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Assessment of Follow-Up Care Received by Patients with Hypertension at Primary Health Care Facilities in Tshwane District of Gauteng Province, South Africa

Julia Manyelo and Debbie Habedi

Abstract

To extend the life expectancy of all South Africans to at least 70 years by 2030, hypertension follow-up care needs to be strengthened so that patients do not develop complications while in care. The aim of this study was to evaluate the follow-up care received by patients with hypertension at primary health care (PHC) facilities in Tshwane district. The study setting was ten PHC facilities in the aforesaid district. Quantitative, descriptive and retrospective methods were adopted, and simple random sampling was used to select ten PHC facilities from which ten files were conveniently sampled. Data were captured in Microsoft Excel 2010 and exported to IBM Statistical Package for the Social Sciences (SPSS) software version 21 in which data coding, outlier detection, missing value analysis and statistical data analysis were performed. In line with the study aim, frequency tables in SPSS were used to produce frequency statistics, and the chi-square test was used to test for the presence of association between compliance by nurses to clinical guidelines and categories of attributes, and further determine if there was a significant difference between adherence and non-adherence. The study found a significant proportion (93.4%) of non-adherence to hypertension guidelines among consulting nurses at selected PHC facilities.

Keywords: assessment, follow-up care, hypertension, primary health care

1. Introduction

Hypertension is a global health condition of developed and developing countries including South Africa. South Africa has the highest prevalence of people with hypertension (between 42% and 54%) compared with the eastern (15%) and western (25%) parts of Southern Africa. Sadly, the condition of these patients is still not controlled even while on treatment [1]. A recommendation of this study is that a regionally tailored intervention is implemented to prevent disastrous consequences relating to hypertension mortality and morbidity. While hypertension is a chronic, lifelong condition that needs regular and continued follow-up care, it also requires

skilled health care providers who are supported by the treatment guidelines of the National Department of Health (NDoH), South Africa.

Approximately 17-million patients diagnosed with hypertension, a chronic, non-communicable and preventable disease, visit South PHC clinics for consultation. Hypertensive patients are initially encouraged to follow lifestyle modifications to promote control and management of the disease as part of its non-treatment management. Thereafter, if condition remains uncontrolled, hypertensive patients are informed to use daily treatment for the rest of their lives [2]. The NDoH of South Africa recommends that health professionals who are practicing in PHC clinics provide health education to enhance compliance with the management and control of hypertension [3].

Before 2006 parallel guidelines were developed by the Southern African Hypertension Society and the South African Department of Health, but the 2006 guideline is the combination task of the two bodies [4]. The guideline outlines dissimilar broad steps that health professionals should adhere on to achieve controlled blood pressure effectively, beginning from the patient risk screening/profiling, the measurements and investigations, the classification and complete treatment of hypertensive patients with or without co-morbidities, to their repeat and continuous plan [5]. A research conducted in Pretoria (Tshwane) on adherence to the hypertension guidelines among private practitioners and PHC physicians found that overall adherence to the hypertension practice guidelines used by generalists in private practice was 55%, while among PHC doctors in public-service, it was 56.4% [6].

Although two guidelines, Adult Primary Care (APC)/ Standard Treatment Guidelines (STG) and Essential Medicines List (EML), are available for use in PHC facilities when consulting patients with hypertension, the challenge is whether these guidelines are adhered to or not. To this end, the study sought to assess adherence or non-adherence to these guidelines and to describe the follow-up care received by patients in the Tshwane district of the Gauteng province, South Africa.

As far as the workshop on Diabetes Mellitus was concerned, the former Deputy Minister of Health in South Africa Dr. Joe Phaahla reported concerns about the quality of records in some clinics during auditing of patients' records. Hypertensive patients' medical history was recorded in two sentences, for example *"For follow up. Medication issued"*. The researchers noted this trend with seriousness since students following the R48 are taught comprehensive health assessment, which includes correct history taking and physical examination plus treatment of illnesses. Truly, if health assessment and treatment are done correctly, medical history could not be recorded in two sentences, which proves that if it is not recorded, it was undone. Adherence to the guidelines is stipulated throughout the R48 training programme to prove that there is standardisation regarding how hypertensive patients are treated at PHC level. During clinical practical of students, the researchers also realised that chronic services are regarded as fast track and sometimes, very incompetent nurses are assigned to that because they are considered mainly treatment collection. The South African' health care system is predominantly nurse-based and requires nurses to have the appropriate competence and expertise to manage the country's quadruple burden of diseases, of which hypertension forms a significant part [7]. To achieve this requirement, nursing education and training must produce safe and competent nursing professionals who are capable of making a meaningful contribution [8]. This prompted the researcher's interest in assessing the follow-up care received by the patients with hypertension at PHC facilities in the Tshwane district.

