



Personal Control in Newly Diagnosed Essential Hypertensive Patients and Health Behavior Adherence: Case Study at the Laquintinie Hospital

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Abstract

Statistics project hypertension as the third leading cause of mortality worldwide and many studies in developing countries have reported values of more than 50% nonadherence among hypertensive patients. Several factors contribute to this. Identifying clinically significant, modifiable person-related factors of nonadherence is primal. As such, the personal control construct, conceptualized as a belief was identified via its different operationalization in three main theories: the LoC, the Social Cognitive and the Salutogenic Theories. This study explored aspects of distorted personal control beliefs that are linked with the adoption and maintenance of maladapted health behaviors among newly diagnosed essential hypertensive patients attending the Laquintinie hospital of Douala. A Case Study was conducted on a sample of 3 subjects aged 42, 45 and 53. They were evaluated with the aid of an observation grid/interview guide and four scales - the MHLC-C Scale, the SEMCD Scale, the SoC- 13 Scale and the GAM Scale. The study signals an urgent need to design individualized and multidisciplinary interventions to enhance adherence. Interventions will be aimed at modifying distorted beliefs and the resultant dysfunctional behaviors while reinforcing pre-existing, well-adapted ones.

Keywords: Adherence; Diagnosis; Essential Hypertension; Health Behaviors; Personal Control

Introduction

In 2013, the WHO reported that 1billion adults were diagnosed with hypertension globally and this estimate was projected to increase by approximately 1.7billion come 2025 in individuals between the ages of 18 to 91years. Such a report projected this reputed “silent killer”; referring to its predominantly asymptomatic nature, as the third cause of mortality worldwide. Until recently, hypertension was considered as being particular to developed countries because of its association with lifestyle factors like inactivity, sedentary lifestyle, increasing consumption of processed food and eventual obesity, stress, excess alcohol and tobacco consumption etc., which all pose as risk factors. Nowadays, its frequency keeps increasing in developing countries.

Sub-Saharan Africa has experienced a steady rise in the prevalence of hypertension from 9.7% to 30.8% as of 1990 to 2010. This rise has been attributed to increased urbanization and westernization, with higher prevalence in urban as opposed to rural areas [1,2].

Cameroon is not exempted from the observations, as seen in studies assessing changes in blood pressure values for over a decade; that is between 1993 and 2003 [3]. There was a significant (two to five) increase in the prevalence of hypertension in rural and urban men and women in the 10years period. In another study in Douala, hypertension was found to be the most common risk factor for stroke, with 81.2% of the stroke patients having a positive hypertension history [4]. This is just a few among several studies showing

the upsurge of this lifestyle-related disease in Cameroon. In fact, the most prevalent type of hypertension presenting 95% of cases is the essential hypertension. In 2001, the Cameroon Ministry of Public Health recognized hypertension as a public health problem and created the Diabetes - Hypertension National Control Program; yet, this program is not quite operational.

Hypertension requires long term management and follow-up. As such, adherence to therapy is a key component. Both pharmacological (medications) and non-pharmacological (psychotherapy, lifestyle) therapies are prescribed for hypertensive patients with the expectation that patients will adhere [5,6]. However, many patients fail to adhere to treatment recommendations resulting in less than optimal treatment. According to the WHO [7] adherence is "the extent to which a person's behavior-taking medication, following a diet and /or executing lifestyle changes - correspond with agreed recommendations from the healthcare provider." Thus, nonadherence is the contrary of adherence and it has been proposed as a behavioral disorder. As such, it requires the indisputable intervention of behavioral specialists.

The WHO (2003) [7] reported that only 50% of patients suffering from chronic diseases were adhering to therapy and the magnitude of this problem was higher in developing countries. In fact, most of these patients show a particular profile: sudden increases in blood pressure, constant uncontrolled blood pressure, excessive complaints characterized by somatic or vegetative symptoms, resistances to treatment, prolonged hospitalizations, frequent recommendations for check-up, complications, side effects of drugs ... The WHO maintained that, the factors determining patients' adherence to medication use are multifactorial and can be grouped into five main domains: socioeconomic, healthcare team and systems-related factors, therapy-related factors, condition-related factors and patient-related factors; most of which are not susceptible for clinical intervention. The WHO explained that, patient-related factors include patients' knowledge, attitudes, beliefs, perceptions and expectations... In fact, our goal is to enquire on clinically significant person-related factors that are readily modifiable; so as to provide individualized therapies.

