International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 9 Issue 2, Mar-Apr 2025 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

Attitudes and Perceptions of Significant Others in the Care and Follow Up of Hypertensive Patients in Fako Division, Southwest Region of Cameroon

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ABSTRACT

Health belief and operational models are important in contextualizing enablers and barriers to a given health care process or health intervention in a specific or diverse setting. The purpose of the study is to appraise attitude and perception of significant others (care givers) in the care and follow up of hypertensive patients in Fako Division in the Southwest Region of Cameroon. Concerning the theoretical scope, the study was guided by The Health Belief Model (HBM), The Theory of Human caring and the Theory of Health Promotion Model. It was a hospital-based cross-sectional study that employed a concurrent nested mixed-method in a survey design whereby quantitative and qualitative approaches were used to collect data on different but complementary indicators. All care givers in the study setting were targeted conveniently. Two hospitals were randomly selected; one public and one faith based from among all the hospitals in the 4 main subdivisions of Fako, making a total of 8 hospitals of secondary and or tertiary levels of health facilities. Altogether, 77 significant others were effectively involved in the study. Data were collected using a semi-structured questionnaire. An application to carry out the research was sent to the ethical review board of the University of Bamenda. Upon approval, Data were collected while abiding to the necessary ethical requirements. Data were digitalized with the support of EpiData version 3.1, and analyzed descriptively and inferentially using SPSS 21.0. The findings unfold that a weak majority (55.8%) of caregivers had a negative perception about their caring of their hypertensive patients, thus implying that caring for the hypertensive patients was relatively challenging. Age and category of health facility surfaced as significant predictors of care givers perception of care as a care giver ($P<0.05$) while age was a critical one ($P<0.05$; OR > 1 and LB of OR > 1). Positive perception increased with age while those of the public health facilities were significantly more positive. Care givers in their strong majority were positive about care from the nurses with a proportion weight of 70.9% and this trend was supported by the qualitative induction. Care givers perception of care from nurses was only significantly dependent of category of health facility ($P=0.000$), whereby those from public health facilities had significantly more positive perceptions (88.2%) as compared to those from their private counterpart (45.2%). It was recommended psycho-social counseling, awareness and training to enhance the effectiveness of care givers in the care of hypertensive patients.

How to cite this paper: Magdaline Injoh Tangi | Mary Bi Suh Atanga | Gerald Ngo Teke | Nana Celestin "Attitudes and Perceptions of Significant Others in the Care and Follow Up of Hypertensive Patients in Fako Division, Southwest Region of Cameroon" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-9 | Issue-2, April 2025, pp.823-843, URL: www.ijtsrd.com/papers/ijtsrd78380.pdf

IJTSRD78380

KEYWORDS: *Hypertension, Patients, Care, Follow-up, Model*

INTRODUCTION

Hypertension is a complex, chronic and non-communicable disease condition that is usually referred to as the silent killer. It was formally known in the eighteenth century as hard pulse disease. It is the more-than-normal force exerted by the blood on the walls of the arteries as the heart pumps blood to the whole body. Hypertension is a major public health concern in Cameroon as well as globally. This is because of its persistently increasing prevalence, increasing rate of poor therapy compliance and increasing morbidity and mortality rates and constitutes a high healthcare expenditure globally. The overall prevalence of hypertension (defined as persistent blood pressure > 140/90 mmHg) for Canadians aged 18-74 is 21% according to the Canadian Heart Health Survey, is known to rise progressively with age. The Heart and Stroke Foundation of Ontario estimates that more than 2.4 million or 22% of Ontarians have hypertension. Medical management of chronic illness consumes about 75% of every health care dollar spent in the United States, and the provision of economical, accessible, and high-quality chronic disease care is a continuing concern across health care settings. In Cameroon, Type 2 diabetes, hypertension, hyperlipidemia, and congestive heart failure are prime examples of common non communicable chronic diseases that cause substantial morbidity and mortality and require long-term medical management and follow-up, thus placing serious burden on the health care system and nurses in particular. Though mortality and morbidity are often highlighted, the burden of disabilities due to hypertension on families, communities and the health system cannot be underestimated, the main corollary being the growing need of care-givers' support.

Background

The history begins in the 16th century with the development of devices to measure blood pressure, early descriptions of the variability of blood pressure, and recognition by the life insurance industry of the association between blood pressure levels and subsequent cardiovascular disease morbidity and mortality. This background has prompted sustained laboratory research efforts aimed at understanding the physiological control of arterial pressure, identifying mechanisms of hypertension, and developing medications, for the treatment of hypertension. In turn, these initiatives have resulted in clinical trials with hypertensive patients and population-based programs with the goals of more effectively treating and preventing hypertension and its cardiovascular consequences. The English clergyman, Stephen Hales made the first published measurement of blood pressure in 173. Descriptions of hypertension came from the works of Thomas Young in 1808 and especially Richard Bright in 1836 who also discovered the link between heart enlargement and kidney disease, and subsequently kidney disease was often termed Bright's disease at this period. Later, in 1850, George Johnson suggested that the thickened blood vessels seen in the kidney in Bright's disease might be an adaptation to elevated blood pressure. Senhouse Kirkes in 1855 and Ludwig Traube in 1856 also proposed, based on pathological observations, that elevated pressure could account for the association between left ventricular hypertrophy to kidney damage in Bright's disease. Samuel Wilks however, observed something new, that, left ventricular hypertrophy and diseased arteries were not necessarily associated with diseased kidneys, implying that high blood pressure might occur in people with healthy kidneys. Later, the first report of a raised blood pressure in a person with no history of kidney disease was isolated by FA Mahomed in 1874 using a sphygmograph. The concept of hypertension as a generalized circulatory disease was taken up by Sir Clifford Allbutt, who termed the condition "hyperpiesia". Hypertension as a medical disease came into being in 1896 with the invention of the cuff-based sphygmomanometer by Scipione Riva-Rocci in,(10) which allowed blood pressure to be measured in clinics. In 1905, Nikolai Korotkoff improved the technique by describing the Korotkoff sounds that are heard when the artery is auscultated with a stethoscope while the sphygmomanometer cuff is deflated. Tracking serial blood pressure measurements was further enhanced when in the early 1980s Donal Nunn invented an accurate fully automated oscillometric sphygmomanometer device. The term essential hypertension was used by Eberhard Frank in 1911 to describe raised blood pressure of unknown etiology. In 1928, the term malignant hypertension was coined by physicians from the Mayo Clinic to describe a syndrome of very high blood pressure, severe retinopathy and inadequate kidney function which usually resulted in death within a year from strokes, heart failure or kidney failure. It is interesting to note that Franklin D. Roosevelt had severe hypertension. However, while the menace of severe or malignant hypertension was well recognized, the risks of more moderate elevations of blood pressure were uncertain and the benefits of treatment doubtful. Consequently, hypertension was often classified into "malignant" and "benign". In 1931, John Hay, Professor of Medicine at Liverpool University, wrote that "there is some truth in the saying that the greatest danger to a man with a high blood pressure lies in its discovery,

because then some fool is certain to try and reduce it". This view was echoed in 1937 by the US cardiologist, Dudley, who suggested that "hypertension may be an important compensatory mechanism which should not be tampered with, even if we were certain that we could control it". Charles Friedberg's 1949 classic textbook "Diseases of the Heart" stated that "people with 'mild benign' hypertension (defined as blood pressures up to levels of 210/100 mm Hg) need not be treated. However, the tide of medical opinion was turning: it was increasingly recognized in the 1950s that "benign" hypertension was not harmful. Over the next decade increasing evidence accumulated from actuarial reports and longitudinal studies, such as the Framingham Heart Study, that "benign" hypertension increased death and cardiovascular disease, and that these risks increased in a graded manner with increasing blood pressure across the whole spectrum of population with increasing blood pressures. Subsequently, the National Institutes of Health also sponsored other population studies, which additionally showed that African Americans had a higher burden of hypertension and its complications. The history of the development of appropriate techniques for measuring blood pressure revolves around Reverend Stephen Hales's work, who is generally credited as being the first person to measure arterial pressure, direct intra-arterial pressure in the horse in 1733. Almost a century later, the noninvasive sphygmographic devices were developed to measure blood pressure in humans. These early devices were cumbersome and not very sensitive. The introduction of the sphygmomanometer into clinical medicine in the late 1800s and early 1900s was accepted by some practitioners as a valuable aid to diagnosis. After Korotkoff's 1905 landmark description of the sounds associated with the appearance of the pulse wave, there was little change in the measurement of blood pressure in the first half of the 20th century. Toward the end of the 20th century, based primarily on mercury-related health concerns (which many in the field vigorously debated and sadly enough still used in Cameroon), the mercury manometer has essentially been replaced with aneroid and electronic devices. Mercury is still used for calibrating these devices, and standardized protocols have been recommended to assure their accuracy.. Casual blood pressure on the other hand consisted of the relatively stable basal blood pressure and a variable supplemental blood pressure. More recently, there has been increased recognition of the prognostic and hypertension management value of home blood pressure and ambulatory blood pressure monitoring, including the importance of day/night blood pressure differences. At the beginning of the 19th century, hypertension was now seen as a risk factor in the USA, as the insurance industry provided early and consistent evidence for the clinical significance of higher blood pressures. Some companies began measuring systolic blood pressure in 1906. In 1911, a medical director of the Northwestern Mutual Life Insurance Company described the sphygmomanometer as an indispensable tool in life insurance examinations. Subsequently, thereafter, all progressive life insurance companies started blood pressure examinations of applicants for life insurance using the sphygmomanometer, though it was cumbersome using the type of sphygmomanometer at the time. As the technique for measuring blood pressures improved, increasing evidence for a blood pressure-mortality relationship became apparent, more companies began to require blood pressure measurements of insurance applicants. By 1918, companies were measuring systolic and diastolic blood pressures by auscultation, under somewhat standardized conditions, rather than simply systolic blood pressures by palpation .