2. Research design and methods

2.1 Patient's history

Detailed history, physical examination and interpretation of investigations should form an integral part of the routine care of patients with hypertension. Regarding measurements, it is important to ensure that PHC nurses who take blood pressure measurements have adequate initial training and their performance periodically reviewed. Equipment for measuring blood pressure must be correctly checked, serviced and adequately recalibrated according to the companies' instructors' manuals. When checking blood pressure, PHC nurses in the clinics should calm the setting and provide a relaxed, temperate atmosphere, with the patients quiet and seated, and arms outstretched and supported. Use of a correct machine for the patient's arm is important [9]. A community-based study to estimate the prevalence of hypertension and its associated factors in municipalities of Kathmandu, Nepal [10], found that factors associated with hypertension were smoking, Body Mass Index (BMI), alcohol use, poor physical activity and diabetes.

The guidelines [9] emphasise the importance of the following lifestyle modifications:

- Administer continuous lifestyle advice to patients

- Promote a healthy diet and regular exercise

- Offer guidance and written or audiovisual materials to promote lifestyle changes

- Encourage reduced alcohol consumption

- Discourage excessive consumption of coffee and other caffeine-rich products

- Encourage patients to keep their dietary sodium intake low

- Offer advice and help smokers to stop smoking

- Inform patients about support groups such as local initiatives, health care teams or patient organisations that provide support and promote life-style change [9].

In South Africa, the following lifestyle modification is also recommended [11]:

- Educate patients about adequate dietary fibre intake (fruits, vegetables and unrefined carbohydrate.

2.2 Study design

The research is quantitative because it sought to measure the phenomenon by attaching numerical values to express quantity [12]. The observation was carried out in the PHC facilities whereby entries of patients' files were evaluated. Perusal of patients' files and documentation using checklist was also done. Furthermore, quantitative research is described as a formal, objective, systematic methodology to describe variables, to test relationships, and to examine cause and effect [13]. However, for this study, only the former is applicable. The patients whose files were

perused had experienced an event that is a "follow-up consultation for hypertension". Moreover, the patients were mostly pensioners and depending on old age grant and even the unemployed ones without the medical aids. They resided around the townships and villages of Tshwane.

2.3 Setting

The study setting was guided by the research questions and the type of data that were required to answer the following questions [14].

- How is the follow-up care received by patients with hypertension at PHC facilities in the Tshwane district?

- What is the adherence or non-adherence to the National Guidelines by nurses about hypertension follow-up care?

A multi-site approach was used whereby ten different PHC facilities were selected. Using multiple sites offers a larger and more diverse sample [12], which improves external validity. Both provincial and municipal facilities were included. Data collection took place at two community health centres (CHCs) and eight clinics. The total number of PHC facilities was ten. The real-life settings were natural, and uncontrolled; the researcher did not attempt to manipulate them in any way.

2.4 Units of analysis

The units of analysis were the files of male and female patients above 30-years old, who were diagnosed with hypertension at PHC facilities in the Tshwane district of Gauteng Province. As recommended [12], this was the entire aggregation of cases in which the researcher was interested.

2.5 Sampling strategy

Ten of the 74 PHC facilities in the Tshwane district were randomly selected from the list on the National Health Research Database (NHRD). All clinics in the Tshwane district appear on the NHRD. The names of the facilities were written on pieces of paper that were placed in a bowl, and jumbled. From this, the first facility was chosen. The names were jumbled again, and the second facility was chosen. The process was repeated until all ten facilities had been chosen. According to the monthly statistics, at the time of the study, an average of 300 hypertensive patients were seen in each of the ten facilities per month. Hence, a proportional sample of ten files was conveniently chosen per facility.

2.6 Pilot study

The pilot study was done a month prior data collection when the research instrument was tested with ten files which were not utilised in the actual study. This was done to check if it could yield required information. The instrument was then revised and refined after the statistician checked it for validity and reliability.

Reliability of an instrument is a major criterion for assessing quality [12]. It is defined as the consistency and accuracy with which an instrument measures what is intended to measure. When used on repeated trials, an instrument with high reliability will produce the similar results [15]. To determine usefulness reliability of the instrument, the researchers utilised South African NDoH hypertension management

guidelines. The guidelines support for a consistent standard of care across all PHC facilities in the country. Thus, the measuring instrument was considered reliable because it entailed attributes that are nationally recommended as the standard of care that hypertensive patients should receive during their follow-up visits.

Content validity was proofed by aligning concepts with the hypertension management guidelines of the country's NDoH. Prior the actual real research study was conducted, a clinic that was excluded in the final study sample was piloted to test the data collection process. Inputs from clinicians were used to amend the data collection tool where necessary. Piloting was conducted between the first two months of the year 2018.

