Awareness, Knowledge and Utilization of Hyper-tension Management Techniques among Rural Dwellers in Ijebu-North East Local Government Area of Ogun State, Nigeria

Article · September 2020

DOI: 10.23937/2474-3690/1510051

CITATIONS
2

READS
189

3 authors:

Olayinka Oladeji
University of Ibadan
2 PUBLICATIONS **2** CITATIONS
SEE PROFILE

Oluwatoyin Olatunde Olagunju
Adekunle Ajasin University
28 PUBLICATIONS **46** CITATIONS
SEE PROFILE

Nkiru Theresa Meludu
Nnamdi Azikiwe University, Awka
72 PUBLICATIONS **188** CITATIONS
SEE PROFILE

ISSN: 2474-3690

Oladeji et al. J Hypertens Manag 2020, 6:051
DOI: 10.23937/2474-3690/1510051
Volume 6 | Issue 2
Open Access

Journal of
Hypertension and Management

RESEARCH ARTICLE

Awareness, Knowledge and Utilization of Hypertension Management Techniques among Rural Dwellers in Ijebu-North East Local Government Area of Ogun State, Nigeria

Olayinka Bukola Oladeji[1], Oluwatoyin Olagunju[2*] and Nkiru Theresa Meludu[1]

[1]Department of Agricultural Extension and Rural Development, Faculty of Agriculture, University of Ibadan, Oyo State, Nigeria

[2]Department of Agricultural Economics and Extension, Faculty of Agriculture, Adekunle Ajasin University, Ondo State, Nigeria

***Corresponding author:** *Oluwatoyin Olagunju, Department of Agricultural Economics and Extension, Faculty of Agriculture, Adekunle Ajasin University, P.M.B. 001, Akungba-Akoko, Ondo State, Nigeria, Tel: +234-803-205-3139*

Abstract

The increasing occurrence of hypertension and its position is a significant threat to CVD which make it the world's leading cause of morbidity and death. Knowledge about CVD and the main risk factor such as hypertension and its treatment in rural areas is minimal in Nigeria as regards its impact on rural dwellers and agricultural production. Hypertension is one of the recognized heart diseases that are suspected to be complications leading to stroke or heart failure and the cause of today's Nigerian "unexpected death" syndrome. The study assessed the awareness, knowledge and utilization of Hypertension Management Techniques among Rural Dwellers in Ijebu-North East Local Government Area of Ogun State, Nigeria. One Hundred and Fifty (150) rural dwellers were selected using simple random sampling techniques. Research findings revealed that age, marital status, educational status, income, household size, source of information and awareness had a significant effect on the rural dwellers' utilization of hypertension management techniques. Source of information and awareness had a significant influence on the utilization of hypertension management techniques. It further showed that no significant relationship between knowledge of rural dwellers and hypertension management techniques used. The rural dwellers in the local government were aware and have knowledge of various hypertension management techniques but often utilize the traditional technique effectively than the orthodox technique. Therefore, religious organizations should be used as a platform for disseminating health-related information particularly hypertension management techniques in the study area.

Keywords

Hypertension, Management techniques, Rural dwellers, Utilization

Introduction

The realization of agriculture as the backbone of many developing countries' economies has drawn the attention of these countries to agricultural development by preventing setbacks in agricultural production, especially the labour force such as diseases that incapacitate farmers' performance [1]. Although the growth rate of agricultural and food production in Nigeria is just getting back on track after realizing that a country that cannot produce food for the citizen is not self-sufficient even though they have crude-oil as the backbone of the economy [2]. The history of agricultural development in developing countries consisted mainly of efforts to ensure increased production in all aspects of farming through integrated programs [3]. However, a significant part of the agricultural labour force in Nigeria dwell in rural communities, which are among the less privileged and bear the greatest burden of diseases in which hypertension is not an exception [4]. As a result of this, their living standards are overwhelmed and the food and nutrition welfare of millions of households is badly hindered [5]. The health, wellness, and economic

Citation: Oladeji OB, Olagunju O, Meludu NT (2020) Awareness, Knowledge and Utilization of Hypertension Management Techniques among Rural Dwellers in Ijebu-North East Local Government Area of Ogun State, Nigeria. J Hypertens Manag 6:051. doi.org/10.23937/2474-3690/1510051

Accepted: September 21, 2020: **Published:** September 23, 2020

growth of the people are very important in the overall development of agriculture which is a collective responsibility of everyone [6].

The term used for defining elevated blood pressure is hypertension. Blood pressure is a function of the stress on the artery walls, when the heart pumps blood through the body [7]. Blood pressure is strongest as it exits the heart through the aorta and slowly diminishes as it reaches smaller and smaller blood vessels. The blood moves from the heart through arteries with enough energy to transfer the fluid through head to feet to the far reaches of each organ. Blood flows into the veins that lead to the heart, supported by muscle contraction and gravity [8]. Also, Blood pressure is measured with an instrument called "sphygmomanometer," commonly referred to as a blood pressure cuff [9]. A stethoscope is used to detect the flow of blood through the heart, with readings of the blood pressure taken typically over the brachial artery at the upper arm and reported as two numbers, such as 120/80 mmHg (millimeter mercury) and one or both of these numbers can be too high or low [10].