Historically the treatment for hard pulse disease consisted in reducing the quantity of blood by the use of leeches. This was promoted by The Yellow Emperor of China, Cornelius Celsius, Galen, and Hippocrates. Between the late 19th and mid-20th centuries, varied therapies were used to treat hypertension but few were effective and were many a times poorly tolerated by the patients. Therapies used in that era included; strict sodium restriction sympathectomy (surgical ablation of parts of the sympathetic nervous system)(17)and pyrogenic therapy (injection of substances that causes sepsis with hyperpyrexia, indirectly reducing blood pressure). The first chemical for hypertension, sodium thiocyanate, was used in 1900 but had many side effects and was unpopular. Other treatments, such as barbiturates, bismuth, and bromides were mainly adjunct treatments rather than therapeutic. After the World War II, a popular and reasonably effective drug tetramethylammonium chloride and its derivative hexamethonium were in use. Later, still after the second world War hydralazine and reserpine were in use.(they are still in use today in some parts of the world, Cameroon inclusive*)* Accordingly, a major breakthrough was achieved in the 1950s with the discovery of well-tolerated oral diuretics, the first of which was chlorothiazide, It was first used in 1958 and presently still in use. A randomized controlled trial sponsored by the Veterans showed that the administration and comparing hydrochlorothiazide plus reserpine plus hydralazine versus placebo had to be stopped early because those not receiving treatment developed many more complications and it was deemed unethical to withhold treatment from

them. The study continued in people with lower blood pressures and showed that treatment, even in people with mild hypertension, reduced more than half the risk of cardiovascular deaths. In 1975, the Lasker Special Public Health Award (created by Albert and Mary Lasker in1945 that encouraged biological and clinical advances that improved human health) was awarded to the team that developed chlorothiazide.. The results of these studies prompted public health campaigns to increase public awareness of hypertension and promoted the measurement and treatment of high blood pressure. These measures seemed to have contributed at least in part to the observed 50% fall in stroke and ischemic heart disease between 1972 and 1994. Soon more drugs became available to treat hypertension. The British physician James W. Black developed beta blockers in the early 1960s. The next class of antihypertensive to be discovered was calcium channel blockers. The first member was verapamil, a derivative of papaverine that was initially thought to be a beta blocker and used for angina, but then turned out to have a different mode of action and was shown to lower blood pressure. The renin–angiotensin system was known to play an important role in blood pressure regulation, and angiotensin converting enzyme (ACE) inhibitors were developed through rational drug design. In 1977, captopril was described and this led to the development of a number of other ACE inhibitors. More recently, angiotensin receptor blockers and renin inhibitors have also been introduced as antihypertensive agents. Recent development sustained that home blood pressure readings can better predict cardio vascular risks and organ damage compared to one-time hospital in the consultation room readings.

Problem statement

Hypertension (high blood pressure) is a global health problem associated with increased risk of developing cardiovascular disease. The high prevalence of hypertension and inadequate BP control among known hypertensive individuals in rural Cameroon warrants greater sensitization and regular screening to reduce hypertension-related morbidity and mortality. It has been noted that high blood pressure (BP) is the leading preventable predisposing factor for cardiovascular disease (CVD), and hypertension ranks first as a cause of disability-adjusted life years worldwide. Suboptimal BP control and noncompliance to treatment protocols are the most common attributable risk factors for CVD and cerebrovascular disease, including haemorrhagic (58%) and ischemic (50%) stroke, ischemic heart disease (55%), and other forms of CVD (58%), including heart failure and peripheral arterial disease. In addition, hypertension is a leading cause of chronic kidney disease, kidney disease progression, and end-stage kidney disease, as well as dementia due to cerebral small vessel disease. Because of these constant challenges related to inability faced by hypertensive patients, having a care giver supporting them become more and more indispensable and recommendable, thus the need to understand their attitude and perception in order to help improve on their efficiency.

Aim

The study aimed at appraising attitude and perception of care givers in the care and follow up of hypertensive patients in Fako Division in the Southwest Region of Cameroon.

Rationale

Cameroon's hypertension prevalence is high and increasing whereas awareness, treatment and control are low and declining. Emerging patterns call urgently for effective campaigns to raise hypertension awareness alongside strategies for hypertension prevention and more friendly adaptable approach for care, treatment and follow up. African countries, including Cameroon, have no guidelines for the management of hypertension. Moreover, high blood pressure (BP) distribution and hypertension prevalence, awareness, treatment and control rates, how they vary over time countrywide and across population subgroups in Cameroon, have limited statistics. This study will help informing health policy while improving on the ability of care givers to assist in the care of hypertensive patients.

Significance of the study

Hypertension is a major public health hazard which can be prevented, treated or as a last resort be controlled. Although strides have been made for the past years, there is still need to improve on follow up care. It will be significant because of its high prevalence, increased risk of cardiovascular diseases and its numerous sequelae due to complexity of risk factors as well as more challenges in mitigating some risk factors. Promoting a friendly adaptable approach to follow up patients, try to understand reasons for the increasing non-compliance attitude, to enhance compliance and to intensify public awareness on prevalence, risk factors and causes and to take charge of their health and be more responsible is important in its management. A hypertensive crisis creates stressful periods that may need a highly skillful humanistic approach on health promotion to assist the patients to be more responsible health wise. A process of aggressive intensified awareness will be initiated as part of significant recommendations that will be made to care givers, patients, nurses and other

professionals involved in management and follow-up of hypertensive patients.

Scope of the study

Thematic scope

The study will appraise care givers' attitude and perception in the caring of hypertensive patients as to propose more contextualized and adaptable approaches. The study will then be centered on the main concept hypertensive patients and caring with respect to care givers' attitude and perception. These terms are well explained under the section 'Definition of key terms' below.

Geographical scope

Geographically, the work was limited to the Fako division, in the Southwest region of Cameroon. The main reason for the selection is the growing number of hypertensive patients in the region. This study was limited care givers of patients, and hypertensive patients and will not involve pregnant women even if they are hypertensive.

Time scope

As regards temporal delimitation time-period scope, the work is a cross sectional study that started in November 2023 and ended in October 2024.

Theoretical scope

Concerning the theoretical scope, the study was guided by the Health Belief Model (HBM), the Theory of Human caring and the Theory of Health Promotion Model .

Operational definition of key terms

Hypertensive: Having abnormally high blood pressure (hypertension). Hypertension is usually defined by the presence of a chronic elevation of systemic arterial pressure above a certain threshold value. However, increasing evidence indicates that the cardiovascular (CV) risk associated with elevation of blood pressure (BP) above approximately 115/75 mm Hg increases in a log-linear fashion. This aligns with WHO whereby hypertension, also known as high or raised blood pressure, is a condition in which the blood vessels have persistently raised pressure. Blood is carried from the heart to all parts of the body in the vessels. Each time the heart beats, it pumps blood into the vessels. Blood pressure is created by the force of blood pushing against the walls of blood vessels (arteries) as it is pumped by the heart. The higher the pressure, the harder the heart has to pump. Hypertension is a serious medical condition and can increase the risk of heart, brain, kidney and other diseases. It is a major cause of premature death worldwide, with upwards of 1 in 4 men and 1 in 5 women – over a billion people -– having the condition. The burden of hypertension is felt disproportionately in low- and middle-income countries, where two thirds of cases are found, largely due to increased risk factors in those populations in recent decades. CDC aligns with the two previous definitions as it opines that high blood pressure, also called hypertension, is blood pressure that is higher than normal. Your blood pressure changes throughout the day based on your activities. Having blood pressure measures consistently above normal may result in a diagnosis of high blood pressure (or hypertension). The higher your blood pressure levels, the more risk you have for other health problems, such as heart disease, heart attack, and stroke .