The ethics approval certificate (HSHDC/839/2018) was granted by the University of South Africa (UNISA).

2.7 Data collection

Data were collected by auditing the files of patients who were consulted for hypertension follow-up using a checklist. A checklist itemises task descriptions in one column and provides a space besides each item to check off items that are done or not done [16]. The checklist contains activities that must be performed on a follow-up visit for hypertension according to the National Guidelines, the APC and the EML. The checklist was distributed by the researcher herself at the chosen PHC facilities. Some amendments and modifications were made to the checklist following the pilot study. Data were collected over a period of two months (June and July 2018), and all 100 checklists were completed.

The managers of the selected PHC clinics were contacted in advance to inform them of the data collection date. Ten files were chosen per PHC clinic, and from these, the data were gathered. Files were physically collected from the filing room with the help of the administrative staff of the PHC facility. The researchers examined each file to check that it belonged to hypertensive adult patient, who was non-diabetic and not pregnant in order to adhere with the inclusion criteria. Once ten files that adhered with the criteria were found, the data gathering started. All 54 questions on the checklist were ticked/not ticked in accordance with either attribute was recorded or not recorded.

2.8 Data analysis

Data were coded and checked for correctness before being entered into a Microsoft Excel codebook. The data were analysed according to the following steps:

• the last year in which patient was seen at the clinic;

• characteristics of the sample;

• patient's history

• physical examination;

• vital signs;

• side room investigations;

• routine blood tests;

• life style assessment;

- management of the patients; and

- knowledge and skills of health worker.

2.9 Results

Table 1 below indicates whether the attributes listed were assessed, as evidenced by records.

	Frequencies	Percentages (%)
Attributes of physical examination		
Dyspnoea		
Yes	1	1.0
No	0	0.0
Not recorded	98	98.0
Missing/Incomplete	1	1.0
Total	**100**	**100.0**
Jugular venous pressure		
Yes	1	1.0
No	0	0.0
Not recorded	99	99.0
Total	**100**	**100**
Apex beat recorded		
Yes	0	0.0
No	0	0.0
Not recorded	100	100.0
Total	**100**	**100.0**
Oedema		
Yes	64	64.0
No	0	0.0
Not recorded	36	36.0
Total	**100**	**100.0**
Crepitations		
Yes	17	17.0
No	0	0.0
Not recorded	83	83.0
Total	**100**	**100.0**
Heart sounds		
Yes	53	53.0
No	0	0.0
Not recorded	47	47.0

	Frequencies	Percentages (%)
Total	**100**	**100.0**
Cyanosis		
Yes	28	28.0
No	0	0.0
Not recorded	72	72.0
Total	**100**	**100.0**
Clubbing		
Yes	28	28.0
No	0	0.0
Not recorded	72	72.0
Total	**100**	**100**
Attributes of physical measurements		
Blood pressure		
Yes	100	100.0
No	0	0.0
Not recorded	0	0.0
Total	**100**	**100.0**
Pulse rate, rhythm and character		
Pulse rate		
Yes	96	96.0
No	0	0.0
Not recorded	4	4.0
Total	**100**	**100.0**
Pulse rhythm		
Yes	0	0.0
No	0	0.0
Not recorded	100	100
Total	**100**	**100**
Pulse volume		
Yes	0	0.0
No	0	0.0
Not recorded	100	100.
Total	**100**	**100.0**
Waist circumference recorded		
Yes	0	**0.0**
No	0	0.0
Not recorded	100	100.0
Total	**100**	**100.0**
Blood glucose measured		
Yes	23	23.0

	Frequencies	Percentages (%)
No	77	77.0
Total	**100**	**100.0**
Urine tests		
Yes	32	32.0
No	0	0.0
Not recorded	68	68.0
Total	**100**	**100.0**
Eye test done or recorded		
Yes	0	0.0
No	0	0.0
Not recorded	100	100.0
Total	**100**	**100.0**
Attributes of routine blood tests		
eGFR		
Yes	70	70.0
No	0	0.0
Not recorded	30	30.0
Total	**100**	**100.0**
Cholesterol		
Yes	66	66.0
No	0	0
Not recorded	34	34.0
Total	**100**	**100**
Attributes of life-style modification		
Smoking		
Yes	2	2.0
No	8	8.0
Not recorded	90	90.0
Total	**100**	**100.0**
Alcohol use		
Yes	1	1.0
No	8	8.0
Not recorded	91	91.0
Total	**100**	**100.0**
Exercise		
Yes	1	1.0
No	0	0.0
Not recorded	99	99.0
Total	**100**	**100.0**
Salt reduction		
Yes	0	0.0