Furthermore, hypertension is one of the recognized heart diseases that are suspected to be the cause of today's Nigerian "unexpected death" syndrome [11]. Two autopsy reports by [12] have shown that hypertension often leads to such sudden and unexplained deaths. Approximately 876 consecutive Ibadan coroners' autopsies show cardiovascular disease as frequent cause of sudden death, and hypertension complications leading to stroke or heart failure [13].

The rate at which rural dwellers/farmers complain of headache, difficulty in breathing and irregular heartbeat and as a result slump and die in Nigeria is alarming and has become a source of worry and poses questions in the mind of people and researchers as it reduces the human resources available as labour on the farm [14]. This could be due to the use of crude implements in farming operations, which automatically leads to stress and fatigue, limited access to quality and affordable healthcare facilities [9]. Cardiovascular disease (CVD) accounted for the largest health problems in the world, while it has long been considered a health issue primarily for the Western world, nearly 80% of the world CVD deaths were caused by middle and low-income countries and occurred almost evenly in men and women [15-21].

There are some studies in the rural areas of some African countries in which Nigeria is not an exception, which reports alarming findings of elevated blood pressure and soaring occurrence [22-25]. Hypertension appears to be more prevalent in urban areas, and assumed that rural sub-Saharan Africa is at an early stage of transition from infectious to non-infectious diseases due to the rapid adoption of unhealthy lifestyles [26]. Such habits are marked by increased intake of high-calorie foods and physical inactivity contributes to obesity. Consequently, there is a strong need to know whether people are aware, knowledgeable and utilize the various hypertension management techniques which include eating of an adequate meal, eating/use of functional foods (aloe vera, garden egg, moringa *olifera*, ginseng, garlic, etc.), loss of weight in cases of an overweight person, use of multivitamins, avoidance of smoking, regular exercise, low salt intake, and stress management [27,28]. In addition, there have been evidences of supportive and important trials according to research conducted in Iran, China, United Kingdom, USA and South Africa on the use of functional foods and multivitamins as potential alternative therapies for treatment of hypertension, especially for prehypertensive patients, whose blood pressure is marginally or mildly high but not high enough to warrant the prescription of blood pressure-lowering medications [29-33].

Finally, it is however worthy of note that one out of the seventeen Sustainable Development Goals (SDGs) is to maintain good health and well-being [34], however, it is imperative to carry out this study at this crucial time in which hypertension is the leading risk factor of CVD. This calls for concern as it is becoming increasingly common in the rural communities in Nigeria; therefore it is pertinent to ascertain their awareness, knowledge and utilization of hypertension management techniques to forestall prevalence in the rural regions, where agriculture is the main source of livelihood and the economic backbone. The consequences of this risk factor (hypertension) in the face of low awareness calls for more study on how many of the rural dwellers are aware and utilize its management technique in Nigeria.

Thus, this study aimed at determining rural dweller' utilization of hypertension management techniques in the Ijebu-North East local government area of Ogun State, Nigeria. Specifically, the objectives to be achieved are as follows:

1. Describe the socio-economic characteristics of rural dwellers in the study area.
2. Identify sources of information available to rural dwellers on hypertension management techniques.
3. Determine the rural dwellers' knowledge of the causes of hypertension in the study area.
4. Ascertain rural dwellers' awareness of hypertension management techniques.
5. Ascertain the rural dwellers' usage of hypertension management techniques.

Hypothesis

This study tested the following hypotheses:

$H_0$1: There is no significant relationship between the socio-economic characteristics of the rural dwellers and their utilization of hypertension management techniques.

$H_0$2: There is no significant relationship between the sources of information available to rural dwellers and their utilization of hypertension management techniques.

$H_0$3: There is no significant relationship between the awareness of rural dwellers and their utilization of hypertension management techniques.

$H_0$4: There is no significant relationship between the knowledge of the causes of hypertension and their utilization of hypertension management techniques.

Methods

The study area

The study was conducted in Ogun State, specifically Ijebu-north-east local government area, which was created on December 13, 1996 after being sculpted from Ijebu-Ode local government. The study area was called Ilugun-Alaro when it was created, but was later on changed to Ijebu-North East local government with its headquarters in Atan as a result of the inclusion of some towns that were not part of it at the beginning. Ijebu-North East Local Government Area has an area of 118 square kilometers and a total population of 67, 634 [35], and is located along latitude 6° 54' 0" North and longitude 4° 01' 0" East. The local government is bounded in the east by Ijebu-East local government, in the north by Ijebu-North local government, in the south by Ijebu- Ode local government and by Odogbolu local government in the west.

The people are predominantly farmers, involved in agricultural crops including cassava, yam, maize, oil palm and other crops. They also engage in livestock production such as poultry, cattle rearing and even fish farming. The traditional occupation of the inhabitants just as mentioned earlier are farming, lumbering, crafting, trading and very few civil servants, even those civil servants engaged in farming activities as a secondary occupation.

Data sources

The primary information was gathered using a well-structured questionnaire consisting of five sections. The five-section questionnaire included; data on socioeconomic profiles of the respondents, information on different sources of hypertension management techniques, knowledge on the causes of hypertension, awareness of hypertension management techniques and level of usage of the various hypertension management techniques.

