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# Perception and Screening Practices for Non-Communicable Diseases among Pentecostals in a Semi-Urban Community: A Divergence from Paradigm

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## Abstract

**Background:** Anecdotal evidence suggests a rising incidence of non-communicable diseases (NCDs) and a common attitude of “spiritualizing” diseases among Pentecostals. Some risk factors are modifiable and/or preventable thus understanding the level awareness of risk factors, causes, features of and screening practices for common NCDs among Pentecostals in Sapele, Delta state has become imperative so as to provide a premise for instituting interventions that will tackle NCDs in our locality.

**Methodology:** This study was conducted among Pentecostals in Sapele, Delta state by adopting a descriptive cross-sectional design. A two-stage sampling involving firstly a simple random technique and then a stratified sampling method with proportionate allocation was applied to select study participants. The study instrument was a pre-tested semi-structured self-administered questionnaire. Data generated was analyzed with SPSS software version 22.

**Results:** Males were marginally more than females (53.1% vs. 46.9%). Age group 40-49 years was most frequent (40.6%) with a mean age of 38.15 years for all participants. All participants were aware of diabetes mellitus, kidney failure (disease) and hypertension. Significant proportion of the respondents opined that diabetes (68.8%), hypertension (93.8%) and kidney failure (96.9%) can be prevented; and 62.5% agreed that a healthy lifestyle was important for preventing these diseases. Majority (71.9%) identified dietary control as a means of cure but more than three-fifth did not know drugs or herbal concoction could be applied in treating diabetes. Over three-fifth (62.5%) did not know dialysis was a renal replacement therapy. A sizeable proportion of all participants had never checked their weight, blood pressure, fasting blood sugar, lipid profile, HIV and HBV status.

**Conclusion:** All participants were aware of diabetes; hypertension and kidney disease and all knew what hypertension represented. Nonetheless, the significant disparity in their screening practices indicates that health promotion based on health belief model is required to change their poor screening practice.

**Keywords:** Screening practices; Spiritualizing; Non-communicable diseases; Divergence from paradigm; Pentecostals

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## Background

Non-communicable diseases (NCDs) are usually long-standing non-infectious medical conditions and health states or events, with slow, often unnoticeable progression though some NCDs occur suddenly and rapidly e.g., road traffic accidents, rapes, burn etc. Underlying most NCDs are bio-psychosocial factors which are generally known as modifiable and non-modifiable risk factors [1]. Extraneous factors such as sedentary living, unsafe reproductive and/or sexual behaviour, tobacco exposure, harmful alcohol ingestion etc., all constitute changeable (adjustable or modifiable) risk factors. Exposure to these factors interact with unchangeable (fixed) factors such as genetics, age, ethnicity or race, gender and family history and induces changes in the homeostasis of the body to amplify the risk for initiating and developing NCDs [2].

Globally, non-communicable diseases are becoming an epidemic accounting for most deaths annually. Developing countries like Nigeria with very poor socio-economic and infrastructural development are among the worst hit due to inadequate and unequal access to facilities and services for prevention, early diagnosis and treatment of non-communicable diseases [3,4]. The burdens of NCDs borne by the population are enormous and more profound among low and middle-income countries in which majority of mortalities are recorded [4].

NCDs are the most important cause of death, representing over 60% of deaths and killing over 36 million people globally each year. In 2015, WHO estimated 15.0 million deaths from non-communicable diseases among people aged 30 to 69 years; over 80% of these untimely deaths, were due to cardiovascular disease, cancer, diabetes and chronic respiratory disease [5].

Tobacco smoking was estimated to account for over 70% of lung cancer, over three-fifth of chronic respiratory disorders and nearly one-tenth of cardiovascular disease [6]. The probability of dying prematurely is higher among people who do not engage in regular physical exercise by 20-30%; and over 3 million people die each year due to insufficient physical exercise. Alcohol intake contributed about 3.8% of the yearly deaths [7]. Similarly, poor dietary habit/obesity contributes over 4% of these deaths, with the risk of heart diseases, strokes and diabetes soaring progressively with expanding body mass index (BMI) [7].

Nigeria contributes one-fifth of the overall deaths from NCDs with major inputs from cardiovascular, endocrine, respiratory and renal diseases. It is forecasted that by 2020, 70% of the global burden of disease from NCDs will occur in developing countries thus economically productive young people that incidentally are less able to afford early detection and treatment would not be spared. Diabetes mellitus and hypertension ranked topmost in the causes of kidney failure. Diabetes mellitus is one of leading causes of mortality globally; and within the next two decades there will be a projected rise of 64% if the present trend continues [4].