In Cameroon, most researches on adherence have been carried out by medical doctors and students or public health agencies, who merely focused on adherence to medication use and on quantitative findings: establishing statistical associations, measuring outcomes and generalizing results. In addition, studies on hypertension and other chronic illnesses have been based on epidemiological studies; attention is rarely given to psychosocial variables. Although their contributions are somewhat valuable, the information

provided is primarily restricted to the biomedical domain. Nevertheless, these findings highlight gaps that need to be addressed by complementary themes from Clinical and Health Psychology. As such, we would focus on a broader spectrum of adherence - adherence to diverse health behaviors (medication use, dieting and physical exercise) and from a psychosocial background.

Psychosocial variables like personal control have been used to explain how individuals adopt and maintain health promoting behaviors. Most authors view it as "a belief or cognition, referring to the extent to which people think they can influence a situation either by altering it, its meaning or by regulating their own behavioral or emotional reactions" Current psychological theory and research suggest that such beliefs do more than simply predict future behavior; they determine it [8]. From this perspective, several conceptualizations of this term have been explored in theories to predict health behaviors like health behavior adherence to therapy. First, Rotter (1954, 1966) in the Locus of Control Theory conceptualized the personal control concept as Locus of control. Thereafter Wallston BS, et al. [9], modified it to the Health Locus of Control to make it more adapted in health situations. They further modified the latter to the Multidimensional Locus of Control to make it more specific in health situations. Second [8], in the Social Cognitive Theory conceptualized the personal control concept as Self-efficacy. Third [10], in the Salutogenic Theory of Health Promotion conceptualized the personal control concept as the Sense of coherence. The way in which each personal control construct is used to explain and predict health behaviors differs slightly among the theories but all have an underlying theme: an elevated personal control increases the likelihood that an individual will adopt and maintain a health behavior and vice versa [11]. Maintained that it is difficult to separate psychological factors like Health locus of control and Self-efficacy from Sense of coherence because they are not discrete but they do overlap with each other. The Locus of control theory posits that individuals can be differentiated in terms of their source of control. Internals are very proactive and responsible without being influenced by the external world. Studies have shown that internals are more likely to adhere to prescribed treatment regimens because they believe in their ability to influence their health [12]. Conversely, externals are easily influence by external agents such as medical practitioners, chance or other people. They belief that their actions may not significantly affect health outcomes; hence, they are thought to be less likely to adhere to therapy [13]. The Social cognitive Theory states that "personal factors (cognitions, emotions, biological factors...), behavior and the environment interact to influence individual behavior in a process of reciprocal determinism." Self-efficacy is reported to be the most powerful predictor of health behaviors [14,15]. According to Bandura, Self-

efficacy is specific to particular health behaviors. A number of studies on the adoption of health practices have measured self-efficacy to assess its potential influences in initiating behavior change [16]. Found out that dieting, weight control and preventive nutrition can be governed by nutrition self-efficacy beliefs. Indeed [17-19], Found that nutrition self-efficacy operates best in concert with general changes in lifestyle like physical exercise and provision of social support. The Salutogenic Theory posits that “people have the ability to cope during adversity by drawing on their internal and external resources to maintain their health and wellbeing.” According to Antonovsky A [20], people with a strong Sense of Coherence will engage in adaptive health behaviors more often than those with a weak Sense of Coherence. Reported a significant relationship between the Sense of Coherence and adherence in the field of HIV, where less adherent patients had low Sense of Coherence scores. Elsewhere, Nabi H, et al. [21], reported a significant relationship between good adherence and higher scores of Sense of Coherence in relation to hypertension?