Instrument validation and reliability

The instrument used for this study has been pilot-tested to determine their reliability. Based on this, the researcher contacted a number of experts in the field of agricultural extension and health management to validate the instrument. The experts were chosen based on the area of expertise which satisfies the area of this research. In order to determine the reliability of the survey instrument, the pilot test for this study was performed on 20 randomly selected rural residents with the pre-designed questionnaire. In the final stage of data collection, these 20 rural dwellers were not included in the actual study.

Measurement of variables

The dependent variable in this study is the utilization of various hypertension management techniques. This was measured using a three-point scale and were scored 3 points for Always, 2 points for occasionally and 1 point for never as used by [36] and which was modified to suit the research purpose (Table 1).

Population and sample selection

In this study, a multi-stage sampling technique was employed. Fifty (50%) of the ten wards were selected at random in the first phase. The selected wards include Isonyin, Imewuro, Ilese, Ogbogbo and Itamarun. Fifty six percent (56 percent) of all clinics in the selected wards were chosen for the study at random in the second phase. This gave a total of ten (10) clinics out of a total of eighteen (18) clinics. In the last phase, 15 respondents were randomly selected in each of the chosen clinics. This gave a total of 150 respondents as shown in (Table 2).

Table 1: Independent variables.

S/n	Variable	Measurement
1.	Age	Respondents were asked to report their age (in years rounded off) at the time of the interview.
2.	Sex	Male was assigned a numerical value of 1, while the female was assigned 0
3.	Educational level	This was categorized as follows: Non-Formal = 1; Primary = 2; Secondary = 3; Tertiary = 4
4.	Household size	Number of persons living in the house of the respondent at the time of data collection.
5.	Marital status	This was categorized as follows: Married = 1; Single = 2; Divorced = 3; Widowed = 4
6.	Occupation	This was categorized as follows: Farming = 1; Trading = 2; Civil Servant = 3; Clergy = 4; Unemployed = 5
7.	Religion	This was categorized as follows: Christian = 1; Islam = 2; Traditionalist = 3; Others = 4
8.	Monthly income (₦/$)	Money that respondents make in Naira/$ either from agricultural activities and non-agricultural activities.

Table 2: Distribution of respondents sampled from the study area.

Name of local government	Names of selected wards (50%)	No of selected clinic in each ward (56%)	No of respondent in each selected Clinic
Ijebu-North East	Imewuro	3	45
	Itamarun	2	30
	Ilese	2	30
	Isonyin	1	15
	Ogbogbo	2	30
Total	**5**	**10**	**150**

Data collection and statistical analysis

Primary sources were used to obtain data by using a questionnaire comprising of well-structured open and close-ended questions. The data were analyzed by SPSS version 23.0 using descriptive (frequency, percentage and mean) and inferential statistics such as chi-square and correlation analysis to test the hypotheses.

Results and Discussion

Socio-economic characteristics of the respondents

Age: The result in Table 3 reveals that the highest numbers (45.3%) of the rural dwellers are older than 51 years and above, 34% are within the age group of 41-50. While 18.7% falls between 31-40 years-old. Also, the table shows that 3% are less than or equal to 30 years with a mean of 33.6. This implies that most of the respondents are at their adulthood period approaching old age and therefore may influence usage of hypertension techniques among them. This has the same opinions with [37,38] findings that the rate of having hypertension increases as the age of individual increases from 40 years and above which demands effective utilization of hypertension management techniques.

Level of educational: The results further revealed that less than half of the respondents (36.6%) have tertiary education, with 34.6% having no formal education. Also, 14.8% had secondary education and very few (14%) had primary education as shown in (Table 3). This implies that some of the rural dwellers in the study areas have no formal education with a considerable number of them having tertiary education and therefore should be able to read or write. Education probably must have generally influence the awareness, knowledge and utilization of healthcare management information and techniques of the people. Hence, their inability to understand, receive and utilize health management techniques. In a related study, [39] reiterated the role of education and that respondents with more education may more likely be aware and knowledgeable about the utilization of hypertension management techniques as this is an important aspect of any programs and interventions designed to control rate of hypertension in the study area.

Gender: Gender of the respondents as presented in Table 3 reveal that more than half (58%) of the respondents were female while less than half (42%) were male. This result indicates a higher percentage of females compared to males in the study area. This implies that there were more women in the study area than men and this showcased a typical rural community in Nigeria as confirmed by [40].

Household size: With respect to household size, the majority (78%) of the rural dwellers had a household size of 4-6 persons, while 20% had a household size between 1 and 3 persons with 1.3% having a household size of 7-9 persons. Also, 0.7% of the rural dwellers had over 9 persons per household. This implies that household size is a vital socio-economic index, which measures the number of people to cater for in a family in that smaller family size place less financial burden on the family income to be able to manage various hypertension techniques within each member's social status. This is consistent with the results of [41] which reported that available funds will be able to take care of the sick in a smaller family to have good adherence to health management techniques.

Religion: It was found that 46.7% of respondents are Muslims, while 46% are Christians. Also, 5.3% and 2% of the respondents are Traditionalist and others (i.e. those who doesn't belong to any religion) respectively. Hence, these reveal that there is a balance in the two major religious practices within the country in the study area contrary to what one will expect in rural areas where we have few traditionalists. This implies that religious organizations can be a valid platform for disseminating health-related information particularly hypertension management techniques in the study area.

