O R I G I N A L   P A P E R

Knowledge and Prevalence of Hypertension among Cleaners in a University in the Southwestern region of Nigeria

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 Abstract

Background: Hypertension has become an important public health challenge globally because of its high prevalence and concomitant increase in its risk for cardiovascular, cerebrovascular and renal diseases. A major characteristic of this disease is its insidious onset and the inability of the affected individual to detect it on time until it has become complicated, for this reason, it is usually referred to as a 'silent killer'.
Aims: This study was conducted in a University in the Southwestern region of Nigeria. It assessed the prevalence of hypertension among the cleaners and their knowledge about it. It further examined the association between their educational status and knowledge of hypertension, relationship between age, Body Mass Index and development of hypertension.
Methodology: A non-experimental descriptive research design was adopted for the study. The Cluster Sampling Technique was employed to select a total of 228 respondents. A self-developed, semi-structured and interviewer-administered questionnaire was used as the research instrument.
Results: Respondents' knowledge on hypertension was just fair. A quarter was not aware of their hypertensive status yet on examination, about 26.3% had developed it. For the unaffected ones, almost half (44.6%) were doing nothing to prevent them developing it. Hypothesis testing showed that respondents' educational status and Body Mass Indexes had no significant association with their hypertensive statuses. However, age was found to have significant association with occurrence of hypertension.
Conclusion: There was a sub-optimum knowledge of hypertension and practices of its management and prevention among the cleaners of this Nigerian southwestern University. There is a need for general enlightenment with emphasis on preventive measures and adoption of more positive lifestyles as people grow older.

Key Words: Hypertension, Knowledge, Prevalence, Blood pressure, Body mass index.

Background

Hypertension is the commonest non-communicable disease and the leading cause of cardiovascular disease in the world (Kearney et al., 2005). The World Health Organization attributes hypertension as the leading cause of cardiovascular mortality. (Chockalingam, 2007).

In a study of cardiovascular diseases in multiple centers in Nigeria, hypertension was ranked first. Hypertension and its complications constitute more than 25% of emergency medical admissions in

urban hospitals in the country and bulk of the non-traumatic deaths was from cardiovascular diseases. (Ekere, Yellow, & Umune, 2005).

Many people with hypertension are unaware of their condition, among these sect treatment is infrequent and inadequate. The World Hypertension League (WHL), an umbrella organization of 85 national hypertension societies and leagues, recognized that more than 50% of the hypertensive population worldwide is unaware of their condition. (Chockalingam, 2007).

The place of knowledge cannot be overemphasized in the management of many diseases especially hypertension. There is a need for individuals to know what it means, its causes, risk factors, prevention, management, and complications. Also it is very important that individual be aware of their hypertensive status, this is when it could be adequately prevented and managed.

Reports had it that the levels of knowledge, treatment and control of hypertension are particularly low in some economically developing countries (Kearney et al., 2004). Knowledge of hypertension was reported to vary from 25.2% in Korea to 75% in Barbados. (Kearney et al., 2005).

The prevalence of hypertension also varies around the world with the lowest prevalence in rural India (3.4% in men and 6.8% in women) and the highest prevalence in Poland (68.9% in men and 72.5% in women) (Kearney et al, 2005). The global prevalence of hypertension has been increasing. In 2000, 972 million people had hypertension with a prevalence rate of 26.4%. These are projected to increase to 1.54 billion affected individuals and a prevalence rate of 29.2% in 2025 (Kearney et al, 2005). Incidence rates of hypertension range from 3% to 18% depending on the age, gender, ethnicity, and body size of the population studied (Hajjar, Kotchen, & Kotchen, 2006). Cappuccio et al., (2004) reported that the prevalence of hypertension among American whites and the Ashanti tribe in Ghana respectively were found to be 28% each. A recent community based study of rural and semi urban population in Enugu, Nigeria, put the prevalence of hypertension in Nigeria at 32.8% (Ulasi, Ijoma, & Onodugo, 2010), while Adedoyin et al., (2008), in a research conducted among dwellers of a semi-urban region in Nigeria,

reported that the prevalence of hypertension was found to be 36.6%. Dodt, et al., (2009), identified aging as a risk factor for hypertension while Adedoyin et al., (2008), identified Body Mass Index as an important risk factor for hypertension. The medical, economic, and human costs of untreated and inadequately controlled high blood pressure are enormous. Adequate management of hypertension can be hampered by inadequacies in the diagnosis, treatment, and control of high blood pressure.(Alcocer & Cueto, 2008).Uncontrolled hypertension is associated with serious end-organ damage including heart disease, stroke, blindness, and renal disease (Post et al., 2003). Nonetheless, the achievement of blood pressure goals is possible, and most importantly, lowering blood pressure significantly reduces the risk of death due to heart disease, the development of other debilitating conditions, and the cost associated with advanced medical care for hypertension. (William, 2003; Coca, 2008)

