

## **Patient Outcome Quality versus Blood Pressure Management Quality**

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### **Abstract**

Blood pressure reflects a major public health concern due to serious complications with which the condition's incidence and prevalence are associated. Therefore, it is important to engage in timely and appropriate management of the condition to ensure that death and complications resulting from the condition are minimized. This investigation was conducted in the form of a cross-sectional prospective study. Particularly, 100 participants were selected for data collection, upon which analysis and interpretations were conducted to gain insight into the subject that was being investigated. The data collection process involved administering semi-structured questionnaires, with the participants' case notes also reviewed to gain additional data, as well as validate their responses as obtained from the questionnaires. From the findings, the study established that when clinical pharmacists' services are incorporated into the efforts of the rest of the healthcare teams, there is a significant improvement in the quality of blood pressure management. The improvement is reflected by beneficial attributes such as reduced morbidity, a decrease in the rate of hospitalization, and fewer causes of adverse events; including medication arises that could, otherwise, accrue due to poor coordination at the unit level.

### **Introduction**

In the field of public health, one of the major concerns entails blood pressure. The condition remains worrisome due to serious complications with which its prevalence and incidence are associated. Globally, about one billion people have been documented to have blood pressure [1, 2]. By 2015, the number is projected to increase to about 1.56 billion people [3-5]. It is also worth noting that blood pressure accounts for about 12.10% of deaths reported in middle- and low-income countries [6]. In addition, the condition is one of the leading causes of renal diseases and coronary vascular disease [7, 8]. Therefore, the degree of success of any interventions aimed at managing the condition are often determined based on parameters such as changes in one's lifestyle, the number of patients reaching a blood pressure goal of 130/85mmHg, and reduced comorbidities; as well as mortality rates [9-11]. In this study, the main aim was to investigate the extent to which pharmacological management of blood pressure influences the quality of health care service provision; especially in situations where healthcare firm arrangements provide from for the incorporation of the services of clinical pharmacists into the efforts of other healthcare team members in the affected units. Indeed, the motivation of the study was to inform the future or possible contributory role of clinical pharmacists in shaping health care outcomes relative to the management of blood pressure in hospitals.

### **Methods**

The research setting involved a university hospital charged with the provision of services to students, staff, and dependants of the staff members. From the perspective of a research design, the study was a cross-sectional investigation. To assess the pharmacological management of patients with blood pressure, a retrospective search was conducted. In relation to sampling, the study relied

on a converse sampling technique to collect data. The main instrument of data collection was a semi-structured questionnaire, which was administered randomly on different days when patients sought services at the university hospital. However, informed consent was secured before allowing the participants to participate in the data provision process. Similarly, the inclusion criterion was designed in such a way that the participants were expected to be hypertensive patients who had visited the institution actively in the previous two years and that they had been treated with one or more antihypertensive medication. Regarding data analysis, the study relied on descriptive and inferential statistical approaches in which data was categorized or expressed in terms of proportions of the remainder of the selected sample.

## Results

From a demographic perspective the selected population’s mean age stood at  $53.30 \pm 11.00$  years. However, the difference between female and male participants was not statistically significant; with P standing at 0.6940. However, the majority of the participants were aged between 50 and 59 years. These participants accounted for 30.0% of the sample population that was selected for participation. The participants’ demographic characteristics were summarized as follows.

| <i>Marital Status</i>     |          |          |          |       |
|---------------------------|----------|----------|----------|-------|
| Single                    | 6(13.6)  | 5(8.9)   | 11(11.0) | 0.455 |
| Married                   | 33(75.0) | 40(71.4) | 73(73.0) | 0.690 |
| Divorced                  | 4(9.1)   | 5(8.9)   | 9(9.0)   | 0.978 |
| Widowed                   | 1(2.3)   | 6(10.7)  | 7(7.0)   | 0.101 |
| <i>Religion</i>           |          |          |          |       |
| Christian                 | 31(70.5) | 50(89.3) | 81(81.0) | 0.017 |
| Islam                     | 13(29.5) | 6(10.7)  | 19(19.0) |       |
| <i>Educational Status</i> |          |          |          |       |
| No formal education       | 3(6.8)   | 16(28.6) | 19(19.0) | 0.006 |
| Primary                   | 2(4.5)   | 2(3.6)   | 4(4.0)   | 0.805 |
| Secondary                 | 14(31.8) | 23(41.1) | 37(37.0) | 0.341 |
| Tertiary                  | 25(56.8) | 15(26.8) | 40(40.0) | 0.002 |

