge of hypertension while the majority of the participants had poor knowledge of type diabetes mellitus as one of the chronic diseases of lifestyle. The majority of our participants possessed good knowledge of stroke as a chronic disease of lifestyle. Overall, the majority of our participants had adequate knowledge of chronic diseases of lifestyle. No relationship was found between sociodemographic variables and knowledge in our study.

Declaration of Conflicting Interest
The authors declared no potential conflicts of interest with respect to the research authorship, and/or publication of this article.

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