Patient: A patient is an individual awaiting or under medical care and treatment. This is in line with this other definition considering a patient as a person who is receiving medical care, or who is cared for by a particular doctor. This was reiterated as a patient is any recipient of health care services that are performed by healthcare professionals. The patient is most often ill or injured and in need of treatment by a physician, nurse, optometrist, dentist, veterinarian, or other health care provider .

Attitude: What is an attitude? Attitude is a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence on the individual's response to all objects and situations to which it is related. A simpler definition of attitude is a mindset or a tendency to act in a particular way due to both an individual's experience and temperament. Typically, when we refer to a person's attitudes, we are trying to explain his or her behavior. Attitudes are a complex combination of things we tend to call personality, beliefs, values, behaviors, and motivations. As an example, we understand when someone says, "She has a positive attitude toward work" versus "She has a poor work attitude." When we speak of someone's attitude, we are referring to the person's emotions and behaviors. A person's attitude toward preventive medicine encompasses his or her point of view about the topic (e.g., thought); how he or she feels about this topic (e.g., emotion), as well as the actions (e.g., behaviors) he or she engages in as a result of attitude to preventing health problems. This is the tri-component model of attitudes. An attitude includes three components: an affect (a feeling), cognition (a thought or belief), and behavior (an action). Attitudes help us define how we see situations, as well as define how we behave toward the situation or object. Since the publication of Thurstone's procedure for attitude assessment in 1929, employee surveys have been widely used in organizations to obtain information about workers' attitudes toward their

environments. This information is helpful for healthcare managers to determine if management is "doing the right things" for retaining and motivating employees. As an example, it was found that workers who rated their work environments as "healthy" (task content, pay, work hours, career prospects, interpersonal relationships, security) reported higher job satisfaction, morale, and organizational commitment and lower absenteeism and intent to quit. Employee attitude surveys are usually designed using 5-point Likerttype ("strongly agree–strongly disagree") or frequency ("never–very often") response formats .

Perception: Perception is closely related to attitudes. Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the world. In other words, a person is confronted with a situation or stimuli. The person interprets the stimuli into something meaningful to him or her based on prior experiences. However, what an individual interprets or perceives may be substantially different from reality. A person's awareness and acceptance of the stimuli play an important role in the perception process. Receptiveness to the stimuli is highly selective and may be limited by a person's existing beliefs, attitude, motivation, and personality. Individuals will select the stimuli that satisfy their immediate needs (perceptual vigilance) and may disregard stimuli that may cause psychological anxiety (perceptual defense).

Materials and methods

Research design

It was a hospital-based cross-sectional study that employed a concurrent nested mixed-method in a survey design whereby quantitative and qualitative approaches were used to collect data on different but complementary indicators. Data were collected using a semi-structured questionnaire which is a typical survey instrument. Survey consists essentially of collecting people's opinion on a given issue. The study is cross-sectional because it makes just an appraisal or snapshot of the current situation. The qualitative dimension of study was based on the open-ended questions from which textual data were generated while close-ended questions yielded the quantitative data.

Area of study

The study was carried in Cameroon, in Fako division of the Southwest region. Cameroon is a sub-Saharan central African country with over 28 million inhabitants and made up of ten regions. Fako Division lies at the foot of Mount Cameroon. It covers a surface area of 2093 km square and an average altitude of 2833 m with 534854 inhabitants, and the average yearly temperature is about 26.4°C around the coast area. In terms of health, the Southwest Region of Cameroon possesses a regional delegation of public health, training schools for medical and health staffs and health supply centers. The Southwest Region comprises 19 health districts as follows: Buea, Limbe, Ekondo Titi, Kumba, Mamfe, Mbonge, Ekondpo, Fontem, Eyumojock, Bakassi, Muyoka, Nguti, Mundemba, Tombel, Wabane, Konye, Tiko, Bangem and Akwaya. This study was carried out in the Limbe and Buea Health Districts. The two health districts solicited for our study gain their grounds on their accessibility, and their heavily populated state, much more important thanks to their relative calmness patterning the socio-political crisis in Northwest and Southwest regions.

Study setting

This hospital-based study was conducted among care givers sampled in 8 health facilities in both Limbe and Buea Health Districts.

Population of the study

All significant others (care givers) in the sampled hospitals during the study period. This also makes up the targeted and accessible population assuming that they were all accessible.

Sampling methods and sample size

Health facilities

Two hospitals were randomly selected; one public and one non-governmental from among all the hospitals in the 4 main subdivisions of Fako, making a total of 8 hospitals of secondary and or tertiary levels of health facilities. Cottage Hospital Tiko and Central Clinic Tiko (outpatient department of cottage hospital, though about 2 miles apart) is considered as the same health facility, thus jointly counted as one health facility, that is Cottage hospital Tiko.

Participants

All significant others in the hospital during the study period and involved in the care of hypertensive patients were sampled in the study.

Sampling method

Purposive, simple random and convenient sampling techniques were used while considering stratification for the type of hospital and level of health facility. Two hospitals were selected in each of the four health districts using simple random sampling approach, one public and one faith based making a total of 8 hospitals of secondary and or tertiary levels of health facilities (table 1). Thereafter, the purposive and convenience sampling were used to involve the nurses whereby all care givers were sampled as they consent.

Table 1: Sampled health facilities

Sub-division	Health facilities
Tiko (*share the same head quarter)	Cottage Hospital Tiko*
	District Hospital Tiko
	Central Clinic Tiko*
Buea	Buea Regional Hospital
	Mount Mary
Limbe	Presbytherian Health Center Limbe
	Regional Hospital Limbe
Mutengene	CMA Mutengene
	Regina Pacis

Instruments for data collection

Data were collected using a semi-structured questionnaire whereby close-ended questions were designed on a Likert-scale format.

Validity of the instruments and data validation

Validity of the instrument

A major concern in research is the validity of the procedures and conclusions. Nana (2018), Amin (2005) and Gay *et al*. (2000). Validity is the quality of a data gathering instrument or procedure that enables it to measure what it is supposed to measure. A valid research finding is one in which there is similarity between the reality that exists in the world and the research results. Content validity, construct validity, face validity, internal validity and external validity were given prime attention. Guba's model for trustworthiness addresses ways for warding off biases in the results of qualitative analysis. In this study, however, the model is used to develop strategies that would introduce standards of quality assurance in the processing and analysis of the data. The five strategies are identified in. This considers credibility, transferability, comparability, dependability and conformability. The pilot study was conducted in a health facility in Buea municipality that was excluded from real study. After the trial-testing phase, no issue was reported with the questionnaire. The reliability for the questionnaires ranged from 0.693 to 0.777, which was quite satisfactory. Generally, any reliability coefficient of 0.5 and above is acceptable as a satisfactory measure of reliability, but convincing ones should be 0.7 or more on its standard scale of 0-1. It was ascertained that the more heterogeneous a group is on the traits being measured or the greatest range of scores, the higher and more convincing the reliability. In this study, the sample was diversified in its demographic characteristics. Cronbach Alpha Reliability coefficient enabled the researcher to ascertain whether the internal consistency of the responses was satisfactory to an acceptable level (.

Data validation

Sample flow table

The return rate was 35.5% which was quite below the tolerated threshold of 80%. Excluded cases were essentially uncompleted questionnaire as nurses could be promptly kept busy (table 2).

Table 2: Sample flow table for significant others

SN	Name of health facility	Population / Targeted	Sample size	Administered	Returned	Excluded*	Validated	Return rate
1.	Regional hospital Buea.	77	60	35	28	5	23	29.9
2.	Regional Hospital Limbe	17	13	16	15	0	15	88.2
3.	District Hospital Tiko	22	16	14	13	6	7	31.8
4.	Cottage Hospital Tiko & Central clinic	40	32	13	10	9	1	2.5
5.	CMA Mutengene	15	12	9	9	0	9	60.0
6.	Regina Pacis	22	16	11	10	0	10	45.5
7.	Presbyterian Health centre, Limbe	22	16	12	8	8	0	0.0
8.	Mount Mary Hospital	15	12	12	12	0	12	80.0
Total		**230**	**177**	**110**	**105**	**28**	**77**	**33.5**

*Not completely filled, care taker declaring no more available to continue.

Reliability analysis

The internal consistency assumption was not violated for the two conceptual components including the IVM with very good reliability coefficient values ranging from 0.859 to 0.943. This therefore implies that the items on the questionnaire were understood and answered to a satisfactory level of objectivity. The variances were close to 0, ranging from 0.009 to 0.017, thus implying that we are more likely to be faced with skewed distributions, with care takers' viewpoints tilting more toward positive or negative views or perceptions. In the other sense, care takers are more likely to be homogenous in their perceptions of the study indicators (table 3).