*Calcium channel blockers (CCB)*

|            |            |            |
|------------|------------|------------|
| Amlodipine | 23 (27.4%) | 37 (41.6%) |
| Nifedipine | 60 (71.4%) | 51 (57.3%) |
| Felodipine | 1 (1.2%)   | 1 (1.1%)   |

*Beta blockers (BB)*

|             |            |            |
|-------------|------------|------------|
| Atenolol    | 13 (81.3%) | 35 (97.2%) |
| Propranolol | 3 (18.8%)  | 0 (0%)     |
| Bisoprolol  | 0 (0%)     | 1 (2.8%)   |

*Angiotensin converting enzyme inhibitors (ACEI)*

|            |           |            |
|------------|-----------|------------|
| Lisinopril | 13 (100%) | 31 (67.4%) |
| Ramipril   | 0 (0%)    | 15 (32.6%) |

*Angiotensin II receptor blockers (ARB)*

|             |          |            |
|-------------|----------|------------|
| Losartan    | 4 (100%) | 27 (84.4%) |
| Candesartan | 0 (0%)   | 5 (15.6%)  |

*Centrally-Acting Agents (CAA)*

|            |           |           |
|------------|-----------|-----------|
| Methyldopa | 13 (100%) | 18 (100%) |
|------------|-----------|-----------|

*Diuretics (DII)*

|                     |            |            |
|---------------------|------------|------------|
| Furosemide          | 1 (5.9%)   | 3 (8.1%)   |
| Hydrochlorothiazide | 0 (0%)     | 3 (8.1%)   |
| Bendrofluzide       | 16 (94.1%) | 31 (83.8%) |

*Vasodilators (VAS)*

Overall findings demonstrated that clinical pharmacists play a crucial role of lowering blood pressure, hence the management of blood pressure. Similar to other clinical trials [3, 7], this study’s

findings demonstrated that the inclusion of clinical pharmacists in the pharmacological attribute of antihypertensive therapy yields a significant reduction in the incidence of stroke, as well as possible heart failure and myocardial infarction. Also, the inclusion of clinical pharmacists in the rest of the efforts of healthcare teams at the university hospital saw complications reduce; including mortality and conditions such as renal, cerebrovascular, and cardiovascular morbidities [9]. The latter beneficial outcomes were complemented further by situations where hypertensive patients were not only under drug or pharmacological management but also undergoing lifestyle modifications (or non-pharmacological modifications). In the previous literature, several classes of antihypertensive agents as those through which the pharmacological management of blood pressure could be achieved had been documented. Some of the documented agents include beta blockers, vasodilators, calcium channel blockers, angiotensin II receptor blockers, angiotensin-converting enzyme inhibitors, and diuretics (such as loop and potassium-sparing diuretics, as well as thiazides and related agents) [7-10].

Despite the promising impact of the incorporation of clinical pharmacists' services into the rest of the efforts of the healthcare teams, some participants cited having experienced some side effects arising from the pharmacists' recommended dosages and agents. Some of the dominant side effects that the study established included erectile dysfunction, sleeping disturbances and difficulties, very slow heartbeat, nausea, fatigue, diarrhea, and cold feet and hands. Imperative to note is that the latter trend was similar to that which had been documented in some of the previous scholarly investigations, which noted side effects of the pharmacological treatment of blood pressure as those that include issues such as fatigue, nasal congestion, orthostatic hypotension, reflex tachycardia, headache, dizziness [6-8].