Anecdotal evidence suggests a surge in the incidence of non-communicable diseases (NCDs) in the general population and a

common attitude of "spiritualizing" causes of diseases among Pentecostals which often undesirably influence their health seeking behavior [8,9]. However, there is a probability that the level of awareness of non-communicable diseases such as diabetes mellitus, hypertension and chronic kidney disease is low and a strong indication that hypertension and diabetes mellitus will invariably lead to chronic kidney disease if not adequately managed. The likelihood that the burden of NCDs will increase is high and World Health Organization predicted in 2009 that by 2020, there will be a 17% surge in the burden of NCDs with low- and middle-income countries having more than a quarter of the rise (27% upsurge) [4]. Considering this extrapolation and the fact that most of the risk factors such as tobacco intake, sedentary lifestyle, westernization of diet and others are modifiable and/or preventable it has become progressively vital to understand the level of awareness of the risk factors, causes, features of and screening practices for common non-communicable diseases among Pentecostals in Sapele, Delta state has become imperative so as to provide a premise for instituting interventions that will tackle NCDs in our locality.

## Methodology

### Study location

The study was conducted in Sapele, Delta state. The major tribe in Sapele is Okpe (a part of the Urhobos) and the foremost occupations of the people of Sapele include trading, sustenance farming and civil service. There are different religious groups in Sapele; Christians, Muslims, traditional worshippers, atheists etc.

### Study population

Christian Worshippers in Pentecostal churches in Sapele, Delta state who willingly give their consent.

### Sampling technique

From a list of all Pentecostal churches (obtained from the leader of Sapele branch of Pentecostal Fellowship of Nigeria) eleven churches was selected with a simple random technique by balloting. Then, with stratified sampling method with proportionate allocation a minimum of 30 members was selected from each of the chosen churches.

### Data collection

The study instrument was a pre-tested semi-structured self-administered questionnaire. Participants' information was not recorded on the questionnaire to ensure strict confidentiality of their responses.

### Data analysis

Data generated was entered into spread sheet of SPSS software version 22 for analysis. Descriptive data was displayed in frequency tables.

## Ethical Clearance

Ethical clearance was obtained from Health Research Ethics Committee in Delta State University Teaching Hospital. Written

informed consent was sought and obtained from the participants before recruiting them for this study. Permission was sought from the head of each church at commencement of the survey.

## Results

Males were marginally more than females (53.1% vs. 46.9%). The 40-49 years age group was most frequent (40.6%) with a mean age of 38.15 years for all participants. Most participants were married (75.0%) and had tertiary education (96.9%), however their job types varied among them with only two-fifth (40.6%) being teachers (Table 1).

All participants were aware of diabetes mellitus, most having heard through electronic and print media (68.7%), perceived genetics and risky lifestyle (82.8%) as possible causes and identified excess sugar intake (92.9%) as a predisposing factor. Nonetheless, about three-fifth factor (59.3%) identified family history as risk (Table 2).

All participants were aware of hypertension, more than half having heard from relatives, friends and colleagues (54.2%), and all thought hypertension referred to high blood pressure. While slightly less than a third (31.2%) identified excess salt intake as a predisposing factor, family history, sedentary living were both identified by almost three-fifth (59.4%) of the respondents as risk factors (Table 3).

No participants was unaware of kidney disease, majority of

**Table 1** Socio-demographic characteristics of respondents.

Age group		
	<20	20 (6.3)
	20-29	30 (9.4)
	30-39	50 (15.6)
	40-49	130 (40.6)
	50-59	20 (6.3)
	≥ 60	10 (3.1)
<b>Mean ± SD</b>		
	38.15 ± 10.20years	
<b>Sex</b>		
	Male	170 (53.1)
	Female	150 (46.9)
<b>Occupation</b>		
	Teaching	130 (40.6)
	Engineer	20 (6.3)
	Trader	100 (31.3)
	Civil servant	30 (9.4)
	Student	20 (6.3)
	Nursing	10 (3.1)
<b>Education</b>		
	None	10 (3.1)
	Tertiary	310 (96.9)
<b>Marital status</b>		
	Single	40 (12.5)
	Living with a partner	10 (3.1)
	Married	240 (75.0)
	Separated	10 (3.1)
	Widowed	20 (6.3)

whom heard from print media (71.9%), and thought kidney disease meant inability to excrete salt or toxic substances from the body (96.9%) referred to high blood pressure. While 65.6% were ignorant of predisposing factors to kidney disease, 34.4% identified nutritional habit and only 3.1% thought family history was a risk factor (Table 4).