This study sought to explore aspects of distorted personal control beliefs that are linked with the adoption and maintenance of maladapted health behaviors among newly diagnosed essential hypertensive patients at the Laquintinie Hospital and as such, propose individualized interventions that would place them at the center of management. We also hypothesized that, distorted personal control beliefs in newly diagnosed essential hypertensive patients are at the origin of their adherence to maladapted health behaviors.

Methods

Design

The research design is a Case study design and is phenomenological in nature.

Study Setting

This study was carried out at the Laquintinie hospital. It is found in Akwa - Douala, Wouri Division in the Littoral region of Cameroon. The hospital was founded in 1931 during the time of the French administration and was named after its Chief medical doctor and Captain, Jean Auguste Laquintinie (1936-1938). It is a second category reference hospital and serves patients from diverse socio-cultural backgrounds.

Population

First, our study population consists of all the different types of hypertensive cases, the Laquintinie Hospital manages: those suffering from primary hypertension, secondary hypertension, pregnant women with hypertension etc. Second, our accessible population consists of all cases

with essential hypertension. Third, our target population consists of those who have the eligibility (inclusion) criteria.

Sampling Technique and Sample

We used the non-probabilistic sampling specifically, the Purposive Sampling Technique. Three (03) subjects were selected aged 42, 45 and 52.

Description of the Sample

- Only patients (in or out) with essential hypertension; aged 35 - 55years.
- Regulars with medical files; attending the hospital within the period of 1-1.5years.
- Taking at least one antihypertensive medication within the period of 1-1.5years.
- Patient whom doctor has identified as being nonadherent for obvious reasons.
- Voluntary participation in the study and must have signed the Consent Form.
- Able to speak and understand either/both National languages (French, English).

Ethics and Deontology/Consent Details

We carried out this study under the authorization of the “Laboratoire d’Etude et de Recherches en Psychologie de la Faculte des Lettres et Sciences Humaines de l’Universite de Douala – Cameroun.” Ethical and deontological measures were assured by the “Centre de Psychologie Clinique et de Psycho-education. Informed consent was obtained from all participants before entry into the study.

Techniques of Data Collection

Observation/Observation Grid: It is at the base of all knowledge and discovery. Relying on observation as a tool for collecting data seem necessary to us: «as it complements other information: the subject’s behavior, his attitude during the encounter, it furnishes other elements that are sometimes revealing or simply posing novel questions» [22].

Clinical Interview: In this study, we used the semi-directive research-oriented interview. This type of interview seems the most efficient for this study because it leaves a certain degree of liberty and expression to the subject without him derailing from our research objectives.

Psychological Tests

- The Multidimensional health locus of control Scale – Form C [23].
- The self- efficacy for managing chronic disease 6-item Scale [24].
- The Orientation to life questionnaire or the SoC- 13 Scale

[20].

- The General Adherence Measure.

Techniques of Analyses Data

- Scoring sheets of the cited inventories
- Thematic Content Analysis of Mucchielli.

Results

Analysis and Interpretation of the Interview

Due to the phenomenological approach in this qualitative study, eight (08) themes emerged from the interview to explain nonadherence:

- Illness cognitions
- Health knowledge
- Health values
- Health beliefs and attitudes
- Cultural and religious beliefs
- Sociocultural norms
- Physiological and affective states
- Social support.

Analysis and Interpretation of Test: Multidimensional Health Locus of Control Scale, Self-Efficacy Scale for Managing Chronic Diseases and SOC Scale

Subject 1 (S1; F, 53years).

Health Locus of Control Results for «S1»

Subscales	Averages	Total scores
IHLOC	6-36	10
CHLOC	6-36	32
DHLOC	3-18	18
OHLOC	3-18	6

Table 1: Health Locus of Control Results for «S1».

In «S1», the DHLC and the CHLC subscales indicate high scores of 18/18 and 32/36 respectively. These indicate her beliefs in doctors (or other medical professionals) and chance having a greater control over her condition and her performing health-related behaviors, respectively. Besides, the low scores on the OHLC and the IHLC subscales reflect a perception that, first, others have limited control over her performing health-enhancing behaviors and second, she does not have a great sense of control over her health behaviors.