Table 3: Reliability of the questionnaire

Conceptual components	Cronbach's Alpha reliability coefficient	Variance	N of Items	N of Cases
Perception of care as a care givers	0.859	0.009	13	77
Perception of care from the Nurses	0.943	0.014	9	77
Integrated Value Mapping (IVM)	0.916	0.017	22	77

Data collection process

Data were collected using the face-to-face approach while abiding to the necessary ethical considerations.

Ethical consideration

Ethical clearance

Ethical approval was obtained from the Faculty of Health Sciences Institutional Review Board of the University of Bamenda. An informed consent form was used and approved by each participant.

Administrative clearance

Administrative approval was obtained from the Regional Delegations for Public Health and from the administration of the sampled Hospitals.

Consent

The protection of human subjects through the application of appropriate ethical principles is important in any research study. The researcher ensured that the subjects were aware of the purpose of the research and the manner in which it would be conducted.

Participation in the research was voluntary, and withdrawal was possible at any time. Measures were taken to ensure confidentiality. Specific details or references which could easily lead a reader to deduce the identity of the participant were made more generic.

Data management and analysis

Data were entered using EpiData Version 3.1 (EpiData Association, Odense Denmark, 2008) and analyzed using the Statistical Package for Social Sciences (SPSS) Standard version, Release 21.0 (IBM Inc. 2012). These structured questions were analyzed using frequency, proportions and multiple-responses analysis to aggregate scores within conceptual component. Statistics were presented in tables and charts. Chi-Square test of independence and Binary Logistic Regression were used to depict significant and critical predictors of perception and attitude.

Findings

Socio-demographic information

Table 4 presents the demographic characteristics of care takers.

Level of education

The mode here was high school with proportion of 41.6% (32), followed by those that have attained secondary education 19.5% (15), those that have never been to school 16.9% (13), those that have attained University 14.3% (11), with the least represented been those with FSLC 7.8% (6). Cumulatively, majority (55.8%) of them have attained high school or higher, thus implying that care takers were relatively educated.

Sex

Care givers were dominantly female with a proportion of 70.1% (54), as compared to 29.9% (23) for the male.

Age

The mode age here was less than 21 years 40.3% (31) and the least represented age range Above 50 years 1.3% (1). Cumulatively, 75.3% were aged 35 years or less, which implies that care takers were relatively young.

Religion / Spirituality

Majority of care takers was Christians 58.4% (45), while the rest indicated other unspecified religions / spiritualties.

Health facility

Care takers were sampled in all the 7 sampled health facilities, namely Buea Regional Hospital 29.9% (23), Regional Hospital Limbe 19.5% (15), Mount Mary 15.6% (12), Regina Pacis 13.0% (10), CMA Mutengene 11.7% (9), District Hospital Tiko 9.1% (7), then Cottage Hospital Tiko 1.3% (1).

Relationship with the hypertensive patients

Significant others are not health personnel but individuals that assist patients in their daily care like hygiene, feeding, drug administration, drug purcahsing and other accommodations. As for the relationship with patients, the top five were sister 16.9% (13), father 11.7% (9), grandfather 10.4% (8), having the same proportion with mother, brother 9.1% (70, then husband 7.8% (6). Others were wife, uncle, cousin, neighbor, aunt, step father, distant relative, friend, good samaritan, fiancée, step mother, son / daughter and father in-law.

Table 4: Demographic characteristics of care takers

Level of education	n	%
No formal education	13	16.9
FSLC	6	7.8
Secondary education	15	19.5
High school	32	41.6
University	11	14.3
Sex	**n**	**%**
Male	23	29.9
Female	54	70.1
Age	**n**	**%**
Less than 21	31	40.3
Above 21 years to 25 years	12	15.6
Above 25 to 30 years	8	10.4
Above 30 to 35 years	7	9.1
Above 35 to 40 year	4	5.2
Above 40 to 45 years	12	15.6
Above 45 to 50 years	2	2.6
Above 50 years	1	1.3
Religion/Spirituality	**n**	**%**
Christian	45	58.4
Others	32	41.6
Health facility	n	%
Buea Regional Hospital	23	29.9
Regional Hospital Limbe	15	19.5
Mount Mary	12	15.6
Regina Pacis	10	13
CMA Mutengene	9	11.7
District Hospital Tiko	7	9.1
Cottage Hospital Tiko	1	1.3
Category of health facility	**n**	**%**
Public	46	59.7
female	31	40.3
Relationship with patients	**n**	**%**
Sister	13	16.9
Father	9	11.7
Grandparent	8	10.4
Mother	8	10.4
Brother	7	9.1
Husband	6	7.8

Wife	5	6.5
Uncle	5	6.5
Cousin	3	3.9
Neighbor	2	2.6
Aunt	2	2.6
Step father	2	2.6
Distant relative	1	1.3
Friend	1	1.3
Good Samaritan	1	1.3
Fiancée	1	1.3
Step mother	1	1.3
Son/Daughter	1	1.3
Father in-law	1	1.3

Perception of care as a significant other

As for the facilitators, they help their loved one to eat according to medical advice for hypertensive patients 53.2% (41), and reminding their patients to take their medication on time 51.9% (40).

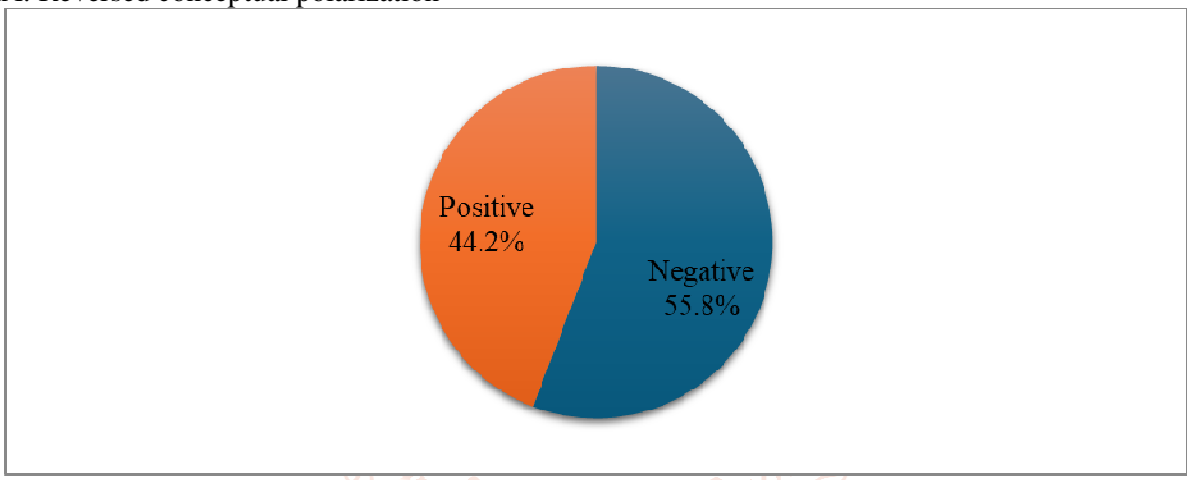
As for the hindering factors, they mostly did not cherished the starting of a reminder system 76.6% (59), stress 74.0% (57), followed by the 64.9% (50) that did not set a reminder to get their loved one's blood pressure checked-at home, at the doctor's office, or at a pharmacy, those that did not believe that taking care of their own emotional health and physical needs helps them take care of their loved one 62.3% (48), then comes those that did not focus on more fresh fruit, vegetables, and whole grains and fewer prepared foods that have high sodium, cholesterol, saturated fat, and trans fat 61.0% (47), having the same proportion with those that will not help loves one quit smoking if a smoker, those that will not help cook healthy and tasty meals at home more often 58.4% (45), followed by depression and frustration 53.2% (41), the perception that it is difficult for me since I have to carry out my own activities 44.2% (34), then anxiety 41.6% (32), as presented on table 52.