A significant proportion (68.8%) of the respondents opined that diabetes can be prevented and agreed that a healthy lifestyle was important for preventing DM but less than two-fifth (37.5%) disagreed with eating processed sugar as a its preventive measure. Majority (71.9%) identified dietary control as a means of cure but more than three-fifth did not know drugs or herbal concoction could be applied in treating diabetes (Table 5).

Almost all respondents (93.8%) opined that hypertension can be prevented and agreed that a healthy lifestyle was important for preventing hypertension while the same proportion disagreed that eating processed sugar can cause hypertension. About the same proportions (68.8% and 65.6%) of respondents identified

**Table 2** Awareness and knowledge of diabetes.

<b>Awareness of DM</b>	320 (100.0)
<b>Source of Information about DM</b>	
Newspapers	180 (56.2)
Media	40 (12.5)
Relatives	100 (31.3)
<b>Perception on causes of DM</b>	
High sugar intake	20 (6.2)
Genetics & risky lifestyle	300 (82.8)
<b>Identified Predisposing factor</b>	
Food poisoning	10 (3.1)
Excess sugar intake	310 (92.9)
<b>Risk factors of DM</b>	
Family history	190 (59.4)
Sedentary lifestyle	80 (25.0)
Nutritional habit	40 (12.5)
I don't know	10 (3.1)

**Table 3** Awareness and knowledge of hypertension.

<b>Awareness of Hypertension</b>	320 (100.0)
<b>Source of Information about Hypertension</b>	
Newspapers	20 (6.2)
Media	120 (37.5)
Relatives	90 (28.1)
Friends/colleagues	90 (28.1)
<b>Knowledge of Hypertension</b>	
High blood pressure	320 (100.0)
<b>Identified Predisposing factor</b>	
Excess Salt intake	100 (31.2)
Low carbohydrate diet	90 (28.1)
I don't know	130 (40.6)
<b>Risk factors of Hypertension</b>	
Family history	110 (34.4)
Sedentary lifestyle	80 (25.0)
Nutritional habit	10 (3.1)
Obesity	20 (6.2)
Aging	100 (31.2)

dietary control and drug therapy respectively as treatment options for hypertensions (Table 6).

Only 3.1% felt kidney cannot be prevented, 62.5% disagreed that kidney disease can be prevented by exercise, vegetable intake, dietary control but over three-fifth (65.6%) were undecided about intake of excess protein, canned food or concoction causing or worsening kidney failure. Only a little over one-third (34.4%) knew dialysis to be a treatment modality for kidney failure whereas over three-fifth did not know if dialysis can treat the condition; almost a majority (62.5%) identified renal transplant a cure for kidney failure (Table 7).

A sizeable proportion of all participants had never checked their weight, blood pressure, fasting blood sugar, lipid profile, HIV and HBV status; while a minute fraction (3.1%) did check in the year preceding the study. More than a quarter checked their weight within 6 months prior to the study while less one-tenth (6.3%) did so within the previous year (Table 8).

## Discussion

The mean age and predominant age group identified in this study seemingly represents the middle-age group among whom a surge in the incidence of non-communicable diseases has been reported [10]. Thus they require regular health promotional activities to make them mindful of this fact, since diseases which used to be prevalent only among the frail and old have become popular amongst younger ages [11]. In addition, contrary to common belief that females tend to be more religious than males [12] this study showed a higher male to female ratio probably because men were more willing to participate in this study.

While most participants had heard of diabetes, hypertension and kidney disease and understand what they connoted some still lack knowledge of the causes and risk factors of these diseases. For instance, some participants considered food poisoning a predisposing factor for diabetes and kidney disease while over a quarter identified low carbohydrate diet and two-fifth

**Table 4** Awareness and Knowledge of kidney disease.

Awareness of CKD	320 (100.0)
Source of Information about kidney disease	
Newspapers	230 (71.9)
Media	90 (28.1)
Knowledge of kidney disease	
Inability of the body to excrete salt	200 (62.5)
Inability of the kidney to excrete toxic substances properly	110 (34.4)
I don't know	10 (3.1)
Identified Predisposing factor	
Excess Sugar intake	10 (3.1)
Food poisoning	90 (28.1)
I don't know	210 (65.6)
Risk factors of kidney disease	
Family history	10 (3.1)
Sedentary lifestyle	80 (25.0)
Nutritional habit	110 (34.4)
I don't know	120 (37.5)

