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Compliance with Antihypertensive Therapy and its Determinants among Elderly Individual Attending World Bank Primary Health Care, Umuahia, Abia State

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Abstract

Hypertension is a major cause of morbidity and mortality globally, and its treatment depends on compliance with therapy. The present study aimed at assessing the compliance with anti-hypertensive therapy and its determinants among the elderly individuals attending World Bank Primary Health Centre Umuahia, Nigeria. A descriptive cross-sectional research design was used for the study. 13 respondents completed the study. Consecutive sampling was used to select respondents for the study. An interview guide designed by the researcher was used as instrument for data collection. Descriptive and Inferential (Fisher's Chi square) statistics was used for data analysis. Level of significance was set at 0.05. Results found the respondents had poor compliance with anti-hypertensive therapy (mean 2.48 on a 4-point scale). The respondents had good compliance with medication (mean 2.56), but poor compliance with lifestyle modifications (mean 2.35). The significant determinants of compliance with anti-hypertensive therapy would include fear for medication side effects (mean 3.08), and cost of medication (mean 2.92). There was no significant relationship between compliance with anti-hypertensive therapy and educational level *(Fisher* χ^2 *= 0.627, P = 0.429, P < 0.05)*. In addition, nurse professionals should lobby governments and non-governmental organizations to subsidize the cost of anti-hypertensive medications. The study recommended that Nurse professional should develop ways of emphasizing compliance with lifestyle modification as important in the prevention and treatment of Hypertension.

Keywords: Compliance, Antihypertensive, Therapy, Determinant, Elderly, Hypertension

Introduction

Hypertension is one of the highest causes of premature morbidity and mortality among adults in the world [1]. The World Health Organisation defines hypertension as "systolic blood pressure equal or greater than 140 mm Hg and diastolic blood pressure equal or more than 90 mm Hg". It is a major risk factor for stroke and coronary heart disease [2]. Hypertension has become a major medical and public health problem and is known to be the most prevailing cardiovascular risk factor worldwide. Recent

report indicated that nearly 1 billion adults had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025 due to its rapidly increasing incidence in both developed and developing countries [3]. It is estimated by WHO that approximately 68 million adults have hypertension and more than 9.4 million deaths occur annually, accounting for 13% of all deaths globally. Awad, Gwaied, Fouda and Essa, stated that the prevalence of hypertension in the United Kingdom (at least ≥140/90 mm Hg or on treatment for hypertension) in those aged over 35 was 32% in men and 27% in women. The prevalence significantly increased with age in both sexes, about 33% of men and 25% of women aged 45-54 years have hypertension and about 73% of men and 64% of women aged ≥75 years or older have hypertension [4]. Africa has the largest prevalence of hypertension - 46% [2].

In Nigeria, the prevalence of hypertension has doubled in the past two decades [5]. According to Ajayi, *et al*, hypertension and its complications constitute approximately 25% of emergency medical admissions in urban hospitals in Nigeria [1]. It is the most common non-communicable and the most frequently diagnosed cardiovascular disorder in Nigeria. In 2008, WHO estimated the prevalence of hypertension in Nigeria to be 42% [6]. Ajayi *et al*, further reported the prevalence of hypertension in Nigeria to be 31% as at the time of their study [1].

According to Mahmoud, a large percentage of the population, are unaware that they have hypertension, and those that know that they are hypertensive often fail to adequately control the condition [7]. He further stated that the first line of treatment for hypertension is the adoption of a preventive lifestyle and medication; the availability of these antihypertensive medications has been known to improve the quality of life of hypertensive patients by reducing the effects of the accompanying symptoms for hypertensive conditions. However, regardless of the wide-spread availability of the treatment, the adherence to taking medication by individuals with hypertension has been reported to vary, from optimal to very poor [2]. This non-adherence leads to uncontrolled hypertension. The ability for patients to understand their drug regimens help to improve their adherence, thus will help prevent the complications of hypertension which are debilitating and if not prevented can increase the burden of a disease that is already on the increase and consequently death [8].

Furthermore, Mueke explains that adherence to medication in any disease condition is a complex multidimensional phenomenon involving various personal and socio-economic/cultural factors which are not clearly understood [9]. It is therefore important that health care practitioners understand the various factors that affect patients' compliance in their own context in order to manage the disease effectively. Therefore, the study aims to assess compliance with antihypertensive therapy and its determinants among patients managed in World Bank Primary Health Care**,** Umuahia, Abia State.

Materials and Methods

Research Design

The research design adopted for this study was a descriptive design. This type of design aims to accurately and systematically describe a population, situation or phenomenon. Mueke used this design successfully in a similar study on determinants of medication adherence to antihypertensive medications among 90 hypertensive patients-in a study carried out in Nairobi, Kenya [9].