Marital status: Results further reveal that less than half (42.7%) of rural dwellers were married, 30.7% were divorced. While 21.3% is widowed and 5.3% single. It means that most of the respondents are married. This indicated that marital status is significant and according to [42], relationships that exist among family were very important to hypertension management techniques and medication adherence. Also, the awareness level of hypertension management techniques was lower among the divorced or widowed compared to those who were married [9].

Occupation: In terms of occupation, it was revealed that 60% of the rural dwellers are farmers, while 28.7%

Table 3: Socio-economic characteristics of the rural dwellers.

Socio-Economic Characteristics	Frequency (n = 150)	Percentage	Mean
Age			
≤ 30	3	2	
31-40	28	18.7	33.6
41-50	51	34	
> 50	68	45.3	
Sex			
Male	63	42.0	
Female	87	58.0	
Educational level			
Non-Formal	52	34.6	
Primary	21	14	
Secondary	22	14.8	
Tertiary	55	36.6	
Household size			
1-3	30	20.0	
4-6	117	78.0	5.0
7-9	2	1.3	
10 and above	1	0.7	
Marital status			
Single	8	5.3	
Married	64	42.7	
Divorced	46	30.7	
Widowed	32	21.3	
Occupation			
Farming	90	60.0	
Trading	14	9.3	
Civil Servant	43	28.7	
Clergy	3	2 .0	
Unemployed	3	2.0	
Religion			
Christian	69	46.0	
Islam	70	46.7	
Traditionalist	8	5.3	
Others	3	2	
Monthly income (₦/$)			
₦1000 - ₦10000 ($2.2-22)	92	61.3	
₦11000 - ₦20000 ($24-43)	3	2 .0	5,500
₦21000 - ₦30000 ($47-65)	3	2.0	
₦31000 - ₦40000 ($67-87)	1	0.7	
₦41000 - ₦50000 ($89-109)	1	0.7	
₦51000 and above ($110 and above)	50	33.3	

Source: Field Survey, 2019.

Naira to US dollar conversion rate: ₦460 to $1 US dollar.

are civil servants. Also, 9.3%, 2% and 2% were traders, clergy and unemployed respectively. This simply buttresses the fact that the major occupation in the study is farming as was earlier mentioned in the methodology.

Monthly income: Findings also show that the mean income of the rural dwellers was ₦5,500 ($12). More than half (61.3%) of the rural dwellers earn between ₦1,000 and ₦10,000 ($2.2 and $22) monthly, while

(33.3%) earn ₦51,000 ($110) and above monthly. Only (4%) of the respondents earn between ₦11,000 and ₦30,000 ($24 and $65) with very few (1.4%) of them indicated that their income range was between ₦31,000 and ₦50,000 ($67 and $109). It can be seen that a larger percentage of the respondents earned below ₦51,000 ($110) monthly. The low income earned by the rural dwellers could discourage them from the usage of hypertension management techniques, as money is required to maintain different health challenges within the body system. This result is consistent with [43]; they discovered that rural dwellers low level of occupation or economic status might not likely be able to cater for the health and nutritional needs of their family due to low income.

Sources of information available to rural dwellers

The information source in the study regarding the use of hypertension management techniques among rural residents is presented in (Table 4). It shows that 76.7% listen to health awareness programs on their radio, while 59.3% and 40% of the respondents got to know about hypertension management techniques through friends and social/religious groups respectively. Also, 56% got their information from health workers maybe through their visitation to the health centre/unit or through public enlightenment programs. Also, 62.7%, 69.3%, 70%, 86.7% and 88.7% of the rural dwellers had never received information on the usage of hypertension management techniques through television, newspaper, internet, neighbours and mobile phones respectively. Observation made from this study is that despite high literacy level among some of the rural dwellers, they fail to use both electronic media/information telecommunication media and print media which easily point to the fact that they are not ICT compliant and also shows they rarely discuss health-related issues with their neighbours and possibly for the fear of stigmatization. This is in line with the results of [44] that more information on hypertension management is mostly re-

Table 4: Sources of information.

Source of Information	Never	Occasionally	Regularly
	Freq. (%)	Freq. (%)	Freq. (%)
Radio	20 (13.3)	15 (10.0)	115 (76.7)
Television	94 (62.7)	25 (16.7)	31 (20.7)
Health Workers	6 (4.0)	60 (40.0)	84 (56.0)
Newspaper	104 (69.3)	26 (17.3)	20 (13.3)
Internet	105 (70.0)	24 (16.0)	21 (14.0)
Neighbours	130 (86.7)	13 (8.7)	7 (4.7)
Friends	3 (2.0)	58 (38.7)	89 (59.3)
Mobile phone	133 (88.7)	13 (8.7)	4 (2.7)
Social/Religious Group	60 (40.0)	30 (20.0)	60 (40.0)

Source: Field Survey, 2019.

Table 5: Knowledge of the causes of hypertension.