Table 5: Perception of care as a significant other (care giver)

Items	Disagreed	Strongly disagreed	Agreed	Strongly agreed	Disagree and strongly disagree	Agree and Strongly agree
Stress *	26.0% (20)	74.0% (57)	0.0% (0)	0.0% (0)	26.0% (20)	74.0% (57)
Anxiety*	58.4% (45)	40.3% (31)	0.0% (0)	1.3% (1)	58.4% (45)	41.6% (32)
Depression and frustration*	46.8% (36)	0.0% (0)	51.9% (40)	1.3% (1)	46.8% (36)	53.2% (41)
Taking care of your own emotional health and physical needs helps you take care of your loved one.	62.3% (48)	0.0% (0)	36.4% (28)	1.3% (1)	62.3% (48)	37.7% (29)
I sometimes shout at the nurses and or at the patient*	66.2% (51)	0.0% (0)	32.5% (25)	1.3% (1)	66.2% (51)	33.8% (26)
Start a reminder system.	76.6% (59)	0.0% (0)	22.1% (17)	1.3% (1)	76.6% (59)	23.4% (18)
Set a reminder to get your loved one's blood pressure checked-at home, at the doctor's office, or at a pharmacy.	64.9% (50)	0.0% (0)	33.8% (26)	1.3% (1)	64.9% (50)	35.1% (37)
Remind him or her to take her medication on time	48.1% (37)	0.0% (0)	50.6% (39)	1.3% (1)	48.1% (37)	51.9% (40)
Help your loved one to eat according to medical advice for hypertensive patients	46.8% (36)	0.0% (0)	51.9% (40)	1.3% (1)	46.8% (36)	53.2% (41)

Focus on more fresh fruit, vegetables, and whole grains and fewer prepared foods that have high sodium, cholesterol, saturated fat, and trans fat.	61.0% (47)	0.0% (0)	37.7% (29)	1.3% (1)	61.0% (47)	39.0% (30)
Help cook healthy, tasty meals at home more often.	58.4% (45)	0.0% (0)	40.3% (31)	1.3% (1)	58.4% (45)	41.6% (32)
It is difficult for me since I have to carry out my own activities*	55.8% (43)	0.0% (0)	42.9% (33)	1.3% (1)	55.8% (43)	44.2% (34)
If your loved one smokes, you help him or her to quit.	61.0% (47)	0.0% (0)	37.7% (29)	1.3% (1)	61.0% (47)	39.0% (30)
					Negative	Positive
MRS	37.3% (373)	18.6% (186)	23.9% (239)	20.3% (203)	55.8% (559)	44.2% (442)

*MRA: Reversed conceptual polarization



N=77

Figure 1: Significant other's perception of care as a care giver

In summary, a weak majority of caregivers had a negative perception about their caring of their hypertensive patients (55.8%), thus implying that caring for the hypertensive patients was relatively challenging (figure 1).

Association between socio-demographic characteristics and care givers perception of care as a care giver

Care givers perception of care as a care giver was significantly dependent (P<0.05) of age and category of health facility. The most aged were significantly the most positive, while those of the public health facilities were significantly more positive (table 6).

Age and category of health facility still surfaced as significant predictors of Care givers' perception of care as a care giver (P<0.05) while age was a critical one (P<0.05; OR > 1 and LB of OR > 1), as presented on table 7.

Table 6: Association between socio-demographic characteristics and care givers perception of care as a care giver

Socio-demographic information	Categories	Stats	Care givers perception of care as a care giver		Counts	χ2-test
			Negative (Hindrance)	Positive (Facilitator)		
Relationship with patients	Husband	n	36	42	78	χ2=0.985 P=0.321
		%	46.2%	53.8%		
	Wife	n	33	32	65	
		%	50.8%	49.2%		
	Brother	n	63	28	91	
		%	69.2%	30.8%		

	Sister	n	81	88	169	
		%	47.9%	52.1%		
	Cousin	n	25	14	39	
		%	64.1%	35.9%		
	Grandparent	n	64	40	104	
		%	61.5%	38.5%		
	Distant relative	n	9	4	13	
		%	69.2%	30.8%		
	Neighbor	n	18	8	26	
		%	69.2%	30.8%		
	Friend	n	5	8	13	
		%	38.5%	61.5%		
	Good Samaritan	n	9	4	13	
		%	69.2%	30.8%		
	Mother	n	64	40	104	
		%	61.5%	38.5%		
	Father	n	65	52	117	
		%	55.6%	44.4%		
	Fiancée	n	6	7	13	
		%	46.2%	53.8%		
	Uncle	n	37	28	65	
		%	56.9%	43.1%		
	Aunt	n	12	14	26	
		%	46.2%	53.8%		
	Step mother	n	8	5	13	
		%	61.5%	38.5%		
	Step father	n	12	14		
		%	46.2%	53.8%		
	Son / Daughter	n	7	6	13	
		%	53.8%	46.2%		
	Father in-law	n	5	8	13	
		%	38.5%	61.5%		
Level of education	No formal education	n	99	70	169	
		%	58.6%	41.4%		
	FSLC	n	48	30	78	
		%	61.5%	38.5%		
	Secondary education	n	108	87	195	$\chi2=0.974$ P=0.324
		%	55.4%	44.6%		
	High school	n	215	201	416	
		%	51.7%	48.3%		
	University	n	89	54	143	
		%	62.2%	37.8%		
Sex	Male	n	166	133	299	
		%	55.5%	44.5%		$\chi2=0.223$ P=0.637
	Female	n	393	309	702	
		%	56.0%	44.0%		
Age	Lower through 30	n	378	285	663	
		%	57.0%	43.0%		
	Above 30 to 45	n	165	134	299	$\chi2=4.052$ P=0.044
		%	55.2%	44.8%		
	Above 45	n	16	23	39	
		%	41.0%	59.0%		

Religion / Spirituality	Christian	n	315	270	585	$\chi2$=0.569 P=0.452
		%	53.8%	46.2%		
	Others	n	244	172	416	
		%	58.7%	41.3%		
Category of health facility	Public	n	319	279	598	$\chi2$=3.643 P=0.048
		%	53.3%	46.7%		
	Private	n	240	163	403	
		%	59.6%	40.4%		

Table 7: Binary Logistic Regression depicting Wald statistic with the significant and critical predictors of Care givers perception of care as a care giver, controlled for each other's

Predictors	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Relationship with the hypertensive patient	-.048	.054	.811	1	.368	.953	.858	1.058
Level of education	.293	.217	1.822	1	.177	1.341	.876	2.053
Sex	-.312	.567	.303	1	.582	.732	.241	2.225
Age	1.037	.519	3.996	1	.046	2.820	1.020	7.796
Religion/Spirituality	-.210	.272	.600	1	.439	.810	.476	1.380
Category of health facility	-1.046	.522	4.010	1	.045	.351	.126	.978

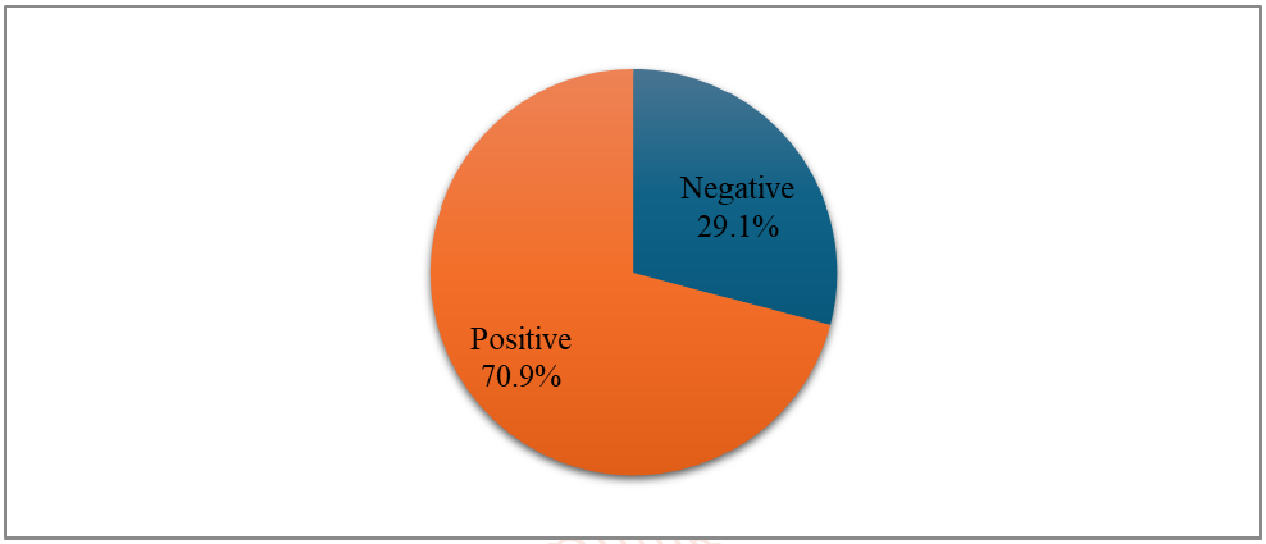
Significant others' perception of care from the nurses

As presented on table 8, care givers mostly agreed that it is quality care/good care with a proportion 79.2% (61), having the same proportion with those that agreed that the nurses help them to care for the patient. Then came those that thought the hospital could still improve on the care 76.6% (59), that their privacy and that of their patients was ensured 72.7% (56), those that agreed that they and their patients were treated with dignity and respect 71.4% (55), having the same proportion with those that though that it is important for family members to participate in patient care, then followed those that were satisfied with communication with nurses 68.8% (53), those that though it was important for them to be in that health centre, then those that were satisfied more by the care 57.1%(44).