Study Setting

The setting for this study is World Bank Primary Health Care (PHC)**,** Umuahia, Abia State. Umuahia is the capital of Abia State. Abia is a state in the South Eastern part of Nigeria. Abia state was created in 1991 from part of Imo State. Umuahia is indigenously Igbo. Umuahia is located along the rail road that lies between Portharcourt to its South, and Enugu to its North. Umuahia has a population of 359,230 [10].

World Bank Primary Health Care Umuahia is a Healthcare institution designed for 20 bed spaces. Its mission is to provide qualitative accessible and affortable medical services to patients of all ages. It is located at Umuhia north, urban 5 with facility code no 01/15/1/1/1/0084. it is located along Aba Road, Afara Layout, Umuahia. The PHC has outpatient clinic which operates on a daily bases.

Target Population

The target population for the study comprised of individuals (40-80 years) registered with World Bank Primary Health Care Umuahia, previously diagnosed of hypertension and placed on antihypertensive therapy. The total registered elderly patients were 124 September 2020.

Sample and Sampling Technique (subjects of the study)

16 respondents was calculated for the study. Since 124 target patients visited in September, therefore an average of 16 visited daily. Based on the idea that the daily expected target population was small, the researcher decided to utilize all patients who visited in the stipulated day in month of September 2020 for the study.

Consecutive sampling technique was used for the study. All consecutive individuals who visited the hypertension clinic and met the inclusion criteria were enrolled into the study. The inclusion criteria were: age 40-80 years, on prescribed antihypertensive medicine, willingness to participate in the study, and physically and mentally stable enough to respond to structured interview questions.

Instrument for Data Collection

The instrument for data collection was a structured interview guide designed by researcher. It was a 23 item instrument split into 3 sections (A - C). Section A (Items 1 - 6) extracted the socio-demographic profile of the respondents. Section B (Items 7 - 19) measured medication and lifestyle compliance. Section C (items 20 - 23) assessed determinants of compliance to antihypertensive therapy. The instrument employed structured responses. It was designed to measure variables on a 4 point Likert scale.

Validity of the Instrument

The instrument was submitted to the project supervisor and two other experts in Department of Nursing, Abia State University for face validity. In establishing the validity of the proposed instrument for data collection, the instrument was evaluated through the judgment of the project supervisor and the two other experts. They cross checked the sequence or arrangement of questions on the questionnaire; they identified areas of temporal ambiguity and offered correctional suggestions; they verified that questions on the questionnaire corresponds with the operationalized variables of interest.

Their corrections and suggestions were effected to better adapt the instrument to meet relevant objectives.

Reliability of the Instrument

To test the reliability of the instrument, a pilot study was carried out using 4 in-patient hypertensive in FMC Owerri. It is a nearby federal health facility with patients outside the study population. The instrument was used strictly as a structured interview guide and administered once. The reliability of the instrument was computed using test-retest method after an interval of 24 hours. This was done in order not to minimize attrition during the pilot study. Data obtained was subjected to Pearson Correlation statistic to calculate the Stability of the instrument. A reliability index of 0.847 after collected data were analyzed (refer to appendix 3). A reliability index value > 0.7 depicts good reliability of an instrument [11].

Method of Data Collection

Data collection was done at the health centre on daily basis (10am – 4pm). The researcher briefed potential respondents on the objectives of the research. The researcher designed interview guide was used for data collection. The interviewer read out the questionnaire items in native regional Igbo dialect. Responses from the respondents were filled in by the researcher.. Data collection lasted for 30 days.

Ethical Consideration

The topic was cleared as ethical by the Research Committee Department of Nursing, Abia State University Uturu. Administrative permission was obtained from the officer in charge of the health facility before accessing the respondents. Informed oral consent was obtained from each of the participant before data collection and participant anonymity was maintained throughout the study.

Data Analysis

Collated data were organized and analysed using descriptive statistics (frequency, percentage, mean and standard deviation). Chi square inferential statistics was used for test of hypothesis. Level of significance was set at $P < 0.05$.

Results

Section A: Demographic Profile of respondents

Table 1 below summarizes the socio-demographic distribution of the respondents.

Table 1: Socio-demographic distribution of respondents n = 13

Category	Details	f	%
Age [mean(±SD)] in years	**53.2(±6.0)**		
Age Range (in years)	40 – 49	3	23.1
	50 – 59	8	61.5
	60 – 69	2	15.4
Gender	Male	9	69.2
	Female	4	30.8
Marital status	Married	11	84.6
	Widower/widow	2	15.4
Highest education	Primary	5	38.5
	Secondary	8	61.5
Occupation	Farmer	13	100
When first diagnosed of Hypertension (in years)	< 1	4	30.8
Time in years First diagnosed of Hypertension (in years)	1 – 2	7	53.8
	2 – 3	2	15.4
Mean(±SD)	**1.3(±0.4)**		

Table 1 showed that the respondents had a mean age of 53.2(±6.0) years old. The majority (61.5%) were between 50 - 59 years old. Majority were male (69.2%) and married (84.6%). More than half (61.5%) of the respondents had secondary education. All (100%) the respondents were farmers. Majority (53.8%) of the respondents were diagnosed of hypertension 1 – 2 years ago. The mean time of first diagnosis for the respondents was 1.3(±0.4) years.