	Frequencies	Percentages (%)
No	0	0.0
Not recorded	100	100.0
Total	**100**	**100.0**
Fat reduction		
Yes	0	0.0
No	0	0.0
Not recorded	100	100.0
Total	**100**	**100.0**
Non-adherent attributes		

Attributes	**No (%)**	**Yes (%)**
Dyspnoea	99.0	1.0
Jugular venous pressure	99.0	1.0
Apex beat recorded	100.0	0.0
Crepitations	83.0	17.0
No. of pillows used	100.0	0.0
Cyanosis	72.0	28.0
Clubbing	72.0	28.0
Chest pain recorded	100.0	0.0
Walk/climb	100.0	0.0
Pulse rhythm	100.0	0.0
Pulse volume	100.0	0.0
BMI	82.0	18.0
Waist circumference recorded	100.0	0.0
Blood glucose measured	77.0	23.0
Urine tests	68.0	32.0
Eye test done or recorded	100.0	0.0
Smoking	98.0	2.0
Alcohol Use	99.0	1.0
Exercise	99.0	1.0
Salt reduction	100.0	0.0
Fat reduction	100.0	0.0
Adherence to medication recorded	100.0	0.0
Side effects of treatment	100.0	0.0
Heart sounds recorded	47.0	53.0

Table 1.
Attributes of physical examination, measurements, routine blood tests and non-adherent attributes.

2.10 Antihypertensive medications

Antihypertensive drugs are mainly prescribed to reduce blood pressure and the complications associated with the disease. According to a study conducted among South African adult residents of Mkhondo Municipality, clinical guidelines recommend the use of multiple drugs to control blood pressure effectively and reduce the possibility of hypertension related complications [17]. The authors of this

study determined that a high prevalence of uncontrolled hypertension was noted irrespective of the number of drugs and the combinations administered [17]. A plausible explanation could be non-adherence to treatment by patients. Hence, it is important for clinicians to follow evidence-based guidelines in prescribing antihypertensive drugs for patients. According to a registry-based observational study in two municipalities in Cuba on assessment of hypertension management and control [18], it found that almost half of the patients receiving treatment were taking two or more antihypertensive drugs. **Figure 1** below indicates the commonly used antihypertensive medications at PHC facilities in the Tshwane district of Gauteng Province, South Africa as hydrochlorothiazide, enalapril and amlodipine.

2.11 Adherent and non-adherent attributes

In this study, the determination of adherence and non-adherence was done by dichotomizing whether or not nurses complied with clinical guidelines in providing healthcare services regarding hypertension follow-up care. Binary counts showing whether or not nurses made records in compliance with clinical guidelines were done using frequency statistics tables in SPSS. Based on clinical guidelines, adherence was affirmed present if at least 60% of sample records showed that nurses made records in line with guidelines. Conversely, non-adherence was affirmed if less than 60% of sample records showed that nurses made records as per the guidelines. The at least 60% threshold affirming adherence was derived from clinical guidelines. This study's results on nurses' adherence and non-adherence to guidelines are as follows:

Adherence: Percentages showing adherence by nurses regarding making records are as follows: Blood pressure (100%), Pulse rate (96%), Estimated glomerular filtration rate (eGFR) (70%), Cholesterol (66%) and Evaluation of oedema (64%).