In the light of this, the present study is conducted to assess the level of knowledge on hypertension and its prevalence among the cleaners of this University in the Southwestern Nigeria because this group of people were observed and could be regarded as a vulnerable group because they are majorly middle age women, their work exposes them to high risk of stress, not all of them are literate and economically buoyant, also based on the initial assessment on their access to health care services, the cleaners of the institution were not given direct access to the health center services of the institution, due to the fact that they were employed on contract basis and not directly employed by the institution.

Study objectives

The study was conducted to:

 a) Assess the knowledge of hypertension among the cleaners of a southwestern Nigerian University,
 b) Determine the prevalence of hypertension among the cleaners of a southwestern Nigerian University
c) Examine the association between educational status and the knowledge of hypertension among the cleaners of a southwestern Nigerian University and

d) Examine the associations between age and Body Mass Index; and the development of hypertension among the cleaners of a southwestern Nigerian University.

Hypotheses

The hypotheses which guided this study were:

1. There is no significant association between the respondents' educational status and their level of knowledge on hypertension.
2. There is no significant association between the respondents' age and their development of hypertension.
3. There is no significant association between the respondents' hypertensive status and their Body Mass Index.

Methodology

Study Setting

The study was conducted in Obafemi Awolowo University (O.A.U) Ile Ife, Osun State, in southwestern part of Nigeria. It is one of the first generation universities in Nigeria, founded in the year 1962. The institution has thirteen faculties with different courses of study. The university also has some services that have been contracted out to various companies. These companies employ workers who are called temporary workers or service workers of the university and among them are the cleaners to be studied. The total number of companies was 21 and each had various numbers of workforces ranging from 9 to 42 cleaners. There are a total of 530 cleaners and each company is responsible for taking care of specific areas within the premises of the institution.

Design/ sampling method

A descriptive research design was adopted for this study. The companies that were used for this study were selected randomly using Cluster Sampling Technique. From the list of the 21 companies, every 2nd company was chosen making a total of 10 companies. Every cleaner employed by the selected companies was eligible to be part of the study.

The study employed the use of Taro Yamen's (1967) specification to determine the appropriate sample size. There are 530 cleaners in and using the Taro Yamen formula's which is as follows;

$n= N/ [1 + N (e) ^2]$ (where n=the sample size, N= the population size (Universe), e= sampling error (Usually, 0.10, 0.05 and 0.01 are the acceptable errors), hence a total of 228 participant was obtained and used for the study.

Research instrument

The instrument used was a self-developed, semi-structured questionnaire which is in four parts as follows:

Section A: This section contains questions exploring information on the subjects' socio-demographical characteristics such as Sex, Age, Educational status, Marital status, Religion and the number of years they have served as temporary workers in the university.

Section B: This section explored the knowledge of the cleaners about hypertension, its causes, prevention and management. There are 16 questions in this section each carrying one mark. The maximum score obtainable is 16 and minimum is 0. The respondent's knowledge level is determined by the amount scored in this section. A score of 11 to 16 is rated as good knowledge; a score from 6 to 10 is rated as fair knowledge while a score of 0 to 5 is rated as poor knowledge.

Section C: This section contains questions to obtain information on the practices adopted by the subjects to prevent and manage hypertension.

Section D: This section contained the value(s) gotten from the measurement of the individual subject's measurement of blood pressure and Body Mass Index.

Data collection

Arrangements were made with the subjects on when and where to collect the data. The data collection took a period of four weeks. There were sessions on explanations of the procedures to the respondents and gaining of their consent, another session on interviewing with the questionnaire and measurement of blood pressure, height and weight and then, another session on health education on hypertension where respondents were given the opportunity to ask questions which were answered

appropriately. All the interview and examination sessions were conducted on a one-on-one basis in a warm, human, non-threatening, non-insulting, non-belligerent and in a friendly atmosphere. The questionnaire was also translated into the native language for easy comprehension while it was interviewer-administered to those respondents that could neither read nor write. The instruments used include a weighing scale, standiometers, sphygmomanometers and stethoscopes for measuring the weight, height and blood pressure of the respondents, respectively.

