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Adherence to Anti-hypertensive Medication among Geriatric Hypertensive Patients in Mandeville, Jamaica

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Abstract

This study assesses adherence to hypertensive therapy among geriatric hypertensive patients in Mandeville, Jamaica, in two different clinical settings. A clinic-based cross-sectional survey will be conducted in five comparable Level 5 health centers and at the Mandeville Regional Hospital in Jamaica among geriatric patients aged 65 years and older. Individuals will be selected purposively for both study sites. A Quantitative sample size of 220 participants will be surveyed using a semi-structured self-administered questionnaire. The Hill-Bone Compliance Scale and the Morisky Medication Adherence 8-item Self-Report Scale will be incorporated into the data collection instrument. The Qualitative part of the study will involve 23 participants and employ an interpretivist approach, using in-depth interviews. An interview guide will be used to collect data from participants diagnosed with hypertension for at least five years at the time of the interview and who attend the hypertension clinic at Mandeville Regional Hospital, Jamaica. Data collected from the quantitative analysis will be coded and entered into Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) software, version 21. Thematic analysis, employing an inductive approach, will be applied to the qualitative data analysis. Before the study is conducted, ethical approval will be sought from the Southern Regional Health Authority and the Ministry of Health Ethics Committee for both study sites. The data are expected to reveal the level of adherence to hypertensive therapy among geriatric patients in Mandeville, Jamaica. Based on the findings, recommendations will be made.

Keywords: *Adherence, Diastolic Blood Pressure, Geriatrics, Hypertension, Systolic Blood Pressure.*

Introduction

The Centers for Disease Control and Prevention defines hypertension (HTN) as blood pressure at 130/80 mmHg or higher. HTN affects populations worldwide. Ref. [1] state that HTN is "the single most important contributor to mortality and morbidity". More than 7.5 million deaths each year are attributed to uncontrolled high blood pressure (BP). Uncontrolled high BP can lead to comorbid conditions such as renal diseases, cardiovascular disease, and irregular heartbeat that may result in sudden death (World Health Organization [WHO], 2019). According to the Centers for Disease Control and Prevention (CDC), more than 859,000 Americans die of heart disease, stroke, and other cardiovascular diseases every year, which is approximately one-third of all casualties in the United States (U.S.) [1].

These diseases can harm the economy, costing our healthcare system around $213 billion annually [1]. Heart disease and stroke

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are the first and fifth leading causes of death each year [1]. National risk factors for heart disease and stroke include the following: (a) high blood pressure, (b) high low-density lipoprotein cholesterol, (c) diabetes, (d) smoking, including second-hand smoke, (e) obesity, (f) unhealthy diet, and (g) physical inactivity [1]. Hypertension is one of the most common diseases affecting humans worldwide (U.S. Department of Health and Human Services Administration [5].

Studies suggest that many. older hypertensive patients are unable to achieve optimal blood pressure control because of poor. adherence to antihypertensive medications [2]. Poor adherence is related to illness. perception, discomfort caused by side effects, poor provider relationships, and low self-efficacy. [2]. In addition, it can lead to worsening of disease, increased comorbid disease, increased healthcare costs, and death [3].

A Healthcare Informatics report explained that countries are spending a significant amount of money to increase patient medication compliance. If patients start taking medication as prescribed, the healthcare industry can save on expenditures, such as the utilization of healthcare services and the cost of patient care in urgent hospitalization visits [1, 6, 7] determined that the cost of medication adherence related to disease management is less than that of hospitalization due to non-adherence. Medication adherence helps manage controllable diseases and can automatically reduce the burden on hospitals and urgent care clinics during emergency cases. In addition, medication adherence not only reduces the cost of diagnostic evaluations during emergency visits but also decreases the number of patients in the emergency room, thereby improving the quality of patient care [3]. Non-adherence or poor medication adherence can severely compromise the effectiveness of treatments, making this a critical issue in population health from both quality-of-life and health-economic perspectives [4]. Various factors can influence treatment adherence. Healthcare providers are responsible for identifying barriers to antihypertensive medication adherence, which is crucial for managing hypertension (HTN) and preventing complications. Improved adherence could prevent mortality, improve quality of life, and increase patient lifespan. Future developments for medication adherence in hypertension are likely to focus on integrating advanced technology like smart pill bottles, digital sensors, and wearable devices to monitor medication intake in real-time, alongside personalized patient education, streamlined medication regimens, and improved healthcare provider communication to address barriers to adherence and empower patients to manage their hypertension actively.