Table 8: Care givers' perception of care from the Nurses

Items	Disagreed	Strongly disagreed	Agreed	Strongly agreed	Disagree and strongly disagree	Agree and Strongly agree
Do you think it is quality care/good care?	20.8% (16)	0.0% (0)	79.2% (61)	0.0% (0)	20.8% (16)	79.2% (61)
Do the nurses help you to care for the patient?	20.8% (16)	0.0% (0)	79.2% (61)	0.0% (0)	20.8% (16)	79.2% (61)
Do you think the hospital can still improve on the care?	23.4% (18)	0.0% (0)	76.6% (59)	0.0% (0)	23.4% (18)	76.6% (59)
Was privacy of you and your patient ensured	27.3% (21)	0.0% (0)	72.7% (56)	0.0% (0)	27.3% (21)	72.7% (56)
Were you or your patient treated with dignity and respect	28.6% (22)	0.0% (0)	71.4% (55)	0.0% (0)	28.6% (22)	71.4% (55)
Do you think it is important for you to be here or you would have had someone else be here with your patient?	39.0% (30)	0.0% (0)	61.0% (47)	0.0% (0)	39.0% (30)	61.0% (47)
Do you think it is important for family members to participate in patient care	28.6% (22)	0.0% (0)	71.4% (55)	0.0% (0)	28.6% (22)	71.4% (55)
Does the nurses communicates with you well	31.2% (24)	0.0% (0)	68.8% (53)	0.0% (0)	31.2% (24)	68.8% (53)
Were you satisfied more by the care or by the information given to you	42.9% (33)	0.0% (0)	57.1% (44)	0.0% (0)	42.9% (33)	57.1% (44)

					Negative perception	Positive perception
MRS	29.1% (202)	0.0% (0)	70.9% (491)	0.0% (0)	29.1% (202)	70.9% (491)



N=77

Figure 2: Care givers' perception of care from the nurses

Care givers in their strong majority were positive about care from the nurses with a proportion weight of 70.9% (figure 2).

Association between socio-demographic characteristics and care givers perception of care from nurses care givers perception of care from nurses was only significantly dependent of category of health facility (P=0.000), whereby those from public health facilities had significantly more positive perceptions (88.2%) as compared to those from their private counterpart (45.2%), as presented on table 9; only category of health facility still surfaced as significant predictor of care givers' perception of care from nurses (P<0.05), after controlling for other predictors, as presented on table 10.

Table 9: Association between socio-demographic characteristics and care givers perception of care from nurses

Socio-demographic information	Categories	Stats	Care givers perception of care from nurses		Counts	χ2-test
			Negative (Hindrance)	Positive (Facilitator)		
Relationship with patients	Husband	n	21	33	54	χ2=0.432 P=0.511
		%	38.9%	61.1%		
	Wife	n	10	35	45	
		%	22.2%	77.8%		
	Brother	n	19	44	63	
		%	30.2%	69.8%		
	Sister	n	18	99	117	
		%	15.4%	84.6%		
	Cousin	n	0	27	27	
		%	0.0%	100.0%		
	Grandparent	n	34	38	72	
		%	47.2%	52.8%		
	Distant relative	n	9	0	9	
		%	100.0%	0.0%		
	Neighbor	n	5	13	18	
		%	27.8%	72.2%		
	Friend	n	0	9	9	
		%	0.0%	100.0%		

	Good Samaritan	n	9	0	9	
		%	100.0%	0.0%		
	Mother	n	17	55	72	
		%	23.6%	76.4%		
	Father	n	19	62	81	
		%	23.5%	76.5%		
	Fiancée	n	0	9	9	
		%	0.0%	100.0%		
	Uncle	n	12	33	45	
		%	26.7%	73.3%		
	Aunt	n	9	9	18	
		%	50.0%	50.0%		
	Step mother	n	9	0	9	
		%	100.0%	0.0%		
	Step father	n	10	8	18	
		%	55.6%	44.4%		
	Son / Daughter	n	1	8	9	
		%	11.1%	88.9%		
	Father in-law	n	0	9	9	
		%	0.0%	100.0%		
Level of education	No formal education	n	32	85	117	$\chi2=1.547$ P=0.214
		%	27.4%	72.6%		
	FSLC	n	31	23	54	
		%	57.4%	42.6%		
	Secondary education	n	37	98	135	
		%	27.4%	72.6%		
	High school	n	93	195	288	
		%	32.3%	67.7%		
	University	n	9	90	99	
		%	9.1%	90.9%		
Sex	Male	n	70	137	207	$\chi2=0.074$ P=0.785
		%	33.8%	66.2%		
	Female	n	132	354	486	
		%	27.2%	72.8%		
Age	Lower through 30	n	137	322	459	$\chi2=0.554$ P=.457
		%	29.8%	70.2%		
	Above 30 to 45	n	61	146	207	
		%	29.5%	70.5%		
	Above 45	n	4	23	27	
		%	14.8%	85.2%		
Religion / Spirituality	Christian	n	121	284	405	$\chi2=0.515$ P=0.473
		%	29.9%	70.1%		
	Others	n	81	207	288	
		%	28.1%	71.9%		
Category of health facility	Public	n	49	365	414	$\chi2=13.623$ P=0.000
		%	11.8%	88.2%		
	Private	n	153	126	279	
		%	54.8%	45.2%		

Table 10: Binary Logistic Regression depicting Wald statistic with the significant and critical predictors of care givers perception of care from nurses, controlled for each other's

Predictors	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Relationship with the hypertensive patient	.011	.055	.040	1	.841	1.011	.908	1.126
Level of education	.423	.230	3.395	1	.065	1.527	.973	2.395
Sex	.164	.606	.073	1	.787	1.178	.359	3.863
Age	-.513	.520	.975	1	.323	.598	.216	1.658
Religion/Spirituality	.356	.297	1.439	1	.230	1.427	.798	2.553
Category of health facility	-2.061	.567	13.199	1	.000	.127	.042	.387

Significants' perceptions about the care given to their patients

Care givers in their majority perceived care given to their patient as good 53.2% (41). They gave several reasons as depicted by these quotations (*"Good because I am seeing the improvement and care given to the patient"; "The care is good and educative"*). Care giver however expected improvement as emphasized by one of them *"It was good though they can improve on it"* (table 11).

Some perceived the care as excellent 16.9% (13) (*"Excellence"; "Competent care"; "It was very good"; "It is 85% because no matter most of the drugs given by the nurses it is slow making the carer to be frustrated"; "It was awesome though at times I have to shout before the nurses can do their job"*), fair for 18.2% (14) (*"Fair"; "The care was moderate"; "Can be better"; "Not too bad and can be better"; "The care was not bad because some of the nurses show care"*), while 1 of them said it was poor (*"Too poor"*). Few of them were neutral, that is they refused to take stance 10.4% (8), as depicted by table 11.

Table 11: Thematic analysis depicting what significant others / care givers think about the care given to their patient

Code	Code description	Grounding		Quotation
		n	%	
Good	Care given to patient by nurses perceived satisfactory	41	53.2	*"Good because I am seeing the improvement and care given to the patient"* *"It was of good quality"* *"The care was good"* *"Good nursing care"* *"It was good standard"* *"The care is good and educative"; "It was good and satisfying"; "It was good though they can improve on it"*
Fair	Care given to patient by nurses perceived fairly satisfactory	14	18.2	*"Fair"; "The care was moderate"; "Can be better"* *"Not too bad and can be better"* *"The care was not bad because some of the nurses show care"*
Excellent	Care given to patient by nurses perceived excellent	13	16.9	*"Excellence"; "Competent care"; "It was very good"* *"It is 85% because no matter most of the drugs given by the nurses it is slow making the carer to be frustrated"* *"It was awesome though at times I have to shout before the nurses can do their job"* *"Actually the nurses did their job well and won't hesitate to rush to them I need arises"*
Poor	Care given to patient by nurses perceived poor	1	1.3	*"Too poor"*
Neutral		8	10.4	*"Don't know"*

N=77

Suggestions from care givers to improve on the care of hypertensive patients

Suggestions from care givers to improve on the care of hypertensive patients ranged from: Proper communication to patients and care givers about the diagnosis treatment plan, importance of medication, give room to care givers to explain patient's problems; good relationship with patients (*"Nurse-to-patient relationship"; "Comfort the*

patient and giving them assistance"; "Communication"; "Explain diagnosis and lab investigation to patients and care-givers"; "The nurses should explain to patients and care givers about their diagnostic, treatment plan and discharge follow-up"; "The nurse need to communicate most often with the patient so as to ensure the patient takes the medication"); educating care givers and patients on how to use the blob pressure machine, caring for patients; proper counseling (*"Educating my patient and I on how to use the blood pressure machine"; "Nurses should be advising on caring of patients"*); duty consciousness as nurses / health care providers are expected to be more passionate; upgrading hospital facilities; in-service training to update nurses' knowledge; adding nurses; adding medical doctors; upgrading program or improving on hypertension program; proper diagnosis; getting feedback from patients and care givers and getting feedback from nurses. A good number of them did not know what to advice, had no idea (table 12).