Self-Efficacy Results for «S1»: «S1» had a score of three (3), which correspond to a low self-efficacy value; a significant low self-confidence to adequately manage her condition despite actual threats. She complains of constant fatigue,

nerve problems, overweight, her children not motivating her etc. Her ratings on all 6 items of this 10-point Likert scale was limited to three out of ten (3/10) in a self-confidence rating for each item. Within this fraction were probable inability to manage the following threats: fatigue (item 1), physical discomfort or pain (item 2), emotional distress (item 3) and other symptoms or health problems (item 4) etc. Added to this, was an equal measure of lack of personal efficacy to do different activities needed to manage her condition, so as to reduce the need to see the doctor (item 5). Finally, a limited ability to do other things than taking medications to reduce how much her illness affects her everyday life (item 6). Briefly, «S1»'s results translates similarly inadequate self-efficacy to manage both symptoms (items 1- 4) and the disease (items 5 & 6).

Sense of Coherence Scale Results for «S1»

Subscales	Averages	Total scores
Comprehensibility	5-35	16
Manageability	4-28	6
Meaningfulness	4-28	10
Overall SOC	13-91	32

Table 2: Sense of Coherence Scale Results for «S1».

«S1» had an overall significant low value of 32/91, which reflects a weak SoC. The three subscales bear very low scores, which all sum up to indicate an overall global orientation to view her condition as inexplicable; hampering her to mobilize and use resources to face it and demotivate her to emotionally commit in approaching it.

Subject 2 (S2; F, 45years)

Health Locus of Control Results for «S2»

Subscales	Averages	Total scores
IHLOC	6-36	4
CHLOC	6-36	6
DHLOC	3-18	18
OHLOC	3-18	3

Table 3: Health Locus of Control Results for «S2».

In «S2», the DHLC subscale displays high scores of 18/18. This translates her beliefs of doctor's (or other medical professionals) having control over her tendencies to perform health-promoting behaviors. More so, the IHLC, CHLC and OHLC subscales show remarkable low scores of 04/36, 06/36 and 03/18 respectively. These scores denotes the belief that, first, she has very low control to adopt health-promoting behaviors and that chance and others have limited control over her performing health-enhancing behaviors.

Self-Efficacy Results for «S2»: «S2» had a total score of four (4), which correspond to a low self-efficacy value; an insufficient competence to adequately manage her condition despite actual barriers. She complains about emotional swings, the nature of medications (taste, smell...) etc. Her ratings on the items 2 and 3 on the 10-point Likert scale showed that, she was limited to two-tenths (2/10) of her abilities to manage her condition despite physical discomfort and emotional distress as challenges, respectively. However, she rated three-tenths (3/10) on item 4, with respect to any other symptoms or health problems as threats. More so, she had an average score (5/10) on item 5 indicating an equilibrated ability to carry out different tasks to manage her condition. She rated an above average score (6/10) on items 1 and 6 indicating: first, how confident she can manage her condition despite threats like fatigue and second, how confident she can do other things than just taking medications to reduce how much her illness affect her everyday life, respectively. Broadly, «S2» portrays limited self-confidence to manage some symptoms (items 2, 3 & 4) whereas she showed above average ability to manage fatigue (item 1) as a symptom. Conversely, she reflected an adequate competence to manage the disease (items 5 & 6); by probably soliciting other means apart from medication use (item 6). That could be dieting, as identified in the interview. Indeed, the overall results show less ability to manage symptoms as opposed to the disease itself.

Sense of Coherence Scale Results For «S2»

Subscales	Averages	Total scores
Comprehensibility	5-35	18
Manageability	4-28	10
Meaningfulness	4-28	12
Overall SOC	13-91	40

Table 4: Sense of Coherence Scale Results for «S2».

«S2» had an overall low value of 40/91, which indicates a low SoC. The three subscales bear very low scores, which all sum up to indicate an overall global tendency to view her condition as incoherent, deterring her moves to manage it and to wholly commit in facing it.

Subject 3 (S3; M, 42 years)

Health locus of control results for «S3»

Subscales	Averages	Total scores
IHLOC	6-36	6
CHLOC	6-36	30
DHLOC	3-18	18
OHLOC	3-18	18

Table 5: Health locus of control results for «S3».