Non-adherence: Percentages showing non-adherence by nurses regarding making records are as follows: Dyspnea (99%), Raised Jugular venous pressure (99%), Apex beat (100%) and Crepitations (83%). Number of pillows used to sleep at night (100%), Cyanosis (72%), Clubbing (72%), Chest pains (100%), (BMI) (82%), Waist circumference (100%), Blood glucose (77%), and Urine and eye tests in the
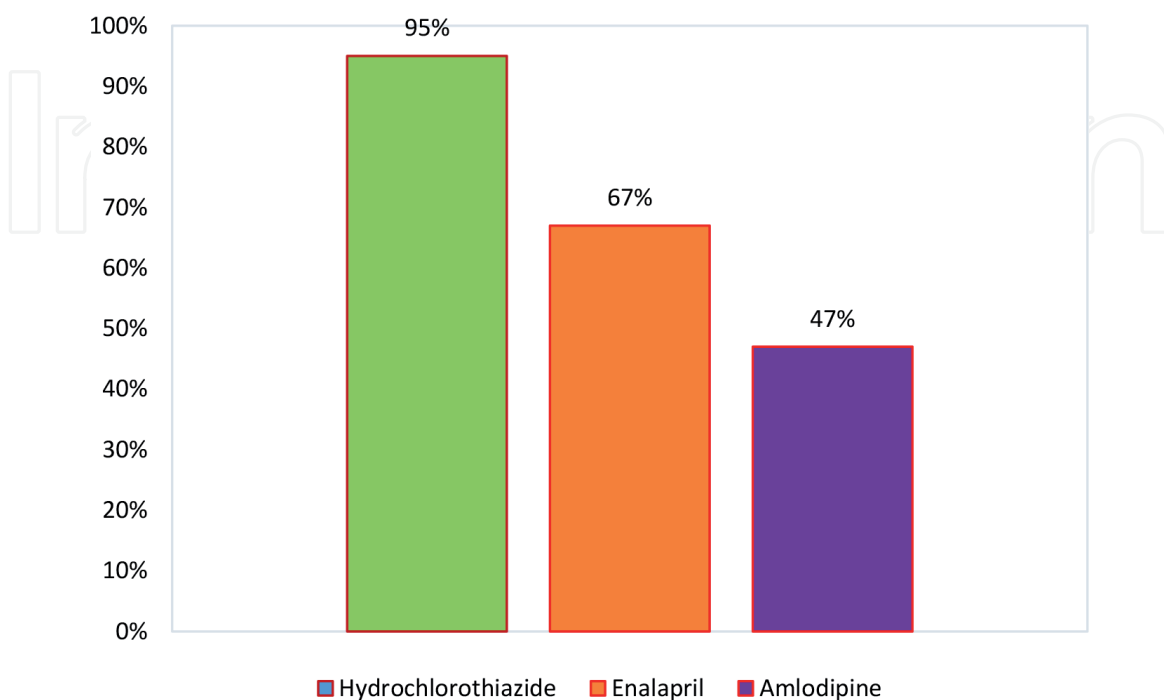

Figure 1.
Commonly used antihypertensive medications.

past 12 months (68% and 100% not recorded respectively). Adherence and side effects of prescribed medication were (100%) unrecorded. Smoking (90%), Alcohol use (91%), Exercise (99%), Salt and fat reduction (100%) were unrecorded.

Moving onwards, the test for presence of significant association between compliance by nurses to clinical guidelines (adherence and non-adherence) and categories of attributes (physical examination, physical measurements, life-style modification, routine blood tests, and history) was done using the chi-square test at 5 percent level of significance. The Pearson chi-square value = 11.654 (p-value = 0.020) and Cramer's V score = 0.634 (p-value = 0.020) indicate presence of statistically significant and strong association between compliance outcome (adherence and non-adherence) and category of attributes. The results confirm existence of significant difference between adherence and non-adherence proportions at 5 percent level.

The authors of the study conducted in Mkhondo Municipality [17] assert that the high prevalence of uncontrolled hypertension can possibly be attributed to obesity, lack of physical activity and dyslipidaemia. Moreover, the prevalence of uncontrolled hypertension and its association with low HDL-C, inadequate physical activity and obesity were reported [17].