Causes of hypertension	Yes	No
	Freq. (%)	Freq. (%)
Inadequate balanced diet	139 (92.7)	11 (7.3)
Too much salt intake	144 (96.0)	6 (4.0)
Presence of saturated fat in the body	143 (95.3)	7 (4.7)
High cholesterol level in the body	136 (90.7)	14 (9.3)
Low fruit & vegetable intake in the body	135 (90.0)	15 (10.0)
Tobacco intake in the body	133 (88.7)	17 (11.3)
Other illness in the body	142 (94.7)	8 (5.3)
High alcohol consumption in the body	123 (82.0)	27 (18.0)
Body size and weight	109 (72.7)	41 (27.3)
Hereditary factors	89 (59.3)	61 (40.7)
Inadequate rest	142 (94.7)	8 (5.3)
Anxiety and fear	147 (98.0)	3 (2.0)
Lack of exercise	88 (58.7)	62 (41.3)
Others (specify)	-	-

Source: Field Survey, 2019.

ceived from the radio which is very common in a typical rural Nigeria for information dissemination.

Knowledge of the causes of hypertension

Table 5 shows the distribution of the rural dwellers of their knowledge of the causes of hypertension. The majority (98%) of the respondents know that anxiety and fear could lead to or cause hypertension. Furthermore, more than half (58.7%) have the knowledge that lack of exercise could lead to or cause hypertension, 96% know that too much intake of salt can expose them to the risk of hypertension. While 95.3%, 94.7%, 94.7%, and 92.7% have the knowledge that the presence of saturated fat in the body, other illnesses in the body, inadequate rest, and inadequately balanced diet are prominent to causes of hypertension. Also, more than half (59.3%) of the respondents know that hypertension could also be caused by heredity. This implies that the average number of respondents knows that hypertension is hereditary but not as much compared to the earlier mention factor and probably some of them think illness does not have a link with heredity. This implies that most of the respondent knows that physical inactiveness can cause hypertension. This result is consistent with [45]; they demonstrated positive roles of work out on hypertension and that it is a key factor in maintaining a good way of life primarily to treat and prevent hypertension.

Awareness of hypertension management techniques

The majority (96.7%) of the rural dwellers as presented in (Table 6), are aware that regular medical check-ups in the hospital helps to manage hypertension, while a balanced diet helps to prevent/manage hypertension as attested by 95.3% of the rural dwellers. Also, 92.7%, 91.3%, and 90% of the rural dwellers are aware that

Table 6: Awareness of hypertension management techniques.

Hypertension management techniques	Agree	Undecided	Disagree
	Freq. (%)	Freq. (%)	Freq. (%)
Balance diet helps prevent/manage hypertension	143 (95.3)	5 (3.3)	2 (1.3)
Functional foods help the heart in functioning hereby helps to prevent hypertension	139 (92.7)	8 (5.3)	3 (2.0)
Avoidance of smoking (Nicotine withdrawal) helps prevent hypertension	114 (76.0)	24 (16.0)	12 (8.0)
Adequate rest helps prevent hypertension	137 (91.3)	9 (6.0)	4 (2.7)
Regularly exercise helps prevent hypertension	127 (84.7)	17 (11.3)	6 (4.0)
Loss of weight in cases of overweight helps prevent hypertension	135 (90.0)	8 (5.3)	7 (4.7)
Low salt intake helps prevent/manage hypertension	115 (76.7)	21 (14.0)	14 (9.3)
Stress management helps prevent hypertension	133 (88.7)	9 (6.0)	8 (5.3)
Use of multivitamins helps prevent hypertension	122 (81.3)	17 (11.3)	11 (7.3)
Regular medical check-ups in the hospital	145 (96.7)	3 (2.0)	2 (1.3)
Monitoring blood pressure with the sphygmomanometer	128 (85.3)	14 (9.3)	8 (5.3)
Others (specify)	-	-	-

Source: Field Survey, 2019.

Table 7: Usage of the various hypertension management techniques.

Various hypertension management techniques	Always	Occasionally	Never
	Freq. (%)	Freq. (%)	Freq. (%)
Orthodox			
Use of multivitamin	129 (86.0)	17 (11.3)	4 (2.7)
Use of special medication	20 (13.3)	113 (75.3)	17 (11.3)
Loss of weight in cases of overweight through the use of medication and dieting	118 (78.7)	27 (18.0)	5 (3.3)
Traditional			
Adequate intake of balanced diet	150 (100)	-	-
Use/intake of functional food	90 (60.0)	57 (38.0)	3 (2)
Avoidance of smoking (Nicotine withdrawal)	100 (66.7)	33 (22.0)	17 (11.3)
Adequate rest	137 (91.3)	7 (4.7)	6 (4)
Regular exercise	105 (70.0)	41 (27.3)	4 (2.7)
Low salt intake	93 (62.0)	46 (30.7)	11 (7.3)
Stress management	127 (84.7)	14 (9.3)	9 (6)
Both orthodox and traditional	**112 (74.7)**	**36 (24)**	**2 (1.3)**

Source: Field Survey, 2019.

functional foods help the heart in functioning properly, adequate rest, and loss of weight in cases of overweight helps prevent hypertension respectively. The implication of this is that most of the rural dwellers are aware of the various hypertension management techniques in the study area. The results of this study are consistent with the findings of [46] which reported that routine health/medical check-ups should be encouraged to manage hypertension.