Research Question 1: What is the compliance with antihypertensive therapy among the elderly individuals attending World Bank Primary Health Care Umuahia?

Items 7 – 19 were analysed to answer research question 1.

Table 2: Compliance with antihypertensive therapy among the elderly (n=13)

	Compliance with medication	4	3	2	1		
	How often	Not at all	Few times	Many times	Most times	Mean	Interpretation
		f	**f**	**f**	**f**		
7	Do you forget to take your medication?	4	2	3	4	2.46	Poor
8	Do you stop taking your medication because you feel better?	6	3	1	3	2.92	Good
9	Do you stop taking your medication because you feel worse?	8	1	2	2	3.15	Good
10	Do you stop taking the medications because you believe that they are ineffective?	4	1	4	4	2.38	Poor
11	Do you stop taking your medications because you fear side effects?	2	4	5	2	2.46	Poor
12	Do you stop taking your medications because you try to avoid addiction?	3	2	1	7	2.08	Poor
13	Do you stop taking your medications because you are using traditional medicine?	1	5	6	1	2.46	Poor
14	Do you stop taking your medications because of cost of medication?	5	1	1	8	2.54	Good
	Mean(±SD)					**2.56**	**Good**
	Compliance with Lifestyle Modification						
15	Do you smoke?	2	7	2	2	2.69	Good
16	Do you drink alcohol?	3	5	3	2	2.69	Good
†17	Do you sit all day without physical exercise?	1	2	5	5	1.92	Poor
18	Do you like and use table salt?	2	4	1	6	2.15	Poor
19	Do you use snuff?	2	3	5	3	2.31	Poor
	Mean(±SD)					**2.35**	**Poor**
	Total Scale Mean					**2.48**	**Poor**

Decision rule: Mean > 2.5 = Good compliance; < 2.5 = poor compliance

† Items were reverse scored

Table 2 revealed that the respondents had poor compliance with hypertensive therapy (mean 2.48 on a 4 point scale). The respondents had good compliance with medication (mean 2.56), but poor compliance with lifestyle modifications (mean 2.35).

Research Question 2: What are the determinants of compliance with antihypertensive therapy among elderly hypertensives attending World Bank Primary Health Care Umuahia?

Items 20 - 23 were analysed to answer research question 2.

Table 3: Determinants of Compliance with Antihypertensive Therapy (n= 13)

		4	3	2	1			
		Not at all	**Few times**	**Many times**	**Most times**	**Mean**	**Interpretation**	**Rank**
		F	**f**	**f**	**f**			
No.	Which of the following hinders you from keeping up with your anti-hypertensive therapy regimen							
20	Forgetfulness	3	5	4	1	2.23	Not significant	4th
21	Cost of medications	1	3	5	4	2.92	Significant	2nd
22	Medication side effects	1	2	5	5	3.08	Significant	1st
23	Poor perceived general health state	3	5	2	3	2.38	Not significant	3rd

Decision rule: Mean > 2.5 = Significant; < 2.5 = not significant.

Table 3 revealed that the significant determinants of compliance with anti-hypertensive therapy would include fear for medication side effects (mean 3.08), and cost of medication (mean 2.92).

Hypothesis 1: There is no significant association between compliance with antihypertensive therapy and employment status?

Table 4 summarizes the relationship between compliance with antihypertensive therapy and educational level.

Table 4: Association between compliance and educational level
n = 13

Measure		**Compliance**		**Sum**	**Df**	**Fisher χ^2**	**P value**
	Details	Good	Poor				
Educational Level	Primary	3	2	**5**	**1**	**0.627**	**0.429**
	Secondary	3	5	**8**			
	Sum	**6**	**7**	**13**			

Decision rule: *P < 0.05* is significant; *P >0.05* is not significant.

Table 4 demonstrated that there was no significant relationship between compliance with anti-hypertensive therapy and educational level *(Fisher χ^2 = 0.627, P = 0.429, P < 0.05)*. This finding would imply that the compliance with anti- hypertensive therapy was no influenced by one's educational level.

Discussion

Research Question 1: What is the compliance with antihypertensive therapy among the elderly individuals attending World Bank Primary Health Care Umuahia?

The present study found that the respondents had poor compliance with hypertensive therapy (mean 2.48). The respondents had good compliance with medication (mean 2.56), but poor compliance with lifestyle modifications (mean 2.35).