Subjects who were newly diagnosed to have high blood pressure during the research were re-examined after a week interval during resting periods before concluding that they were hypertensive.

Ethical consideration

Permission to carry out the research was obtained from the head office of the cleaners in the University for Ethical Clearance. Informed consent was also obtained from the individual respondents. They were informed that their responses will be made confidential and that they were free to decline from continuity with the study at any time if they so wished.

Data analysis

Data collected for the study was subjected to computer analysis by using Statistical Package for Service Solutions (SPSS). Both descriptive (percentage) and inferential (chi-square) statistical techniques were employed in the data analysis and Chi-square was employed for the test of hypotheses.

Results

The socio-demographic characteristics of the respondents as shown in table 1 revealed that 20.6% of the respondents were between ages 20 and 39 years, while the remaining larger percentage was 40 years and above. Most of the respondents (88.2%) were females while the remaining few (11.8%) were men. Based on educational status, 10.1% had no formal education, 46.1% had up to Primary education, and 39.9% had Secondary education, while the just 3.9% had Tertiary education. A larger percentage (96.1%)

was married. Based on number of years in service within the university, 5.3% had only worked for less than a year, 29.4% had been serving in the university between 1-5 years, 25.0% had spent 6-10 years in service, 11.4% for 11-15 years, 14.5% had spent 16-20 years in service, while the remaining 14.5% had worked for 21 years and more within the university.

On the overall, only 16.7% had good knowledge of hypertension, 62.7% had fair knowledge on hypertension while 20.6% had poor knowledge of hypertension (table 2). As regards their awareness of their hypertensive status, 25% was unaware if they were hypertensive or not while about 74.6% of them were sure of their status, that is, they knew if they were hypertensive or not.

It was also observed that 26.3% of the respondents were hypertensive and 76.7% were not. Only about half (53.9%)of them had normal Body Mass Index, while others had abnormal Body Mass Index: 3.9% was underweight, 30,7% was overweight, 9.2% were found with Obesity Class 1, 2.2% had Obesity Class 2, however, none had obesity class 3(table 3).

As revealed in table 4, 60 of the respondents were hypertensive, among which 18.3% were doing nothing to manage their hypertension, 35% were using antihypertensive drugs only, 15% were employing lifestyle modification only, while the remaining 31.7% were combining drug therapy with lifestyle modification. Among the remaining 168 respondents that were not yet hypertensive, 11.3% claimed they prevented hypertension only by avoiding physical stress, 13.1% used to avoid emotional stress only and another 13.1% engaged in dietary regulations only. Very few (6.0%) were avoiding both emotional stress and physical stress and only 3.6% were practicing dietary regulations and the avoidance of emotional stress. Only one respondent (0.6%) prevented hypertension by observing dietary regulations and avoidance of both emotional stress and physical stress. The

remaining 3.6% claimed they were preventing hypertension by going to the hospital for regular medical checkup while 44.6% were doing nothing to prevent hypertension.

Based on their attitudes towards blood pressure monitoring, 11.8% said that they have never checked their blood pressure measurement, 8.8% did it on yearly basis, 26.8% on a monthly basis, 5.3% on a weekly basis while 47.4% only checked their blood pressure whenever the opportunity.

Table1: Socio-demographical data of respondents

Variable	Frequency	Percentage
Age		
20-29	8	3.5
30-39	39	17.1
40-49	85	37.3
50-59	62	27.2
60 and above	34	14.9
Total	228	100.0
Sex		
Male	27	11.8
Female	201	88.2
Total	228	100
Educational status		
None	23	10.1
Primary	105	46.1
Secondary	91	39.9
Tertiary	9	3.9
Total	228	100.0
Religion		
Christianity	206	90.4
Islamic	22	9.6
Traditional	0	0
Others	0	0
Total	228	100.0
Marital status		
Married	219	96.1
Single	9	3.9
Total	228	100.0
No of years in service		
Less than 1 year	12	5.3
1-5 years	67	29.4
6-10 years	57	25.0
11-15 years	26	11.4
16-20 years	33	14.5
21 years and above	33	14.5
Total	228	100

Table 2: Distribution of respondents based on their knowledge of hypertension and the awareness of their hypertensive status.