**Table 5** Perception of prevention, causes and cure for diabetes.

Variables	Category	Frequency (%)
Do you think DM can be prevented?	Yes	220 (68.8)
	I don't know	70 (21.9)
	N/A	30 (9.3)
DM can be prevented by eating processed sugar	Agree	90 (28.1)
	Undecided	90 (28.1)
	Disagree	120 (37.5)
	N/A	20 (6.3)
DM can be prevented by leading a healthy lifestyle	Agree	220 (68.8)
	Undecided	10 (3.1)
	Disagree	10 (3.1)
	N/A	80 (25.0)
How DM can be cured?		
Through dietary control	Yes	230 (71.9)
	No	10 (3.1)
	IDK	80 (25.0)
Through Drug use	Yes	110 (34.4)
	No	10 (3.1)
	IDK	200 (62.5)
Through Herbal concoctions	Yes	10 (3.1)
	No	110 (34.4)
	IDK	200 (62.5)

N/A: not available; IDK: I don't know; DM: diabetes

**Table 6** Perception of prevention, causes and cures for hypertension.

Variables	Category	Frequency (%)
Do you think HTN can be prevented?	Yes	300 (93.8)
	I don't know	10 (3.1)
	N/A	10 (3.1)
Eating processed sugar can cause hypertension	Agree	0 (0.0)
	Undecided	0 (0.0)
	Disagree	300 (93.8)
	N/A	20 (6.2)
Healthy lifestyle can prevent hypertension	Agree	300 (93.8)
	Undecided	0 (0.0)
	Disagree	10 (3.1)
	N/A	10 (3.1)
Ways of curing Hypertension include:		
Dietary control	Yes	210 (65.6)
	No	100 (31.3)
	IDK	10 (3.1)
Drug use	Yes	220 (68.8)
	No	90 (28.1)
	IDK	10 (3.1)
Herbal concoctions	Yes	0 (0.0)
	No	120 (37.5)
	IDK	200 (62.5)
Prayers only	Yes	20 (6.2)
	No	100 (31.3)
	IDK	200 (62.5)

N/A: Not available; IDK: I don't know

**Table 7** Perception of prevention, causes and cure for kidney disease.

Variables	Category	Frequency (%)
Do you think Kidney failure can be prevented?	Yes	310 (96.9)
	No	10 (3.1)
Herbs, pain killer, antiseptic can cause kidney failure	Agree	0 (0.0)
	Undecided	110 (0.0)
	Disagree	200 (62.5)
	N/A	10 (6.3)
Kidney failure can be prevented by drinking plenty of water, regular medical check-up, prompt treatment of infection	Agree	220 (68.7)
	Undecided	100 (31.3)
	Disagree	0 (0.0)
	N/A	0 (0.0)
Exercise, vegetable intake, dietary control can prevent kidney failure	Agree	0 (0.0)
	Undecided	110 (34.4)
	Disagree	200 (62.5)
	N/A	10 (3.1)
Intake of excess protein, canned food or concoction can cause/worsen kidney failure	Agree	0 (0.0)
	Undecided	210 (65.6)
	Disagree	110 (34.4)
	N/A	
Do you think dietary control can treat or cure kidney disease	Yes	10 (3.1)
	No	10 (3.1)
	IDK	300 (93.8)
Do you think appropriate drugs use can treat or cure kidney disease	Yes	30 (9.3)
	No	0 (0.0)
	IDK	290 (90.7)
Do you think Herbal concoctions can treat or cure kidney disease	Yes	0 (0.0)
	No	100 (31.3)
	IDK	220 (68.7)
Do you think prayers can cure kidney disease	Yes	120 (37.5)
	No	0 (0.0)
	IDK	200 (62.5)
Do you think Dialysis can treat or cure kidney disease	Yes	110 (34.4)
	No	10 (3.1)
	IDK	200 (62.5)
Do you think renal transplant can cure kidney disease	Yes	200 (62.5)
	No	0 (0.0)
	IDK	120 (37.5)

**Table 8** Screening Practices among respondents.

Last check	Weight	Blood pressure	FBS	LP	HIV	HBV
Never	190 (59.4)	290 (90.7)	210 (65.6)	210 (65.6)	300 (93.8)	300 (93.8)
<6months ago	90 (28.1)	10 (3.1)	10 (3.1)	0 (0.0)	0 (0.0)	0 (0.0)
<1year ago	20 (6.3)	10 (3.1)	10 (3.1)	10 (3.1)	10 (3.1)	10 (3.1)
<2years ago	10 (3.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
2years ago	10 (3.1)	0 (0.0)	0 (0.0)	0 (0.0)	10 (3.1)	10 (3.1)
<3years ago	0 (0.0)	0 (0.0)	0 (0.0)	10 (3.1)	0 (0.0)	0 (0.0)
3 years ago	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
5 years ago	0 (0.0)	10 (3.1)	90 (28.2)	0 (0.0)	0 (0.0)	0 (0.0)

LP: Lipid Profile; FBS: Fasting Blood Sugar; HBV: Hepatitis B

were oblivious of predisposing factor for hypertension. On the other hand, it is commendable that most participants correctly identified risk factors of non-communicable diseases; though surmising that they therefore will avoid these risk factors may be preposterous since the bulk of them have neither checked

their weight nor blood pressures in their entire life. Nonetheless, addressing these misconceptions through timely and properly organized health campaigns could equip them with the appropriate information regarding their health [13].