In «S3», three-quarters (3/4) of the scores tilted towards the external control orientation: the CHLC, DHLC and OHLC subscales reflecting his beliefs of chance, the doctor's (medical professional) and others, having control over her inclinations in performing health-promoting behaviors. Finally, the low scores on the IHLC subscale denote a very low perception of self-control in performing health behaviors and ultimately low self-control over his condition.

Self-efficacy results for «S3»: «S3» has a score of two (2). This correspond to a low self-efficacy value; a significant low capability to appropriately manage his condition despite actual challenges. He complains of fatigue, constant urination, palpitation, erectile dysfunctions etc. In fact, he had remarkably low SE scores for items 1, 2 and 4; wherein, he rated one-tenths (1/10), individually. These scores indicate a lack of self-confidence to properly manage his condition because of symptoms like fatigue (item 1), physical discomfort or pain (item 2) and other symptoms or health problems (item 4). More so, he also has marked low SE scores for items 5 and 6; wherein, he rated two-tenths (2/10), individually. This reflecting: first, inadequate competence to do different activities needed to manage his health condition so as to reduce the need to see the doctor (item 5). Second, inadequate competence to do other things than just taking medications to reduce how much his illness affects his everyday life (item 6).

Sense of Coherence Scale Results for «S3»

Subscales	Averages	Total scores
Comprehensibility	5-35	16
Manageability	4-28	8
Meaningfulness	4-28	8
Overall SOC	13-91	32

Table 6: Sense of Coherence Scale Results for «S3».

«S3» had an overall significant low value of 32/91, which reflects a weak SoC. The three subscales bear very low scores, which all sum up to indicate an overall global inclination to view his condition as unpredictable; hindering his abilities to mobilize and use resources to confront it and demotivating him to actively participate to confront it.

Discussion

This study explored aspects of distorted personal control beliefs that are linked with the adoption and maintenance of maladapted health behaviors among newly diagnosed essential hypertensive patients at the Laquintinie Hospital and as such, propose individualized interventions that would place them at the center of management. We found out that, the three subjects who did not adhere to specific health

behaviors (medication use, dieting and physical exercise) had differing external Health locus of control orientations, low self-efficacy to adopt and maintain particular health behaviors and weak Sense of coherences. These scores depict distorted personal control beliefs with respect to their condition and treatment. Besides, eight themes emerged from the overall interview to explain nonadherence: illness cognitions, health knowledge, health values, health beliefs and attitudes, cultural and religious beliefs, sociocultural norms, physiological and affective states, social support. These results highlight the need for individualized interventions. The health locus of control construct has been one of the most widely considered predictors of health-related behavior of patients. Previous research on medication adherence provides evidence linking internal Health locus of control with adherence [12]. Participants results' aligned with previous hypotheses that have associated the External Health locus of control (the "Chance", the "Doctor's" and "Others" dimensions) with health-impairing behaviors like nonadherence. More so, «S1» strongly believed in the control of God over her health. Research has revealed that, there are additional Health locus of control beliefs that may be relevant for diverse populations; an example is the control attributed to a Supreme power or God. The following direct quotes (in italics) illustrate «P1»'s religious beliefs in the control of God over her health outcomes. *"You have to pray to God to help you get healed. I think good health, healing, life all come from God. Sometimes I take my medications and go on, as God wants me to! When I feel down, I ask my pastors or brothers and sisters in Christ to pray for me. We even take our medicines there to pray over them before taking them. It is written in the Bible that God created all those herbs for our healing."*