This finding was in line with Ismael and Qadir who in a study on factors affecting treatment compliance of hypertensive patients in Erbil, found that majority (55%) of the respondents had poor compliance with therapy [8]. The similarity in findings may have been well expected. The similarity in findings may be linked the sampling method used in the study. Ismael and Qadir utilized a purposive sampling which is largely a non-probability method of sampling [8]. The present study also utilized consecutive sampling which is also a non-probability method of sampling.

This finding was also in line with Nabi *et al* who in a study on non-compliance pattern of antihypertensive treatment in Women's Medical College Hospital Dhaka, found that 85% of the patients were found non-adherent to treatment [12]. Furthermore, the present finding was supported by Girma *et al* who in a study on compliance with anti-hypertensive treatment and associated factors among hypertensive patients on follow-up in Jimma University Specialized Hospital Ethiopia, found that the majority (75.2%) were no compliant with lifestyle modifications [13]. The convergence in findings may not be surprising since Ethiopia is an African country and may be experiencing similar societal and economic challenges as does Nigeria. Similar results found in the studies may be linked to the design used in the study. Cross-sectional study designs take on snap shot at an existing phenomenon, hence eliminating instrumentation effect. Cross-sectional study was the design used by both Girma *et al* and the present study [13].

Research Question 2: What are the determinants of compliance with antihypertensive therapy among elderly hypertensives attending World Bank Primary Health Care Umuahia?

The present study revealed that the significant determinants of compliance with anti-hypertensive therapy would include fear for medication side effects (mean 3.08), and cost of medication (mean 2.92).

This finding was in line with Nabi *et al* who in a study on non-compliance pattern of antihypertensive treatment in Women's Medical College Hospital Dhaka, found that 42.41% of the non-adherent people were poor, and that the main reason for not taking the medication were forgetfulness and economic [12]. This finding would probably suggest that the amount of income that an individual has would be instrumental in enhancing compliance with anti-hypertensive regimen. It may also further suggest that if anti-hypertensive medications and resources were subsidized, perhaps compliance would be enhanced. In addition, forgetfulness probably increases as people age. If the assertion in the last statement were to be true, it may then be useful if daily single dose medications were prescribed more often by physicians and nurse clinicians in place of multiple dose anti-hypertensive medication. The similarity in findings may be linked to the nature of respondents used for the study. Both Nabi *et al* and the present study utilized mostly aged respondents for the study

[12].

Hypothesis 1: There is no significant association between compliance with antihypertensive therapy and employment status?

The present study demonstrated that there was no significant relationship between compliance with anti-hypertensive therapy and educational level *(Fisher $\chi^2 = 0.627$, $P = 0.429$, $P < 0.05$)*. This finding would imply that the compliance with anti- hypertensive therapy was no influenced by one's educational level. This finding was not supported by Ismael and Qadir who in a study on factors affecting treatment compliance of hypertensive patients in Erbil, found a significant relationship between compliance to antihypertensive therapy and level of education (P = 0.000*) [8]. The variation in findings may be connected to differences in sample size. Where Ismael and Qadir utilized a sample size of 200, only 13 respondents completed the present study [8]. Owing to the fact idea that a larger sample size offers greater statistical conclusion validity, a sample of 13 imposes more chances for statistical error.

Implication for Nursing

The findings of the present study would suggest that there may be need for nursing professionals to further seek opportunities of emphasizing compliance with lifestyle modification as important in the prevention and treatment of Hypertension. In addition, nurse professionals should lobby governments and non-governmental organizations to subsidize the cost of anti-hypertensive medications.

Summary of the Study

Hypertension is a major cause of morbidity and mortality globally, and its treatment depends on compliance with therapy. The present study aimed at assessing the compliance with anti-hypertensive therapy and its determinants among the elderly individuals attending World Bank Primary Health Care Umuahia. A descriptive cross-sectional research design was used for the study. 13 respondents completed the study. Consecutive sampling was used to select respondents for the study. An interview guide designed by the researcher was used as instrument for data collection. Descriptive and Inferential (Fisher's Chi square) statistics was used for data analysis. Level of significance was set at 0.05. Results found the respondents had poor compliance with anti-hypertensive therapy (mean 2.48 on a 4 point scale). The respondents had good compliance with medication (mean 2.56), but poor compliance with lifestyle modifications (mean 2.35). The significant determinants of compliance with anti-hypertensive therapy would include fear for medication side effects (mean 3.08), and cost of medication (mean 2.92). There was no significant relationship between compliance with anti-hypertensive therapy and educational level *(Fisher $\chi^2 = 0.627$, $P = 0.429$, $P < 0.05$)*.

Conclusion

The study concluded the elderly have poor compliance with hypertensive therapy, and poor compliance with lifestyle modifications. The determinants of compliance with anti-hypertensive therapy were fear for medication side effects and cost of medication.

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