Most respondents had good perception about prevention, cause and treatment of diabetes and hypertension. This finding is remarkably positive for promoting activities to ensure they safeguard their health and could stimulate policy drive for sustaining health-related SDGs in the general population [14]. Perception about causes of kidney failure appeared adequate but their perception about likely preventive measures was poor as over three-fifth disagreed that exercise, vegetable intake, dietary control were important aspects of prevention. Knowledge of a cure for kidney failure seemed high but over three-fifth did not know dialysis was a renal replacement therapy. People need the right information to seek healthcare when they are ill. Thus, this level of ignorance about dialysis as a viable option for renal therapy exemplified in this study may be a reflection of discriminatory access to accurate health-related information rather than a religious inclination [15]. Moreover, even among patients with chronic kidney disease perception about treatment modalities was poor due to a failure on the part of their attending physicians to educate them appropriately [16].

Screening practices among these religious worshippers appeared low, especially as at least three-fifth of the study participants had never checked their weight. It is not impossible that some of the participants may have undetected diseases such as diabetes; hypertension and dyslipidemia, as a greater proportion of them have not been screened for these conditions. The negative impact for not screening at all or regularly may have long-term implications for these participants, particularly because NCDs have likely complications affecting vital organs in the body which often remain asymptomatic until irreversible damage becomes inevitable [17]. This observation not only highlights a disparity from what is expected but also indicates a significant gap in the application of simple and useful measures for looking after one's own health and wellbeing. A possible reason that may be adduced for this finding may well be related to their belief in divine healing and health often demonstrated with a regular confession of "I cannot be sick", commonly observed among various religious sects in Nigeria [18]. Nevertheless, this abysmal void in screening practice among these participants likely reflects their knowledge of non-communicable disease. Thus, the inevitability for planning educational and preventive interventional programs for this group of participants has become obviously apparent if they are to lead and maintain a healthy lifestyle.

One may want to excuse them for not screening for non-communicable diseases on the ground that, they have poor

knowledge of these diseases. Nevertheless, it is noteworthy that most of them have never screened for HIV, an infection for which there is intensified awareness, free counseling, testing and treatment. Their spiritual belief in divine immunity against all forms of diseases may also have influenced this poor practice especially because some Pentecostals maintain that prayers from their spiritual leaders are often sufficient to keep HIV at bay [19]. Their poor screening practice might have been ingrained in their attitude such that without a change in behavior no meaningful progress can be made with only public enlightenment. Even HIV/AIDS prevention messages have been contradicted by Pentecostal groups in Mozambique [20]. Consequently, they may benefit from the application of health belief model of health promotion because their poor practice may not be independent of their belief. Moreover, religion can be an avenue for stimulating social change, [21] thus awareness campaigns and health promotion activities can be targeted towards this Pentecostal group using their well-respected leaders as arrow heads. The screening for hepatitis B as observed for HIV was poor; almost all respondents have never screened for this infection. While religious persons may have low sexual risk behavior [22] other means of transmitting the diseases such as sharing of sharp objects and blood transfusion cannot be completely excluded among Pentecostals. Thus, their risk of contracting hepatitis B is not absolutely insignificant and they may need proper education in this regard.

As alarming as the foregoing seems it might not be out of place to explore deeply the socio-behavioral components underlying the low screening uptake which is a clear divergence from an exemplar. Therefore, it can posit that future studies among these participants should include qualitative investigation, simply because religious, socio-cultural as well as personal factors crisscross in an individual's daily life [23].

## Conclusion

All participants were aware of diabetes; hypertension and kidney disease and all knew what hypertension represented; though gaps in their knowledge and misconceptions about predisposing factors also existed. Most participants correctly identified risk factors of non-communicable diseases; nevertheless it is uncertain if they would avoid such risks given their poor practice of simple screening tests (weight and blood pressure check). The significant disparity in their screening practices requires health promotion approaches based on health belief model because their poor practice may not be independent of their belief.

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