Usage of various hypertension management techniques

The findings of various hypertension management techniques on orthodox and traditional as shown in (Table 7) reveal that 86% of the respondents frequently use multivitamins and 78.7% uses medication and dieting to reduce weight in case of overweight to manage hypertension, while 75.3% were occasionally using special medication to manage hypertension. Also, based on traditional management techniques, 91.3% take adequate rest, while 60% use/take functional foods as a traditional means of hypertension management techniques. In addition, majorities (84.7%) manage their stress and 70% involved in regular exercise, while 66.7% and 62% avoid smoking, and take little salt as a means of hypertension management techniques. Also, the majority (74.7%) of the total respondents use both categories of the various hypertension management techniques. However, rural dwellers use more traditional than the orthodox hypertension management techniques as shown by 100% of the respondents who take adequate intake of a balanced diet. The result aligns with the findings of [47] as they reported that most respondents understood that hypertension can be managed by the use of both traditional and orthodox techniques.

Hypotheses Testing Showing the Relationship between Socio-Economic Characteristics and Utilization of Hypertension Management Techniques

The result of the analysis in (Table 8) shows that there was, however, a significant relationship between age ($\chi^2 = 19.910$, $p > 0.05$), marital status ($\chi^2 = 21.93$, $p > 0.05$), education ($\chi^2 = 22.3$, $p > 0.05$), monthly income ($\chi^2 = 57.41$, $p > 0.05$), size of household ($\chi^2 = 60.456$, $p > 0.05$), and utilization of hypertension management techniques. This clearly indicates that the selected socio-economic characteristics have a great influence on the use of hypertension management techniques. In a related study, [48,49] reiterated the role of the socio-economic status of individual rural dwellers as determinants of the usage of hypertension management.

The result of the analysis in (Table 9) shows that there was a significant relationship between rural dwellers source of information ($r = 23.563$, $p < 0.05$) and usage of hypertension management techniques. The analysis shows that knowledge and awareness of hypertension management techniques were received frequently through radio, health workers, friends and social/religious groups. Observation made from this study is that more than half of the rural dwellers received information on hypertension management techniques through radio, but the health workers still need to intensify their effort by ensuring that information from health providers reaches all the rural dwellers through other means. As information from the health workers and other sources will enhance effective information dissemination on the usage of hypertension management techniques. The result aligns with the findings of [50]; they reported the relationship between information needs and multiple sources of information as a step to be considered to communicate plans that can promote techniques for management of hypertension among rural dwellers.

The result of the analysis in Table 9 further revealed

Table 8: Chi-Square analysis of the relationship between socio-economic characteristics and utilization of hypertension management techniques.

Selected personal characteristics	χ^2	df	p-value	decision
Age	19.910	1	0.005*	Significant
Marital Status	21.93	1	0.026*	Significant
Education	22.3	1	0.017*	Significant
Monthly Income	57.41	1	0.014*	Significant
Size of Household	60.456	1	0.038*	Significant

*Significant: $p < 0.05$, χ^2 = Chi-square value, df = Degree of freedom, p-value = Asymptotic significance value

Table 9: Correlation analysis of the relationship between the sources of information, knowledge, awareness of rural dwellers and their utilization of hypertension management techniques.

Variables	r-value	p-value	decision	remark
Sources of information	23.563	0.001*	S	H_0 rejected
Knowledge of the causes of hypertension	-0.219	0.321	NS	Fail to reject H_0
Awareness of hypertension management techniques	20.091	0.031*	S	H_0 rejected

*Significant: $p < 0.05$, S = Significant, NS = Not significant

that there was no significant relationship between Knowledge ($r = -0.219$, $p > 0.05$) and usage of hypertension management techniques. This might be as a result of their level of education, such that nearly half (34.6%) of the rural dwellers do not have formal education and the more education they had received, the more likely they were knowledgeable about hypertension management techniques [34]. There was, however, a significant relationship between rural dwellers awareness ($r = 20.091$, $p < 0.05$) and usage of hypertension management techniques. It means that there is a correlation between awareness and usage of hypertension management techniques. Rural dwellers need to be aware of the techniques to use to control and manage their hypertension status. In a related study, [50] found that poor awareness and behaviours creates a significant problem in the control and management of hypertension among rural dwellers.

Conclusion and Recommendations

It could be concluded from this study that more than half of the respondents are female, married, aged and with nearly 50% without formal education. Based on the findings of the research, we realize that most of the rural dwellers are aware and knowledgeable about various causes of hypertension and the utilization of hypertension management techniques. The socio-economic characteristics of rural dwellers influenced their utilization of hypertension management techniques.

Moreover, the null hypothesis of the study was rejected as source of information and awareness of hypertension management techniques significantly influenced rural dweller utilization of hypertension management techniques. But in the case of knowledge of the causes of hypertension, it failed to reject null hypothesis. This might be as a result of their level of education, such that nearly half (34.6%) of the rural dwellers do not have formal education and the more education they had received, the more likely they were knowledgeable about hypertension management techniques. Based on the findings of the study, the following recommendations are made:

1. Religious organizations should be used as a platform for disseminating health-related information particularly hypertension management techniques in the rural areas.
2. Government/NGOs should assist the rural dwellers by providing and organizing ICT training centers for them to empower and source for information on the internet.
3. The government should subsidize the cost of special hypertension medication to be affordable by the rural dwellers.
4. Government and health providers should establish and implement rules for disseminating health-related information through media and educational institutions.
5. Similar research should be conducted in other parts of the country on the level of utilization of hypertension management techniques and similar diseases that require life-long medication and management.