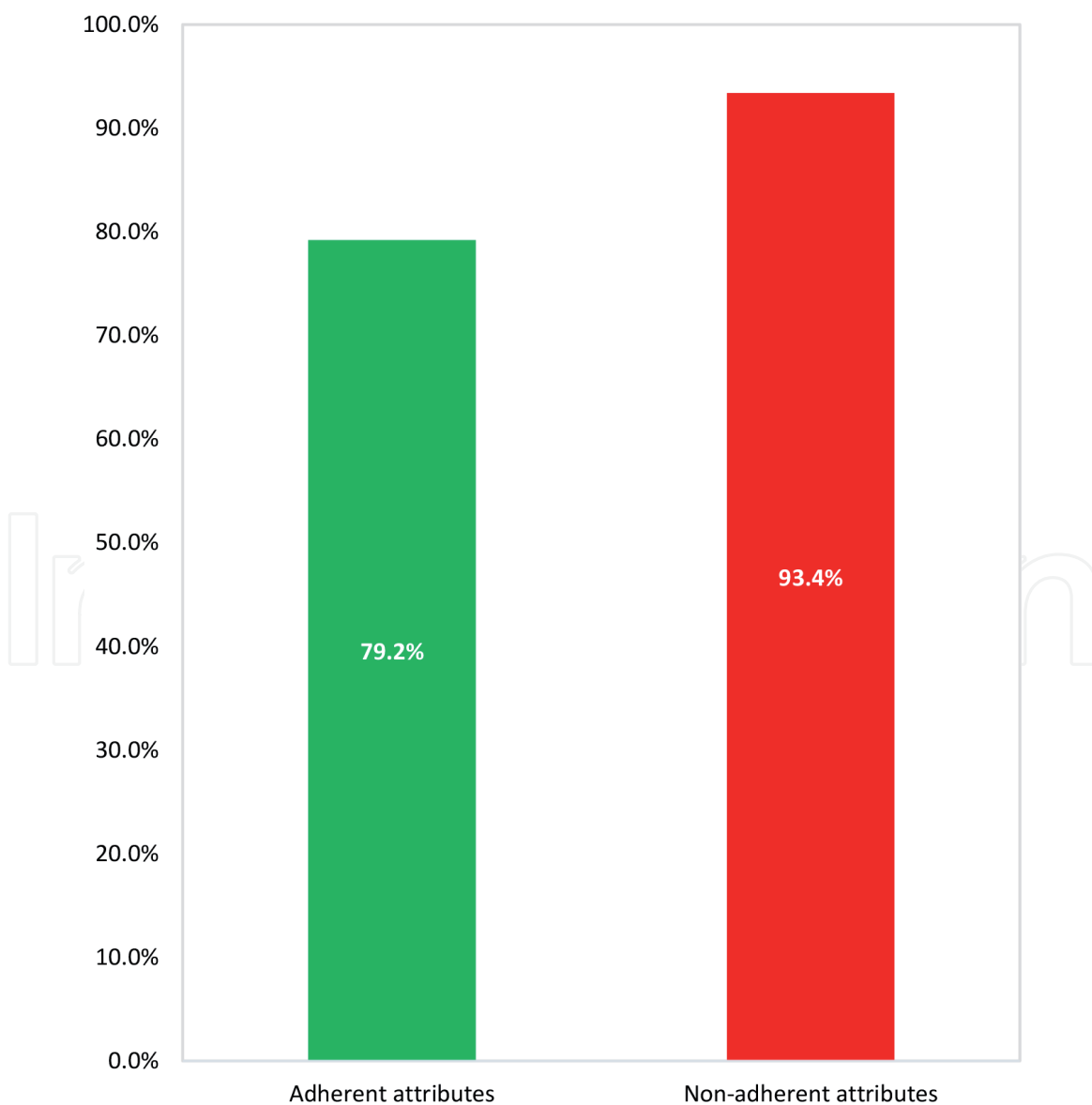**Figure 2** below shows percentages of adherent and non-adherent attributes for this study.

Figure 2.
Adherent and non-adherent attributes.

2.12 Discussion

The aim of the study was to evaluate the follow-up care received by patients with hypertension at PHC facilities in the Tshwane district. The study found a significant percentage (93.4%) of non-adherence to hypertension guidelines among consulting nurses at selected PHC facilities. Based on the results of this study, some professional nurses could not interpret the danger related to an elevated eGFR or cholesterol. Where the BMI was measured, it was not interpreted so that interventions could be implemented. In the follow-up visit, there was total misunderstanding of lifestyle modification and how it must be implemented in the management of hypertension. It was clear that PHC facilities require greater assistance and support from the employer, the NDoH of South Africa, to enable PHC nurses in the Tshwane district to adopt more follow-up care of hypertensive patients. Furthermore, in order to assist, guide and motivate the nurses to become active partners in their care, in-service trainings, resources and equipment are needed. There should be a remediation programme for professional nurses who have been trained but are found to be non-adherent to the guidelines. In a study conducted in Kinshasa, Congo, in which knowledge of consulting nurse's was assessed, 84% of the nurses reported to have received training [19]. The results suggest that training alone may not be enough, but continuous support and remedial actions may be necessary [19].

In addition, nurses of PHC facilities need to be supported by policy and organisational change. The results of the study [19] also supported the earlier observation made by the researcher in the research problem that chronic services are regarded as fast track and sometimes very incompetent nurses are allocated to these services since they are regarded as predominantly treatment collection with no specialised skills required. In accordance with other similar studies, most of the files of hypertensive patients that were audited for this study were found to be demonstrating positive and negative strengths regarding the follow-up care received by patients with hypertension.

A study conducted in Brazil by [16] on the association between follow-up care in health services and adherence to antihypertensive medication indicated that the level of therapeutic adherence in different populations of hypertensive patients is frequently investigated, given the severity of the problem. The adherence identified in the population was high (63%), possibly influenced by the characteristics of the participants, who had cardiovascular disease associated with arterial hypertension and, consequently, needed and sought health care more frequently. The findings indicate that higher consultation attendance has a statistically significant relationship with better medication adherence. This reinforces the notion that accessibility and frequent use of health services significantly affects the health conditions of hypertensive patients with associated cardiovascular disease [16].

Furthermore, the significance of follow-up care in clinics was analysed in relation to the level of therapeutic adherence and the prevalence of acute events [20, 21]. Patients who did not seek emergency services in the last two years had better adherence rates (p = 0.04). Since acute episodes usually lead to the introduction of new drugs in the treatment protocol of hypertensive patients, the lower adherence of the group that sought emergency services may be related to the problem in adapting to combination therapy, which demands post-discharge follow-up [20, 21].