Poor blood pressure control will lead to significant public health challenges for the Caribbean in the twenty-first century. Non-adherence, poverty, lack of knowledge, and inadequate follow-up are the primary factors contributing to poor blood pressure control [3]. According to the Jamaica Health and Lifestyle Survey 2015, there were 6,457 deaths from CVD in 2019; for age-standardized mortality from CVD, it ranks in the bottom 40% of countries when ordering from the highest to the lowest. According to the WHO, more than 7.5 million deaths each year are attributed to uncontrolled high blood pressure (BP). Nonadherence to therapeutic strategies amongst geriatrics is a serious concern that poses a significant challenge to successful healthcare delivery. This phenomenon is widespread and has been reported worldwide [2]. Hypertension is poorly controlled due to a lack of adherence to the treatment regimen. The prevalence of poor treatment ranges from 67% to 74%, as reported in [3]. Moreover, poor blood pressure control has consistently been linked to long-term complications [1]. The 2016-2017 Jamaica Health and Lifestyle Survey reported that 35.8% of women and 31.7% of men in Jamaica have hypertension. The point prevalence of hypertension in the 15-

and-over age group is 30.8%. According to the Ministry of Public Health, in 2014, 19.4% of women and 23.4% of men in Cuba were hypertensive. A 2021 report from the WHO stated that Haiti had a 48% prevalence of hypertension, making it one of the countries in the Caribbean with the highest prevalence of the condition. The prevalence of hypertension in Jamaica is high, especially among the elderly. According to the 2012 Jamaica Health and Lifestyle Survey II, the prevalence of hypertension was 46.2% among people aged 45–64 and 54.1% among those aged 65–74.

This research aims to assess treatment adherence among clients educated by nurses, doctors, or nutritionists in the management of hypertension and recommend ways to improve adherence and achieve adequate blood pressure control, ultimately leading to a better quality of life for hypertensive patients. Thus, applying the recommended approach may facilitate significant improvements in the effective management of hypertension. Administrators will be guided on what should be emphasized in intervention planning and implementation. The results will be shared with patients attending hypertensive clinics, healthcare workers, and interested parties at scheduled seminars or workshops.

A study on medication adherence conducted across two settings may face limitations due to differences in patient populations, healthcare access, cultural norms, socioeconomic factors, and the methods used to measure medication adherence in each setting. This could make it difficult to compare results and potentially lead to misleading conclusions [4]. To reduce bias in a medication adherence study comparing two different patient populations, researchers can implement strategies like carefully matching patient groups on key demographic and clinical variables, using standardized data collection methods across populations, blinding researchers to patient group assignments, employing objective measures of adherence, and considering potential cultural or socioeconomic factors that could influence adherence when interpreting results.

Methods

Study Area

The research study will be conducted at five types of health centers, which are government facilities located approximately 15-20 kilometers outside Mandeville, Jamaica. The borders are Meru County to the northeast and north, Embu County to the southwest and south, and Kitui County boundaries to the southeast and east. The division lies between latitudes 0° 15’ 0” and longitudes 37° 1’ 45”. The study will be carried out in the medical outpatient clinics. These sites were selected because most patients with hypertension detected from level 2, level 3, and level 4 health systems were referred to Mandeville Regional Hospital, level 1 for specialized management and the obtainability of hypertensive medication. The facility offers additional clinics, including eye, surgical, medical, paediatric, and a comprehensive care clinic for HIV patients.

Study Design

For both studies, a clinic-based cross-sectional survey will be conducted in five (5) comparable-level 5 health centers and at the Mandeville Regional Hospital in Jamaica among geriatrics aged 65 years and older over six months. Individuals will be selected using convenience sampling at both study sites. A Quantitative sample size of 220 participants will be surveyed using a semi-structured self-administered questionnaire. The Hill-Bone Compliance Scale will assess patients in three important behavioral domains related to high blood pressure treatment: reduced sodium intake, medication adherence, and appointment attendance. The Morisky Medication Adherence 8-item Self-Report Scale will also help elucidate the degree of nonadherence to prescribed medication.