Table 12: Thematic analysis depicting significant others / care givers think can be done to improve care

Code	Code description	Grounding		Quotation
		n	%	
Communication / relationship	Proper communication to patients and care givers about the diagnosis, treatment plan, importance of medication, give room to care givers to explain patient's problem. Good relationship with patients	28	36.4	*"Proper communication to patients and carers"* *"Nurse-to-patient relationship"* *"Comfort the patient and giving them assistance"* *"Communication"* *"Explain diagnosis and lab investigation to patients and care-givers"* *"The nurses should explain to patients and care givers about their diagnostic, treatment plan and discharge follow-up"* *"The nurse need to communicate most often with the patient so as to ensure the patient takes the medication"; "Sessions should be made to communicate diagnosis of patient"* *"The nurses have to explain about the importance of medications to patients"* *"Allow patient carers to explain the patient problem during rounds and consultation"* *"To put more effort to their patients' love, more of flattering to their patients, manners of approach"*
Don't know	Don't know what to advice	10	7.8	*"I don't know"* *"No idea"*
Education / Counseling	Educating care givers and patients on how to use the blood pressure machine, caring for patients; proper counseling	9	11.7	*"Educating my patient and I on how to use the blood pressure machine"* *"Nurses should be advising on caring of patients"* *"Give health talk to the patient"* *"Proper counseling"* *"Pre-counseling based on health disease"*
Duty consciousness	Duty consciousness as nurses / health care providers are expected to be more passionate	9	11.7	*"Nurses should be more passionate"* *"Nurses should become more apathetic and passionate about what they do"* *"Health care providers should be more passionate"* *"Continue with good care, respect and love given to patients"* *"To always take care and pet them"* *"The nurses are expected to frequently check on their patients"*

Upgrading facilities	Upgrading hospital facilities	5	13.0	*"Some of the equipment are worn out which need replacement like the bedside screen etc."* *The hospitals need linens, drip stands, Bed sheets, beds, cupboards and any other thing that one will like to donate to the health facility"* *"More toilets and bathrooms should be added"* *"More mosquito nets to be placed on beds"*
In-service training	In-service training to update nurses' knowledge	4	5.2	*"Training nurses on new programs and updates in nursing"* *"Develop communication skills"*
Nurses	Adding nurses	3	3.9	*"Increase number of nurses"* *"More nurses should be employed"*
Medical doctors	Adding medical doctors	2	2.6	*"By adding the number of ward doctors"* *"The care was good but what was lacking is adding doctors, they have just few medical doctors*
Upgrading program	Upgrading program or improving on hypertension program	2	2.6	*"Upgrading program"* *"Proper orientation"*
Proper diagnosis	Proper diagnosis	2	2.6	*"To rightfully check the patient before doing a procedure"* *"By doing BP control weekly"*
Feedback from clients	Getting feedback from patients and care givers	1	1.3	*"To collect information like what we are doing now"*
Feedback from nurses	Getting feedback from nurses	1	1.3	*"Seek the attention and ideas of nurses from various units on what they think can help"*

N=77

Discussion

Perception of care as a care giver

A weak majority of caregivers had a negative perception about their caring of their hypertensive patients, thus implying that caring for the hypertensive patients was relatively challenging though their importance was acknowledged. Caregivers of hypertensive patients play a significant role in ensuring adequate patient care and lowering the risk of hypertension-related complications. Caregivers were earlier perceived as ideal study subjects for identifying gaps in hypertension management.

As for the facilitators, they help their loved one to eat according to medical advice for hypertensive patients, and reminding their patients to take their medication on time.

As for the hindering factors, they mostly did not cherished the starting of a reminder system, stress 7, followed by the that did not set a reminder to get your loved one's blood pressure checked-at home, at the doctor's office, or at a pharmacy, those that did not believe that taking care of their own emotional health and physical needs helps them take care of their loved one, then comes those that did not focus on more fresh fruit, vegetables, and whole grains and fewer prepared foods that have high sodium, cholesterol, saturated fat, and trans fat, having the same proportion with those that will not help loves one quit smoking if he smokes, those that will not help cook healthy and tasty meals at home more often, followed by depression and frustration, the perception that it is difficult for me since I have to carry out my own activities, then anxiety.

Care givers perception of care as a care giver was significantly dependent of age and category of health facility. The most aged age range was significantly the most positive, while those of the public health facilities were significantly more positive. Age and category of health facility still surfaced as significant predictors of care givers perception of care as a care giver while age was a critical one. Other studies also revealed association between care givers background information and attitude and practices towards hypertension. Caregivers' education, history of hypertension, residence, age, relationship with the patient, occupation, and caregiving duration were significantly associated with the KAP scores. In

addition, factors such as relationship with the patient, age, educational status, occupation, residence, and caregiving duration/day had significant correlations with all types of burden. Findings of this study equally suggest the necessity for awareness programs for the caregivers of hypertensive patients to diminish the gap in their KAP and improve their mental and physical health.

Care givers' perception of care from the Nurses

Care givers in their majority were positive about care from the nurses and quantitative and qualitative findings corroborated on this. Care givers mostly agreed that it is quality care / good care, having the same trend with those that agreed that the nurses help them to care for the patient. Then came those that thought the hospital could still improve on the care, that their privacy and that of their patient was ensured, those that agreed that they and their patients were treated with dignity and respect, those that though that it is important for family members to participate in patient care, then followed those that were satisfied with communication with nurses, those that though it was important for them to be in that health center, then those that were satisfied more by the care. Qualitative findings further highlighted the need for educating care givers and patients on how to use the blood pressure machine, caring for patients; proper counseling.

Care givers perception of care from nurses was only significantly dependent of category of health facility, whereby those from public health facilities had significantly more positive perceptions as compared to those from their private counterpart. Only category of health facility still surfaced as significant predictor of care givers perception of care from nurses, after controlling for other predictors. Other authors also realized associations between care givers' perception of care and demographic factors.

The findings of this study revealed poverty, high cost of hypertension management as major barriers to compliance to treatment and outcome of treatment. Conscious of the fact non-communicable diseases like hypertension and diabetes require long-term management, and are financially draining for patients and their families bearing the treatment costs, especially in settings where the inadequacy or non-existence of the health insurance system prevails. Patient empowerment-focused interventions have been shown to improve adherence to therapeutic regimens and decrease unnecessary health care utilization and costs. This justifies the study aims to examine enabling and impeding factors to the development of patient empowerment in a resource-limited setting like Cameroon. The need to empower and capacitate patients and care givers as to enhance self-care was highlighted in this study context. Other authors shared this perspectives as it was earlier argued that the preponderance of individual-level factors linked to patient empowerment more than those at the central and hospital / organizational levels calls for due attention to them in the multilevel design and implementation of patient empowerment interventions in resource-limited settings like Cameroon. Accounting for patient's and families' perspectives and opinions may be key to improving healthcare delivery, and effective communication strategies and patient-centered counseling can be employed as a means to improve treatment (48).

Conclusion

Constant rise in the number of hypertensive patients in the study area poses increased burden not only on the health system but on patients themselves, their significant others and their entire families thus requiring constant adjustment in term of supportive care and finances. Considering the constant challenges of inability faced by hypertensive patients, the need to have moral and psychological support having significant others supporting them become more and more recommendable. Though most care givers had a positive attitude toward nurses as they acknowledged the quality of nursing care and nurses' interaction with them, they were not quite confident of their own ability and conditions in caring for hypertensive patients. Care givers mostly complained of stress, anxiety, depression and frustration due to challenges posed by hypertensive patients, work load as they have to cope with their traditional duty before caring for the patients, then the challenge in feeding them adequately and providing financial assistance and foregone opportunity. The aged ones were more patient thus their higher positive attitude.

Recommendation

Based on the findings of this study, the following were recommended:

1. Sustaining the positive interaction between care givers and nurses.
2. Capacitating care giver on the feeding of hypertensive patients.
3. Counseling care givers alongside patients and families on how to cope with the challenges posed by the care of hypertensive patients.
4. Counseling families for better organization of the care of their hypertensive patients such that the load shall not weight too much on a member who might find one's traditional occupation or activity jeopardized.

References

[1] Sawicka, K, et al.. Hypertension – The Silent Killer. Pre Clin Clin Res., 2011, Vol. 5, pp. 43-46.

[2] Kotchen, T.A. Historical trends and milestones in hypertension research: A model of the process of translational research. Hypertension, 2011, Vol. 58, pp. 522–538.

[3] McAlister FA, Wilkins K, Joffres M, Leenen FHH, Fodor G, Gee M, et al. Changes in the rates of awareness, treatment and control of hypertension in Canada over the past two decades. C Can Med Assoc J., 2011, Vol. 183, pp. 1007–1013.