In the study conducted in Brazil [16], the authors sought to advance knowledge concerning the correlation between health services and medication adherence when investigating attendance of hypertensive patients' at nursing consultations, since these are mainly focused on health education [16]. Regardless of the fact that the

respondents had a greater number of medical appointments than nursing consultations, drug adherence was better among those who attended nursing consultations more frequently (p = 0.022). In addition, the study indicated the number of consultations necessary to improve the therapeutic adherence of hypertension patients [16].

Repeated nursing follow-up does not necessarily result in increased therapeutic adherence, and can increase health care costs [22]. The practice revealed by the present chapter of 4 to 6 nursing consultations per annum is the preferred level of nursing follow-ups, to attain better levels of antihypertensive treatment adherence. It was also observed that hypertensive patients who attended medical and nursing consultations or who had received health orientations in the last 6 months presented greater therapeutic adherence, with a statistically significant correlation (p = 0.013). PHC professionals have a high capability and meaningful opportunity to impact the improvement of patients' treatment adherence, through the support of guidelines and care during visits, home visits, health talk actions and tracking of non-adherent behaviours [23].

Regarding the view of impact of follow-ups in PHC services on therapeutic adherence of hypertensive patients, directed public policies are necessary to enhance this level of attention, and bring it closer to the population. Also meriting consideration is the social capital of the Brazilian population, which assists people overcome obstacles regarding the accessibility and utilisation of clinics by giving information and treatment support. For hypertensive patients, involvement into social health networks encourages them to look for specialised health care, although the decision to take part in treatment follow-up must be from the patients themselves [24]. However, treatment adherence will definitely be influenced by participation in social health networks and presence of follow-up visits in the clinics.

2.13 Limitations

The results of this chapter are valid in the specific context of the Tshwane district and cannot be generalised to the entire Gauteng province or to the whole country.

3. Conclusions

The objectives of the study were to describe the follow-up care received by patients with hypertension at PHC facilities in the Tshwane district and to determine nurses' adherence or non-adherence to the guidelines regarding hypertension follow-up care. The conclusion drawn is that follow-up care obtained by hypertensive patients in PHC facilities in the Tshwane district was found to be insufficient, and demonstrated by a trend of non-adherence to the guidelines. This showed a considerable lack of knowledge and practice in the treatment of hypertension in PHC clinics.

4. Recommendation

4.1 Nursing practice

- It is recommended that unskilled professional nurses should not be allocated to hypertension follow-up care or to a chronic section. Even if guidelines are available, they will yield better results if they are used by professional nurses who understand consultation skills such as history taking, physical examination and interpretation of investigations.

Authors' contribution

M.J.M., the author of the chapter, conducted the research.
D.S.K.H., the study supervisor, assisted in writing the chapter.

Conflict of interest

The authors declare that there are no competing interests regarding the writing of this chapter.

Disclaimer

The expressed ideas pertaining to the chapter are of authors and do not indicate the policy or position of any associations with them.

Data availability statement

Data sharing is inapplicable to this book chapter since no new data were formulated or interpreted.

Author details

Julia Manyelo and Debbie Habedi*
Garankuwa College of Nursing and University of South Africa, Pretoria,
South Africa

*Address all correspondence to: habeddsk@unisa.ac.za

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References

[1] Ramsay, M, Sankoh, O. SA has the highest blood pressure in Southern Africa. Johannesburg: Wits University; 2017. Available https://www.wits.ac.zaresearch.news. [Accessed 28 June 2017].

[2] Nkosi-Mafutha NG, De Swart HC, Mogotlane S. Conveying hypertension message: an investigation into language and content used in primary health clinics in South Africa. African Journal of Primary Health Care and Family Medicine. 2020;12(1):1-7. https://doi.org/10.4102/phcfm.v12i1.2115.

[3] Nutbeam D. Health Literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. Health Promotion International. 2000 Sep1;15(3):15(3):259-267. https://doi.org/10.1093/heapro/15.3.259.

[4] Seedat YK, Croasdale MA, Milne FJ. South African hypertension guidelines. South African Medical Journal. 2006 Apr;96 (4Pt2):337-62.

[5] Adedeji AR, Tumbo J, Govender I. Adherence of doctors to a clinical guideline for hypertension in Bojanala district, North-West province, South Africa. African Journal of Primary Health Care and Family Medicine. 2015. Apr 13;7(1). http://dx.doi.org/10.4102/phcfm.v7i1.776

[6] Ernst S. Hypertension guideline adherence by private practitioners and primary health care physicians in Pretoria. SA Fam Pract. 2005 Apr 1 ;47(3) :51-54. http://dx.doi.org/10.1080/20786204.2005.10873202-DOI.