A deductive approach will also be employed in the thematic content analysis.

The Qualitative research study design will entail a sample size of 23 participants and employ an interpretivist approach, utilizing in-depth interviews. An interview guide will be used to collect data from participants diagnosed with hypertension for at least 5 years at the time of the interview and attending the hypertension clinic at Mandeville Regional Hospital, Jamaica.

Data collected from the quantitative analysis will be coded and entered into Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) software (version 21) for statistical analysis.

Thematic analysis with an inductive approach will be applied. Before the study is conducted, ethical approval will be sought from the Southern Regional Health Authority and the Ministry of Health Ethics Committee for both study sites. Informed consent will be obtained from participants before the questionnaire is distributed, and respondents will be informed that their participation in the survey is voluntary.

Target Population

The study population consisted of 562 hypertensive patients receiving antihypertensive treatment and attending Type 5 health facilities and the Mandeville Regional Hospital hypertension clinic. This mixed-methods study, combining quantitative and qualitative methods, will involve 489 participants from five Type 5 health facilities across Mandeville and 73 participants from the Mandeville Regional Hospital in Jamaica. Most participants in this study reside in communities adjoining to Mandeville, and the majority are retired or unemployed. Those employed are in the middle-income bracket; some live within a reasonable distance of health centers and public hospitals, while others must travel considerable distances to reach health facilities. The percentage of geriatrics with hypertension aged 65 and older in Mandeville remains high at 4.2% of the Jamaican population (National Health Fund Survey, 2020).

Distribution of Study Population

Health Centres	Frequency	Percentage
Health Centre I (Colleyville District)	44	20
Health Centre II (Langley District)	44	20
Health Centre III (Lincoln District)	44	20
Health Centre IV (Cedar Valley District)	44	20
Health Centre V (Hatfield District)	44	20

Sampling Frame

The sampling frame will encompass known hypertensive geriatric patients attending five government clinics in Mandeville, Jamaica, who receive antihypertensive medications during the study period. These clinics are similar in capacity, provide usual geriatric care services, and include a pharmacy.

Sample Size Determination

The sample size will be determined by using the Yamane (1967) formula shown below:

$$n = \frac{N}{1 + Ne^2}$$

Where:

$n =$ Representative sample size

$N =$ Total population size

$e =$ Desired level of precision

After consultation with clinics, I have determined that with five (5) clinics, the calculated hypertensive geriatric population (N) would be more than or equal to 489. The desired level of precision (e) is ±5%. The representative sample size (n) is therefore given by:

$$n = \frac{489}{1 + 489(0.05)^2} = \frac{489}{2.2225} = 220$$

So, a sample of 220 hypertensive patients from a total of 489 is needed.

Sampling Procedure

Convenient sampling will be used to select the sample population. This method was chosen since attendance may vary among clinics. It will be on a first-come, first-served basis and should allow faster, more efficient data collection.

Inclusion Criteria

1. Participants over 65 years of age were diagnosed with hypertension.
2. Participants who reside in Mandeville, Jamaica.
3. Participants who will consent to participate in the research study.

Exclusion Criteria

1. Participants younger than 65 years old.
2. Participants who are too ill to participate in the study.

A purposive sampling method will be used to select clinic attendees at the Mandeville Regional Hospital who the researcher believed could provide adequate information. The recruitment process will involve the researcher being permitted to be present in the waiting area, where they will introduce themselves to prospective participants, share pertinent information about the research, and request their participation. If you are interested, we will exchange contact information and provide additional details about the interview process. The researcher will attend the first and second fortnightly clinics and recruit participants on each occasion. Recruitment will begin when individuals arrive at the clinic and wait to be processed. Each interview will take at least 45 minutes; participants will be selected based on the number who need to be seen by clinicians.

Conclusion

The data are expected to reveal the level of adherence to hypertensive therapy among geriatric patients in Mandeville, Jamaica. Based on the findings, recommendations will be made.

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