[4] Newman, J.H. Pulmonary hypertension. Am J Respir Crit Care Med., 2005, Vol. 172, pp. 1072–1077.

[5] Ogah, O.S. and Rayner, B.L. Recent advances in hypertension in sub-Saharan Africa. Heart., 2013, Vol. 99, pp. 1390–1397.

[6] Klatsky, A.L. Alcohol and cardiovascular diseases: Where do we stand today? J Intern Med., 2015, Vol. 278, pp. 238-250.

[7] O'Rourke, M.F. and Nichols, W.W. 4 Suppli, Aortic diameter, aortic stiffness, and wave reflection increase with age and isolated systolic hypertension. 2005;45(4 Suppl.). Hypertension, 2005, Vol. 45, pp. 652–658.

[8] Lin, H.J. and Guo, X. and Rotter, J.I. The genetics of blood pressure regulation. Seventh Edition. Emery and Rimoin's Principles and Practice of Medical Genetics and Genomics: Cardiovascular, Respiratory, and Gastrointestinal Disorders. Elsevier, 2019.

[9] Ghosh, S.K. and Priya, A. and Narayan, R.K. Evolution of the fabric of cardiovascular science: Saga of an enduring process of refinement. Ann Cardiol Angeiol (Paris), 2021, Vol. 70, pp. 2020-2030.

[10] Franklin, D. Roosevelt. A silent enemy and the course of history. Neurosciences and History, 2017, Vol. 5, pp. 128-135.

[11] Darabont, R.O. Arterial hypertension – the timeline of a concept. J Hypertens Res, 2022, Vol. 8, pp. 9-13.

[12] Yao, A. and Wilson, J.A. and Ball, S.L.: Autonomic nervous system dysfunction and sinonasal symptoms. Allergy Rhinol., 2018, Vol. 9.

[13] H.E. and Wagner, F.A. Improving the health of African Americans in the USA: An overdue opportunity for social justice. Noonan, A.S. and Velasco-Mondragon, Public Health Rev, 2016, Vol. 37, pp. 1–20.

[14] Qureshi, N.A., et al. History of cupping (Hijama): a narrative review of literature. 2017;15(3):1. J Integr Med [Internet], 2017, Vol. 15, pp. 172–181.

[15] Sarafidis, P.A., et al. Hypertension in dialysis patients: A consensus document by the European Renal and Cardiovascular Medicine (EURECA-m) working group of the European Renal Association-European Dialysis and Transplant Association (ERA-EDTA) and the ESH. Nephrol Dial Transplant, 2017, Vol. 32, pp. 620–640.

[16] Herring, N. and Kalla, M. and Paterson, D.J. The autonomic nervous system and cardiac arrhythmias: current concepts and emerging therapies. Nat Rev Cardiol., 2019, Vols. http://dx.doi.org/10.1038/s41569-019-0221-2.

[17] Schutte, A.E., et al. Addressing global disparities in blood pressure control: perspectives of the International Society of Hypertension. Cardiovasc Res, 2022, Vol. 119, pp. 381–409.

[18] Chow, C.K., et al. Initial treatment with a single pill containing quadruple combination of quarter doses of blood pressure medicines versus standard dose monotherapy in patients with hypertension. Lancet, 2021, Vol. 398, pp. 1043–1052.

[19] Mary Woodard Lasker. Wallace, L.G. Catalyst for the National Cancer Act: Concord Rev., 2016, Vol. 27, pp. 203–251.

[20] Mensah, G.A., et al. :Decline in Cardiovascular Mortality: Possible Causes and Implications. Circ Res., 2017, Vol. 120, pp. 366–380. .

[21] Tarkang, E.E. and Zotor, F.B. Application of the Health Belief Model (HBM) in HIV Prevention: A Literature Review. Sci Publ Gr, 2015, Vol. 1, pp. 1-8.

[22] Application of Bandura's social cognitive theory in the technology enhanced, blended learning environment. Devi, B. and Khandelwal, B. and Das, M. 1, s.l. : Int J Appl Res, 2017, Vol. 3, pp. 721–724.

[23] Devi, B. and Khandelwal, B. and Das, M. Application of Bandura's social cognitive theory in the technology enhanced, blended learning environment. Int J Appl Res, 2017, Vol. 3, pp. 721–724.

[24] Thomas, D. Giles, Barry, J. Materson and Jay, N. Cohn and John, B. Kostis. Definition and Classification of Hypertension: An Update. J Clin Hypertens (Greenwich), 2009, Vol. 11, pp. 611–614.

[25] WHO. Hypertension. [Online] World Health Organization (WHO), 03 20, 2024. [Cited: 03 20, 2024.] https://www.who.int/health-topics/hypertension#tab=tab_1.

[26] CDC. High Blood Pressure Symptoms and Causes. [Online] Center for Disease Control and Prevention, 5 18, 2021. [Cited: 3 20, 2024.] https://www.cdc.gov/bloodpressure/about.htm.

[27] Merriam-Webstar. Dictionnary. [Online] Merriam-Webstar, 3 18, 2024. [Cited: 3 20, 2024.] https://www.merriam-webster.com/dictionary/patient.

[28] Cambridge, Dictionnary. Patient. [Online] Cambridge Dictionnary, 3 20, 2024. [Cited: 3 20, 2024.]

[29] Wikipedia. Patient. [Online] Wikipedia, 1 11, 2024. [Cited: 3 20, 2024.]

[30] Allport, D. A. Selection for action: Some behavioral and neurophysiological considerations of attention and action. s.l. : In H. Heuer & F. Sanders (Eds.), Perspectives on perception and action. Hillsdale, NJ: Erlbaum, 1987.

[31] Thurstone, L. L., & Chave E. J. The measurement of attitude. Chicago : University of Chicago Press., 1929.

[32] Lowe, G., Schellenberg, G., & Shannon, H. Correlates of employees' perceptions of a healthy work environment. American Journal of Health Promotion, 2003, Vol. 17, pp. 390–399.

[33] Lindsay, P., & Norman, D. A. Human information processing: An introduction to psychology. Harcourt Brace Jovanovich, Inc.

[34] Assael, H. Consumer behavior & marketing action (5th ed.). London: PWS-Kent Publishing Company, 1995.

[35] Nana, C. Research Methods and Applied Statistics: Beginners and Advanced Learners. 3. Buea : Gooahead, 2018.

[36] CVUC. Commune et ville Unies du Cameroon (CVUC) /United Councils and Cities of Cameroon. [Online] 2019. http://cvuc.cm/national/index.php/fr/carte-communale/region-du-sud/142-association/carte-administrative/sud-ouest/fako/404-.

[37] Mugenda, O. M. & Mugenda, A. G. Research methods: Quantitative and qualitative Approaches. Nairobi : African Centre for Technology Studies, 2003.

[38] Amin, M.E. Social science research: Conception, methodology and analysis. Kampala: : Makerere University Press, 2005.

[39] Gay L.R, Airasian P. Educational research: Competences for analysis and application. 6. New Jersey : Prentice Hall, 2002.

[40] Mohlokoane, M.J. Towards a leadership model for the effective management of Further Education and Training Colleges in the Gauteng Province. Ph.D Thesis. Pretoria : University of South Africa, 2004. Retrieved from http://etd.unisa.ac.za/etd.db/thesis/ava.

[41] UNISA. Research methodology: study guide for 2 for MEDEM 2-R/MEDEM I-QMEDEM 4-T/MEDEM5-U. Study guide for 4 MEDEM 3-5. Pretoria : University of South Africa, 2003.

[42] Schumacher, McMillan &. Research in education – a conceptual introduction. Pretoria : Longman, 2001.

[43] Coefficient alpha and the internal structure of tests. Cronbach, L. J. 3, s.l. : Psychometrika, 1951, Vol. 16, pp. 297-334.

[44] Association, EpiData. EpiData 3.1. (270108): The EpiData Association" Odense, Denmark (In danish: EpiData Foreningen). 2008.

[45] IBM, Statistics. Statistical Package for Social Sciences (SPSS), Version 20.0. 2011.

[46] Covariates of Knowledge, Attitude, Practice, and Burdens among the Caregivers of Hypertensive Patients. Sudipta, Deb Nath, et al., et al. PMC10462447, s.l. : Int J Hypertens., 2023, Vol. 2023. doi: 10.1155/2023/8866231.

[47] Patients' and family caregivers' experiences and perceptions about factors hampering or facilitating patient empowerment for self-management of hypertension and diabetes in Cameroon. Amélie, Mogueo and Defo, & Barthelemy Kuate. 1381, s.l. : BMC Health Services Research, 2022, Vol. 22.

[48] Bokhour, B. G. and D. R. Berlowitz, J. A. Long, and N. R. Kressin. How do providers assess antihypertensive medication adherence in medical encounters? Journal of General Internal Medicine 21(6):, 2006, Vol. 21, pp. 577-583.