[7] South Africa (Republic) Department of Health. Strategic plan 2014/15 to 2018/19. Pretoria: Government Printer; 2014.

[8] South Africa (Republic) Department of Health. 2018. Gauteng Health achieves highest percentage of ideal clinics across the country. Available: https://www.gov.za/speeches. [Accessed 28 May 2019].

[9] National Institute for Health and Care Excellence. NICE guideline. London: NICE; 2019. Available: www.nice.org.uk/guidance/ng/36.

[10] Dhungana, RR, Pandey, AR, Bista B, Joshi S, Devkota S. Prevalence and associated factors of hypertension : a community-based cross-sectional study in municipalities of Kathmandu, Nepal. Int J Hypertens, 2016. https://doi.org/10.1155/2016/1656938.

[11] South Africa (Republic) Department of Health. Primary health care standard treatment guidelines and essential medicines list. Department of Health, South Africa; 2008.

[12] Polit, DF, Beck, CT. Nursing Research. generating and assessing evidence for nursing practice. 10th ed. New York: Wolters Kluwer; 2017.

[13] Burns, N, Gray, JR, Grove, SK. The Practice of Nursing Research, Appraisal, Synthesis and Generation of Evidence. 7th ed. St Louis, Missouri: Elsevier; 2013.

[14] Brink, H, van der Walt, C, van Rensburg, G. Fundamentals of Research methodology for healthcare professionals. 4th ed. Cape Town: Juta; 2018.

[15] Bless C, Higson-Smith, C, Sithole SL. Fundamentals of Social Research Methods: An African Perspective. 5th ed. Cape Town: Juta Education (Pty) Ltd; 2016.

[16] Albuquerque NLS, Oliveira ASS, Silva JM, Araujo TL. Association between follow-up in health services and antihypertensive medication adherence. Rev Bras Enferm 2018; 71(6):3006-3012. http://dx.doi.org/10.1590/0034-7167-2018-0087.

[17] Masilela C, Pearce B, Ongole JJ, Adeniyi OV, Benjeddou M. Cross-sectional study prevalence and determinants of uncontrolled hypertension among South African adult residents of Mkhondo Municipality. BMC Public Health. 2020 Dec; 20(1069):1. https://doi.org/10.1186/s12889-020-09174-7.

[18] Agudelo EL, Salva AR, Pinera AD, Roche RG, De Vos P, Battaglioli T, Van der Stuyft P. Assessment of hypertension management and control: a registry-based observational study in two municipalities in Cuba. BMC Cardiovasc Disord. 2019Dec; 19(1): 1-0. hptts://doi.org/10.1186/s12872-019-1006-6.

[19] Lulebo, AM, Mapatano, MA, Kayembe, PK, Mafuta, EM, Mutombo, PB Coppieters Y. Assessment of hypertension management in primary health care settings in Kinshasa, Democratic Republic of Congo. BMC Health Serv Res. 2015 June; 15(573):1-8.

[20] Kirchmayer U, Agabati N, Belleudi V. Socio-demographic differences in adherence to evidence-based drug therapy after hospital discharge from acute myocardial infarction: a population-based cohort study in Rome, Italy. J Clin Pharm Ther.2012Feb;37-44. https://doi.org/10.1111/j.1365-2710.2010.01242.x.

[21] Mathews R, Wang TY, Honeycutt E, Henry TD, Zettler M, Chang M et al. 2015. Persistence with secondary prevention medications after acute myocardial infarction: insights from the TRANSLATE-ACS study. Am Heart J. 2015 July; 170 (1): 62-69.doi: 10.1016/j.ahj.2015.03.019.

[22] Schroeder K, Fahey T, Hollinghurst S, Peters TJ. Nurse-led adherence support in hypertension: a randomized controlled trial. Fam Prac. 2005 Apr 1;22(2):144-51https://academic.oup.com/fampra/article/22/2/144/522313.

[23] Chang TE, Ritchey MD, Ayala C, Durthaler JM, Loustalot F. Use of strategies to improve antihypertensive medication adherence within United States outpatient health care practices. DocStyles 2015-2016. J Clin; Hypertens.2018Feb;20 (2):225-32. https:doi.org/10.1111/jch.13188.

[24] Palafox B, Goryakin Y, Stuckler D, Suhrcke M, Balabanova D, Alhabib KF et al. Does greater individual social capital improve the management of hypertension? Cross-national analysis of 61 229 individuals in 21 countries. BMJ Glob Health. 2017Dec1;2(4):e000443.