Knowledge on hypertension	Frequency	Percentage
Good (11-16 points)	38	16.7
Fair (6-10 points)	143	62.7
Poor (0-5 points)	47	20.6
Total	228	100.0
Awareness of hypertensive status of self		
Aware	170	74.6
Not aware	58	25.4
Total	228	100.0

Table 3: Distribution of respondents based on their Hypertensive Status and Body Mass Index (BMI)

Hypertensive Status	Frequency	Percentage
Hypertensive ($\geq$140/100)mmHg	60	26.3
Not hypertensive (<140/100) mm Hg	176	73.7
Total	228	100.0
BMI (kg/m^2)		
Underweight (<18.5)	9	3.9
Normal (18.5-24.9)	123	53.9
Overweight (25.0-29.9)	70	30.7
Obesity Class 1 (30.0-34.9)	21	9.2
Obesity Class 2 (35.0-39.9)	5	2.2
Obesity Class 3 ($\geq$40)	0	0.0
Total	228	100.0
Hypertensive Status	**Percentage**	
Hypertensive ($\geq$140/100)mmHg	26.3	
Not hypertensive (<140/100) mm Hg	73.7	

Table 4: Distribution of respondents based on Practices adopted in the management and prevention of hypertension.

Treatment measures adopted	Frequency	Percentage
Nothing	11	18.3
Drug therapy	21	35
Lifestyle modification	9	15
Drug therapy and lifestyle modification	19	31.7
Total	60	100.0
Preventive measures adopted		
Nothing	75	44.6
Avoidance of physical stress	19	11.3
Avoidance of emotional stress	22	13.1
Dietary regulations	22	13.1
Avoidance of physical stress and dietary regulations	7	4.2
Avoidance of emotional stress and avoidance of physical stress	10	6.0
Dietary regulations and the avoidance of emotional stress	6	3.6
Dietary regulations, Avoidance of emotional stress and avoidance of physical stress	1	0.6
Regular medical checkup	6	3.6
Total	168	100.0
Frequency of blood pressure measurement		
Never	27	11.8
Yearly basis	20	8.8
Monthly basis	61	26.8
Weekly basis	12	5.3
Whenever opportuned	108	47.4
Total	228	100.0

Figure 1: Distribution of respondents based on their knowledge of hypertension
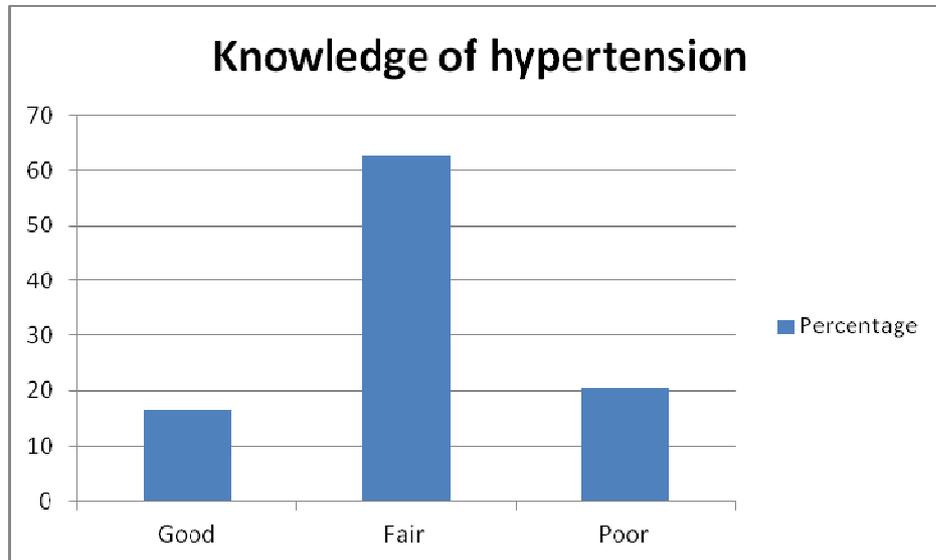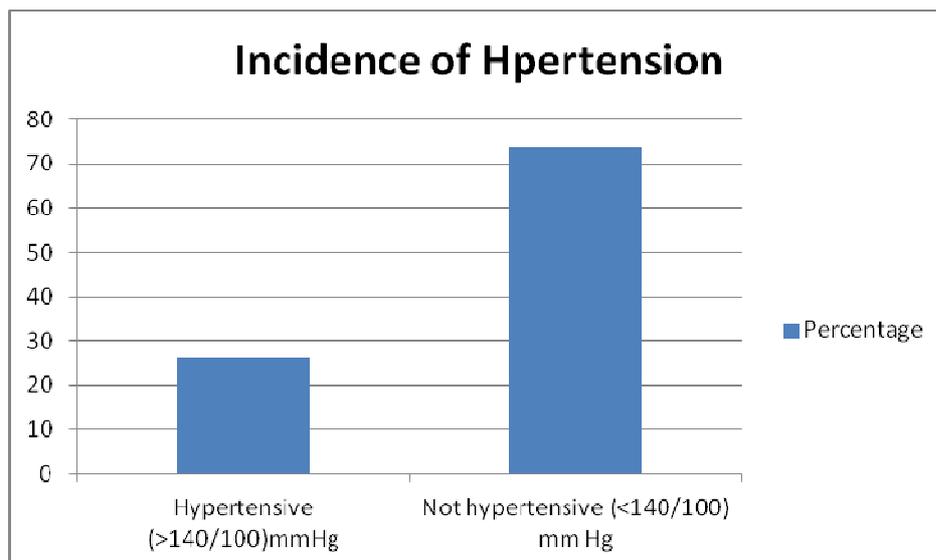