Authors Contributions

OBO conceived and designed study as well as collected and analyzed the data. The first draft of the manuscript was written by OO. OO and NTM took part in the review, correction and formatting of the paper. The final manuscript was read and approved by all authors.

References

1. Koutoudis P (2018) The importance of agriculture for the economy and the specific features of mediterranean agriculture.
2. Ologundudu MM, Tella SA, Abisoye AB (2019) An econometric analysis of exchange rate fluctuations and crude oil price in nigeria: Garch approach. Hallmark University Journal of Management and Social Sciences (HUJMSS) 1: 10-23.
3. Mishra S (2019) Agricultural development and economic transformation: Promoting growth with poverty reduction. Australian Journal of Agricultural and Resource Economics 63: 385-387.
4. Okubadejo NU, Ozoh OB, Ojo OO, Akinkugbe AO, Odeniyi IA, et al. (2019) Prevalence of hypertension and blood pressure profile amongst urban-dwelling adults in Nigeria: A comparative analysis based on recent guideline recommendations. Clin Hypertens 25: 1-9.
5. Feleke A (2019) Determinants of household food security in doyogena woreda, kambata tembaro zone, south nation nationalities and people regional State, Ethiopia. Pacific International Journal 2: 13-25.
6. Piabuo SM, Tieguhong JC (2017) Health expenditure and economic growth-a review of the literature and an analysis between the economic community for central African states (CEMAC) and selected African countries. Health Economics Review 7: 1-13.
7. Naranjo M, Paul M (2019) Malignant hypertension. Stat Pearls.
8. Ogedegbe G, Pickering T (2010) Principles and techniques of blood pressure measurement. Cardiol Clin 28: 571-586.
9. Agyei-Baffour P, Tetteh G, Quansah DY, Boateng D (2018) Prevalence and knowledge of hypertension among people living in rural communities in Ghana: A mixed method study. Afr Health Sci 18: 931-941.
10. Yan LD, Chirwa C, Chi BH, Bosomprah S, Sindano N, et al. (2017) Hypertension management in rural primary care facilities in Zambia: A mixed methods study. BMC Health Services Research 2017: 1-10.
11. Adegoke O, Awolola NA, Ajuluchukwu JN (2018) Prevalence and pattern of cardiovascular-related causes of out-of-hospital deaths in Lagos, Nigeria. Afr Health Sci 18: 942-949.
12. Faduyile FA, Soyemi SS, Sanni DA, Wright KO (2019) Hypertension and sudden unexpected deaths: An autopsy study of four hundred and seventy-seven brought-in-dead in a tertiary health center. Niger Med J 60: 13-16.

13. Kokubo Y, Iwashima Y (2015) Higher blood pressure as a risk factor for diseases other than stroke and ischemic heart disease. Hypertension 66: 254-259.

14. Okeke C, Uzochukwu B, Nawfal E, Abada E, Uzochukwu B (2017) Prevalence of hypertension and awareness of the causes and effects of hypertension in rural and urban communities of enugu state nigeria. International Journal of Scientific & Technology Research 6: 26-32.

15. Oluyombo R, Olamoyegun MA, Olaifa O, Iwuala SO, Babatunde OA (2015) Cardiovascular risk factors in sei-urban communities in southwest Nigeria: Patterns and prevalence. Journal of Epidemiology and Global Health 5: 167-174.

16. Maslakpak MH, Rezaei B, Parizad N (2018) Does family involvement in patient education improve hypertension management? A single-blind randomized, parallel group, controlled trial. Cogent Medicine 5: 1-13.

17. Mc Namara K, Alzubaidi H, Jackson JK (2019) Cardiovascular disease as a leading cause of death: How are pharmacists getting involved? Integr Pharm Res Pract 8: 1-11.

18. O'Brien E (2017) The Lancet Commission on hypertension: Addressing the global burden of raised blood pressure on current and future generations. J Clin Hypertens 19: 564-568.

19. Mirzaei M, Mirzaei M, Sarsangi AR, Bagheri N (2020) Prevalence of modifiable cardiovascular risk factors in Yazd inner-city municipalities. BMC Public Health 20: 1-8.

20. Arugu GM, Maduka O (2017) Risk factors for diabetes mellitus among adult residents of a rural District in Southern Nigeria: Implications for prevention and control. Niger J Clin Pract 20: 1544-1549.

21. Hamid S, Groot W, Pavlova M (2019) Trends in cardiovascular diseases and associated risks in sub-Saharan Africa: A review of the evidence for Ghana, Nigeria, South Africa, Sudan and Tanzania. The Aging Male 22: 169-176.

22. Akinlua JT, Meakin R, Umar AM, Freemantle N (2015) Current prevalence pattern of hypertension in Nigeria: A systematic review. PLoS One 10: 1-18.

23. Ezekwesili CN, Ononamadu CJ, Onyeukwu OF, Mefoh NC (2016) Epidemiological survey of hypertension in Anambra state, Nigeria. Nigerian Journal of Clinical Practice 19: 659-667.

24. Jobe M, Agbla SC, Prentice AM, Hennig BJ (2017) High blood pressure and associated risk factors as indicator of preclinical hypertension in rural West Africa: A focus on children and adolescents in The Gambia. Medicine 96: 1-8.