Self-efficacy is known to be a very good predictor of a wide choice of health behaviors, posited that, individuals with high Self-efficacy believe they can make specific changes to promote an improvement in their health while individuals with low Self-efficacy are not confident of making specific health changes. Participants had total scores lower than four on ten (4/10); on the SEMCD scale, which correspond to an insufficient competence to adequately manage their condition. This aligns with previous findings in which, lower Self-efficacy has been identified as a major risk factor for non-adherence and self-care behaviors among different patient groups. The following direct quotes of «S2» (in italics), illustrate her attitude towards medication use. *"All my siblings prefer medicines to be administered intravenously. We all preferred intravenous interventions when we are sick. Most medications are an inconvenience: they taste and smell awful, evoke nausea and get stoke up in my throat. I am afraid of side effects and possible dangers to my body. We all prefer intravenous interventions when we are sick. Typically self-efficacy is considered to be behavior-specific as in the case of self-efficacy for medication use [25,26], diet adherence [27];*

hence, different scales have been constructed for specific domains by several researchers. However, we solicited the SEMCD scale for this study because it gives important directives to hypertension self-care [24].

According to Antonovsky A [20], people with a strong Sense of coherence will engage in adaptive health behaviors more often than those with a weak Sense of coherence. Participants had global low scores on the SoC-13 Scale and low values on the individual subscales (comprehensibility, manageability and meaningfulness). The low scores on the comprehensibility subscale indicate information-related sources linked with nonadherence. Studies have reported that in some cases, nonadherence stems from the patient's lack of knowledge of his health problem or lack of information about the medications prescribed, their effects, the way to take them or its adverse effects and at other times misconceptions. The following direct quotes (in italics) illustrate «S3»'s limited knowledge and understanding of his condition and treatment. *"Anytime I have this terrible eye ache, I know my BP has increased. When I get the feeling, then I double the dose. I do not know the exact target values for BP. I do not know the functions of my medications. Once HBP develops, it is forever and you cannot do anything."* The low scores on the manageability subscale depict ability-related basis of nonadherence. The Salutogenic theory explains it as the inability to mobilize and use resources effectively. The following direct quotes (in italics) illustrate his limited ability to use resources that can help him confront his condition. *"I have never asked my doctor because he is very busy. I have difficulties organizing time for things like sports and others that are not work related. I have not thought of involving my family to assist me in taking my medications."* The low scores on the meaningfulness subscale indicate motivation-related origins of nonadherence. It has been reported that a patient's motivation to follow drug therapy has an impact on adherence. The following direct quotes (in italics) of «S3» indicate, insufficient motivation to emotionally invest in health enhancing activities. *"Sometimes, I say to myself, "stop it" but I really cannot. You would think that a BP of 160/100 mmHg would scare me to start doing things differently but I still do same things. I really do not know why I do not stick to decisions concerning my lifestyle. I got tired with each visit to the doctor's when my BP level was not changing [28,29]."*

Study Limitations

This study has several limitations. There was a dearth of literature in the Cameroonian context on health behavior adherence among patients with chronic illnesses in general and essential hypertension in particular. Most studies on hypertension are medically-oriented, consisting of epidemiological studies while those on adherence, concentrated only on medication use adherence.

Nonpharmacotherapy and psychosocial variables were neglected. More so, hypertension self-care activities were only self-reported and it is possible that the measures chosen were not ideal. The GAM and the SEMCD Scales were not specific for the selected health behaviors (dieting, exercise and medication use) as required by literature. Moreover, no institutional measures were taken to ensure inter-translation validity; we relied solely on our competences. Furthermore, results obtained cannot be generalized because of the Case study/Phenomenological designs and the Purposive sample technique used [30,31].

Conclusion

Non-pharmacological non-adherence dominates as a major health problem. The personal control construct has been one of the most widely considered predictors of health-related behavior among patients. This study showed that hypertensive patients exhibited an external Health Locus of Control, low levels of self-efficacy and weak Sense of coherence. The low values obtained from the various scales indicate that, intervention programs ought to take into account that psychosocial factors like Health Locus of control, Self-efficacy and Sense of coherence may improve non-pharmacological adherence (adherence to medication use, dieting and physical exercise). As such, the results of this study identify the psychosocial origin of the persistent problem of non-adherence among patients from the Laquintinie Hospital; hence, highlighting the need for individualized intervention programs to enhance adherence. Such interventions will be aimed at modifying distorted beliefs and the resultant dysfunctional behaviors while reinforcing pre-existing, well-adapted ones with respect to specific patient's needs.

Disclosures

The authors declare no competing interests.

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