Figure 2: Incidence of hypertension among the respondents

TEST OF HYPOTHESES

The three hypotheses generated for this study were tested using Chi-square. The significant level of precision is taken as 0.05

HYPOTHESIS 1: There is no significant association between the respondents' educational status and their level of knowledge on hypertension.

Table 5: Cross tabulation of respondents' educational status and knowledge of hypertension.

Educational status	Knowledge of hypertension			Total
	Poor knowledge	Fair knowledge	Good knowledge	
None	7	15	1	23
Primary	22	64	19	105
Secondary	18	57	16	91
Tertiary	0	7	2	9
Total	47	143	38	228

$X^2 = 5.804$ df = 6   p = 0.446

The p-value = 0.446 is greater than 0.05, and the significant level is taken as 0.05, therefore, there is no significant association between the respondent's educational status and their level of knowledge on hypertension.

HYPOTHESIS 2: There is no significant association between the respondents' age and their development of hypertension.

Table 6: Cross tabulation of respondents' age and their development of hypertension.

Age	Hypertensive status		Total
	Hypertensive	Not hypertensive	
20-29	0	8	8
30-39	4	35	39
40-49	21	64	85
50-59	19	43	62
60 and above	16	18	34
Total	60	168	228

$X^2 = 16.000$ df = 4   p= 0.003

Since p-value = 0.003 is less than 0.05, and the significant level is taken as 0.05, therefore, there is a significant association between the respondents' age and their development of hypertension.

HYPOTHESIS 3: There is no significant association between the respondents' hypertensive status and their Body Mass Index.

Table 7: Cross tabulation of respondents' hypertensive status and their Body Mass Index.

Hypertensive status	Body mass index					Total
	Normal	Underweight	Overweight	Obesity class 1	Obesity class 2	
Hypertensive	26	3	22	7	2	60
Not hypertensive	97	6	48	14	3	168
Total	123	9	70	21	5	228

$X^2 = 3.889$ df = 4   p = 0.421

Since p-value = 0.421 is greater than 0.05, and the significant level is taken as 0.05, therefore, there is no significant association between the respondents' hypertensive status and their Body Mass Index.

DISCUSSION

The result of this research showed that majority of the cleaners in this Southwestern Nigerian University had just fair knowledge of hypertension and its prevention, one in every four had already developed hypertension and many of them had not started adequate monitoring and management of their blood pressure. The findings suggested that a lot needs to be done by nurses and other health care workers in respect to reduction of hypertension in our community as it remains a threat to individuals, families and the nation.

Hypertension like most diseases can be prevented or managed when there is adequate knowledge about it and when the individual is aware of his or her hypertensive status. However, it was found in this study that there was just a fair level of knowledge on hypertension among the respondents. This is in actual fact, not encouraging, especially in this 21st century, when every individual is expected to have a good knowledge about issues relating to health. On overall, only 16.7% had good knowledge on hypertension (figure 1 and table 2,). This is lower than what

Kearney et al., (2004), found in their study in Korea and Barbados where 25.2% and 75% of the respondents respectively have good knowledge of hypertension. The rest either have fair knowledge or poor knowledge of hypertension. Majority could not mention what type of food, drinks or ways of living can predispose one to the development of hypertension. It also corroborates the findings of Kearney et al., (2004) in which it was explained that the levels of knowledge of hypertension are particularly low in some economically developing countries.