25. Desormais I, Amidou SA, Houehanou YC, Houinato SD, Gbagouidi GN, et al. (2019) The prevalence, awareness, management and control of hypertension in men and women in Benin, West Africa: The TAHES study. BMC Cardiovasc Disord 19: 1-12.

26. Svalastog AL, Donev D, Kristoffersen NJ, Gajovic S (2017) Concepts and definitions of health and health-related values in the knowledge landscapes of the digital society. Croat Med J 58: 431-435.

27. Onwubere BJC, Ejim EC, Okafor CI, Emehel A, Mbah AU, et al. (2011) Pattern of blood pressure indices among the residents of a rural community in South East Nigeria. Int J Hypertens 1-6.

28. Wedro B, Stoppler MC (2019) High blood pressure signs, symptoms, causes, diet, and medications.

29. Asgary S, Rastqar A, Keshvari M (2018) Functional food and cardiovascular disease prevention and treatment: A review. J Am Coll Nutr 37: 429-455.

30. Rautiainen S, Wang L, Lee IM, Manson JE, Gaziano JM, et al. (2016) Multivitamin use and the risk of hypertension in a prospective cohort study of women. J Hypertens 34: 1-15.

31. Afolayan AJ, Wintola OA (2014) Dietary supplements in the management of hypertension and diabetes-a review. Afr J Tradit Complement Altern Med 11: 248-258.

32. Alissa EM, Ferns GA (2012) Functional foods and nutraceuticals in the primary prevention of cardiovascular diseases. J Nutr Metab 2012: 1-16.

33. Zeng YW, Du J, Pu XY, Yang SM, Yang T, et al. (2011) Strategies of functional food for hypertension prevention in China. Journal of Medicinal Plants Research 5: 5671-5676.

34. UNDP (2020) 2030 Agenda for Sustainable Development.

35. NPC (2006) National Population Commission.

36. Mellor D, Moore KA (2014) The use of likert scales with children. Journal of Pediatric Psychology 39: 369-379.

37. Arrey WT, Dimala CA, Atashili J, Mbuagbaw J, Monekosso GL (2016) Hypertension, an emerging problem in rural cameroon: Prevalence, risk factors, and control. International Journal of Hypertension 2016: 1-6.

38. Solomon I, Adjuik M, Takramah W, Axame WK, Owusu R, et al. (2017) Prevalence and awareness of hypertension among urban and rural adults in Hohoe Municipality, Ghana. The Journal of Medical Research 3: 136-145.

39. Chimberengwa PT, Naidoo M, Mergan Naidoo, Cooperative inquiry group (2019) Knowledge, attitudes and practices related to hypertension among residents of a disadvantaged rural community in southern Zimbabwe. PLoS One 14: 1-16.

40. Osuala EO (2017) Hypertension prevention and control: Effects of a community health nurse-led intervention. J Health Educ Res Dev 5: 1-8.

41. Ayodapo AO, Monsudi KF, Omosanya OE, Elegbede OT (2018) Family functioning and adherence to medication: A study of hypertensive in a tertiary hospital, South Western Nigeria. CHRISMED Journal of Health and Research 5: 197-202.

42. Fadairo AO, Oyebode LA, Amusat A (2020) Access to nutrition information: A key to improving nutrition status among under-five children in farming households of Oyo State, Nigeria. Agricultura Tropica Et Subtropica 53: 29-37.

43. Tan CS, Hassali MA, Neoh CF, Saleem F (2017) A qualitative exploration of hypertensive patients' perception towards quality use of medication and hypertension management at the community level. Pharmacy Practice 15: 1-11.

44. Hegde SM, Solomon SD (2015) Influence of physical activity on hypertension and cardiac structure and function. Curr Hypertens Rep 17: 1-13.

45. Green AS, Lynch HM, Nanyonga RC, Squires AP, Gadikota-Klumpers DD, et al. (2020) Assessing providers' approach to hypertension management at a large, private hospital in kampala, uganda. Ann Glob Health 86: 1-8.

46. Eghianruwa KI, Oridupa, OA, Saba AB (2016) Medicinal plants used for management of hypertension in nigeria. Annual Research & Review in Biology 11: 1-10.

47. Wagner KJP, Boing AF, Subramanian SV, Hofelmann DA, D'Orsi E (2016) Effects of neighborhood socioeconomic status on blood pressure in older adults. Revista de Saude Publica 50: 1-9.

48. Rosengren A, Smyth A, Rangarajan S, Ramasundarahettige C, Bangdiwala SI, et al. (2019) Socioeconomic status and risk of cardiovascular disease in 20 low-income, middle-income, and high-income countries: The Prospective Urban Rural Epidemiologic (PURE) study. The Lancet Global Health 7: 748-760.

49. Cappelletti ER, Greco A, Maloberti A, Giannattasio C, Steca P, et al. (2020) What hypertensive patients want to know [and from whom] about their disease: A two-year longitudinal study. BMC Public Health 20: 1-10.

50. Jankowska-Polanska B, Uchmanowicz I, Dudek K, Mazur G (2016) Relationship between patients' knowledge and medication adherence among patients with hypertension. Patient Prefer Adherence 10: 2437-2447.