This study established further that blood pressure is one of the major cardiovascular risk factors and that the majority of the participants were aware of this risk, yet a significant proportion of the selected sample was unaware of how the condition could be managed. Therefore, the use of clinical pharmacists' services in the management of blood pressure, based on case notes' reviews, suggested that the effort is beneficial in such a way that it leads to the achievement of the intended blood pressure goal levels. Improvements in patient outcomes, a secondary effect of clinical pharmacists' incorporation into the research setting's healthcare teams, were also evidenced by the ability of the personnel (pharmacists') informed prescribing patterns. Specifically, clinical pharmacists were observed to have tailored the dosages and prescriptions based on the patients' features such as gender and age, as well as the nature of clinical facilities. Specifically, patients in their first year of medication had mostly monotherapies prescribed for use but it declined with time. Similarly, prescription patterns as paths through which pharmacists improved the quality of patient outcomes relative to the pharmacological treatment of blood pressure were evident whereby the pharmacists ensured that agents such as BB and CCB as antihypertensive agents were prescribed either alone or in combination – based on the factors operating on the part of the environment. This relevance ensured that the type of medication and pattern of prescribing were matched with the needs of patients, hence improved outcomes, as well as tertiary effects such as reduced lengths of stay in the hospital, reduced cases of avoidable readmission, and reduces cases of other morbidities with which blood pressure is associated.

## Conclusion

In summary, this study sought to unearth the impact of the pharmacological treatment of blood pressure on the quality of patient outcomes; with insights gained from the context of a university hospital. The investigation was conducted in the form of a cross-sectional prospective study. Particularly, 100 participants were selected for data collection, upon which analysis and interpretations were conducted to gain insight into the subject that was being investigated. The data collection process involved administering semi-structured questionnaires, with the participants' case notes also reviewed to gain additional data, as well as validate their responses as obtained from the questionnaires. From the findings, the study established that when clinical pharmacists' services are incorporated into the efforts of the rest of the healthcare teams, there is a significant improvement in the quality of blood pressure management. Hence, in the future, the need to incorporate the personnel's services into the rest of the healthcare team efforts could not be overstated.

## References

- [1] WHO Guidelines Sub-Committee (2003) World Health Organization/International Society of Blood pressure Guidelines for the management of blood pressure. . *J Hypertens*, 1983-1992.
- [2] Wierzbicki A.S. (2002) Lipid lowering: another method of reducing blood pressure? *Journal of Human Blood pressure* 16, 753-760.
- [3] Wofford M.R. and Hall J.E. (2004) Pathophysiology and treatment of obesity blood pressure. *Curr Pharm Des* 10, 3621-3637.
- [4] World Health Organisation (2005) Cardiovascular Diseases in the Africa Region; Current Situation and Perspectives. Maputo, Mozambique,.
- [5] Xin X., He J., Frontini M.G., Ogden L.G., Motsamai O.I. and Whelton P.K. (2001) Effects of alcohol reduction on blood pressure: a meta-analysis of randomized controlled trials. *Blood pressure* 38, 1112-1117.
- [6] Yusuff K.B. and Balogun O.B. (2005) Pattern of drug utilization among hypertensives in a Nigerian teaching hospital. *Pharmacoepidemiol Drug Saf* 14, 69-74.
- [7] Rodriguez-Cruz E. and Ettinger L.M. (2010) Cardiac Disease and Critical Care Medicine. In *eMedicine Pediatrics: Medscape*.
- [8] Sacks F.M., Svetkey L.P., Vollmer W.M., Appel L.J., Bray G.A., Harsha D., Obarzanek E., Conlin P.R., Miller E.R., 3rd, Simons-Morton D.G., Karanja N. and Lin P.H. (2001) Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Blood pressure (DASH) diet. DASH-Sodium Collaborative Research Group. *N Engl J Med* 344, 3-10
- [9] Porth C.M. (2002) *Pathophysiology; concepts of altered health states*, 6th ed. Philadelphia: Lippincott Williams & Wilkins.
- [10] Psaty B., Wassertheil-Smoller S., Greenland P. and al. e. (2004) Association between cardiovascular outcomes and antihypertensive drug treatment in older women. *JAMA* 292, 2849-2859.
- [11] Rahmouni K., Correia M.L., Haynes W.G. and Mark A.L. (2005) Obesity-associated blood pressure: new insights into mechanisms. *Blood pressure* 45, 9-14.