The prevalence of hypertension among the respondents was quite significant as 26.3% had developed hypertension (figure 2). This result is very similar to the worldwide report of Kearney et al., (2005), in which, 26.4% of the world's adult population in 2000 had hypertension. It is also similar to that of Cappuccio et al., (2004) in which the prevalence of hypertension among American whites and the Ashanti tribe in Ghana respectively were found to be 28% each.

However, the prevalence of hypertension in this study was a little lower than what was reported by Adedoyin et al., (2008), in a research conducted among dwellers of a semi-urban region in Nigeria, in which the prevalence of hypertension was found

to be 36.6%. This may be attributed to serious lack of information and little awareness about the disease at that time.

As regards the management of hypertension by the sixty respondents that were diagnosed, about one-fifth was doing nothing to manage it. Only 31.7% had started managing with prescribed drugs and dietary modification while the remaining percentage managed it with either drug only or dietary modification alone. Out of the remaining 168 that were not yet hypertensive, almost half did nothing to prevent hypertension. From the total respondents 26.8% and 5.3% claimed they did a regular checking of their blood pressure respectively on monthly and weekly basis. The remaining percentage did it rarely when they had the opportunity and not according to any schedule (table 4).

The hypotheses testing revealed that there is no significant association between the educational status of the respondents and their knowledge of hypertension, therefore the educational level attained by the respondents had not influenced their knowledge on hypertension. This implies that the formal educational status should not be used as a yardstick for measuring an individual's knowledge about hypertension, hence, the need for general enlightenment on this disease.

Age in this study has proven to be significant in the development of hypertension as the result of Hypothesis 2 suggested. This shows that age influences the development of hypertension and it is in agreement with the report of Dodt, Wellhöner, Schütt, & Sayk, (2009), in which aging was identified as a risk factor for hypertension. Therefore, special attention on hypertension should be given to people as they grow older, and also individuals should engage themselves in activities that enhance cardiovascular health such as regular exercises, balanced diet, reduction of salt intake, eating cholesterol-free diet, adequate rest and avoidance of stress which are helpful in preventing hypertension

Although, the BMI is generally believed to be an important factor in the development of hypertension, this study indicated that Body Mass Index of the respondents did not significantly affect their hypertensive status as shown by testing

the third hypothesis (table 7). This is at variance with the findings of Adedoyin et al., (2008), in which Body Mass Index was found to be an important risk factor for hypertension. It is therefore suggested that further studies be carried out on this aspect among a bigger population of the same characteristics.

Conclusion

This study has explored the level of knowledge of the cleaners of ObafemiAwolowo University Ile-Ife, southwester Nigerian University, on hypertension, its prevalence among them and their practices of managing and prevention.

The result of this research shows that hypertension by its insidious nature is still a threat in this community. It becomes easier to be prevented or managed when there is adequate knowledge about it and when the individual is aware of his or her hypertensive status but the knowledge among the studied populace was just fair. The prevalence of hypertension among them was 26.3%. About one-quarter of them was unaware of their hypertensive status as more than half had either never taken their blood pressure measurement before or only did when they had the opportunity and not according to schedule. Among the affected respondents, less than half managed their hypertension appropriately and almost half of the unaffected were doing nothing to prevent themselves from developing it. Hypothesis testing showed that respondents' educational status had no significant influence on their knowledge on hypertension neither was there a significant association between their Body Mass Indexes and hypertensive statuses. However, age was found to have significant association with occurrence of hypertension.

There is therefore a need to get the populace to be more informed about the development, management and prevention of this disease. Greater emphasis needs be placed on prevention which is usually the primary goal of nursing practice, and this is only possible and effective when people are aware of its nature, causes, prevention and management. People should also be encouraged to adopt more positive lifestyles and go for regular medical check-ups as they grow older as aging was found an important risk factor

for hypertension. These will help to reduce the menace of hypertension to the barest minimum and result into healthier individuals and community which make a healthy nation.

IMPLICATION FOR NURSES

1.   Knowledge on hypertension is low and this indicates the need for Nurses to intensify awareness programs on hypertension within the community and places of work.
2.   Aging is an important risk factor for developing hypertension; therefore, nurses should encourage more people to engage in regular checkups especially as they grow older.
3.   Nurses should encourage people to make healthy lifestyle a norm in order to prevent the development of hypertension and other diseases.
4.   More research studies on the prevalence and the knowledge of hypertension should be carried out across the country.

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