

Therapeutic Education of Hypertensive Patient Followed on an Outpatient Basis at the Ignace Deen University Hospital in Conakry, Guinea

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Abstract

Context and Objectives: Despite advances in the treatment of high blood pressure, many patients do not benefit from adequate therapeutic education. In Guinea, we have found no data addressing this issue, hence the interest of this study, which aims to determine the level of therapeutic education and identify the factors attributable to poor therapeutic education. **Methodology:** This was a 6-month cross-sectional study, including hypertensive patients followed on an outpatient basis. The level of therapeutic education was assessed using a twenty-question questionnaire. Each correct question received one point, while an incorrect answer or no answer received zero points. The rate of correct answers was then calculated for each patient, enabling them to be classified into three groups: Group I (rate below 35%, considered to be a low level of education), Group II (rate between 35% and 65%, considered to be an average level of education) and Group III (rate above 65, considered to be a good level of education). To determine the factors associated with patients' low level of therapeutic education, we first used a multivariate logistic regression model, with significant variables (p -value < 0.05) then included in a bivariate logistic regression model. **Results:** Among the 471 patients, almost three-quarters (73.9%) had a low level of therapeutic education, 21.7% had an average level and 4.7% had a high level. In terms of factors associated with low levels of therapeutic education, patients aged 60 and over, patients with no formal education, and patients whose source of information was other than healthcare professionals, were more likely to have low levels of therapeutic education. Although the correlation was not statistically significant, women and

patients living in urban areas were respectively 1.103 and 1.254 more likely to have a low level of therapeutic education than men and rural residents. **Conclusion:** The level of therapeutic education of hypertensive patients at the Ignace Deen University Hospital Center is low, several factors are implicated.

Keywords

Therapeutic Education, High Blood Pressure, Ambulatory, Guinea

1. Introduction

High blood pressure (HBP) is a major public health problem, affecting approximately 1.28 billion people aged 30 to 79 years worldwide. Studies show that 70% to 90% of hypertensive patients lack sufficient knowledge of therapeutic options and the risks associated with inadequate management of their condition [1]-[3]. The consequences of poor therapeutic education (TVE) can not only have serious repercussions for the patient, but also have a negative impact on the healthcare budget. Indeed, several factors can influence the level of patient education, including patient characteristics, disease particularities, treatment modalities, physician attitudes and healthcare organization. Indeed, several factors can influence the level of patient education, including patient characteristics, disease characteristics, treatment modalities, physician attitudes and healthcare organization. Therapeutic patient education is part of the therapeutic arsenal for hypertension. It improves patients' quality of life, reduces morbidity and mortality, and helps optimize public health resources [4]-[8]. We therefore need to find ways of improving patients' level of education. In order to better plan more targeted and effective educational programs, adapted to the specific needs of our hypertensive patients, we felt it necessary to carry out this study, the aim of which was to assess the level of therapeutic education of hypertensive patients followed as outpatients at the Ignace DEEN University Hospital Center (CHU), and to identify the factors associated with the low level of therapeutic education.

2. Methodology

Study context: This study was carried out in the cardiology department of the CHU Ignace DEEN in the Republic of Guinea. This is a referral service for the management of cardiovascular diseases, in particular hypertension, in the Republic of Guinea.

Type and period of study: This was a cross-sectional, descriptive study conducted from May 1, 2023 to October 31, 2023 in the cardiology department of CHU Ignace DEEN.

Study population: All hypertensive patients followed at the cardiology department of CHU Ignace DEEN.

Selection criteria: Patients were recruited systematically on an outpatient basis

in the cardiology department. All hypertensive patients aged 18 and over treated with at least one antihypertensive drug for at least three months were included in the study. Patients with cognitive disorders or intellectual deficits were not included. We excluded all patients who did not answer all questions.

The variables studied were: Age, sex, level of education, sources of information, patient's place of residence and level of therapeutic education. The level of therapeutic education was assessed using a twenty-question questionnaire on patients' knowledge, attitudes and skills. Each correct question received one point, while an incorrect answer or no answer received zero points. The rate of correct answers was then calculated for each patient, enabling them to be classified into three groups: Group I (rate below 35%, considered to be a low level of education), Group II (rate between 35% and 65%, considered to be an average level of education) and Group III (rate above 65%, considered to be a good level of education). In addition to these variables, the degree of certainty regarding their response was assessed, using a scale of 1 to 10 (1 - 2: not at all sure, 3 - 4: not sure, 5 - 6: sure, 7 - 8: somewhat sure, 9 - 10: very sure). Factors associated with low levels of therapeutic education were studied.

Data collection and analysis: Data were collected on a pre-tested survey form, entered into the KoboCollect software and analyzed using SPSS statistics 20. To study the factors associated with low FTE levels, we first used a multivariate logistic regression model. Significant variables (p -value < 0.05 was considered statistically significant) were then included in a bivariate logistic regression model.

3. Results

In this study, 512 patients were approached and 471 responded, giving a response rate of 92%. Almost all patients (88.96%) were sure of their answers. The average degree of certainty was 7.8, with a standard deviation of 2.2. The response rate for each question is shown in **Table 1**.

Of the 471 patients who answered the questions, 50.7% were women and 49.3% men, with a sex ratio of 0.97. The average age of patients was 59.4 with a standard deviation of 11.9 years, and 65% of patients were at least 60 years old. Only 38.4% of patients attended school, and 7.6% were informed about their disease by healthcare professionals. Three-quarters of patients lived in urban areas.

Concerning the level of therapeutic education, 73.9% of patients had a low level of TVE, 21.4% had an average level and only 4.7% of patients had a high level of TVE. Among patients with a low level of TVE, 65.2% were over 60 years of age ($p = 0.001$), and 54.3% were women ($p = 0.001$). In the same population, 76.7% had no schooling ($p = 0.001$), only one patient was informed of his or her illness by a health professional ($p = 0.001$), 15.5% were informed through new information and communication technologies ($p = 0.001$) and four out of five patients had other sources of information (friends, relatives, passers-by, neighbors, other patients). were informed of their illness by others two quarters of patients with a low level of TVE lived in urban areas (**Table 2**).

Table 1. Rate and degree of certainty of responses assessing the level of therapeutic education.

Items	JUST		FALSE		IGNORE	
	N	(%)	N	(%)	N	(%)
Definition	94	(20.0)	15	(3.2)	362	(76.8)
Risk factors	196	(41.6)	0	(0.0)	275	(58.4)
Symptoms and signs	354	(75.2)	0	(0.0)	117	(24.8)
Principles of self-measurement	103	(21.9)	14	(3.0)	354	(75.1)
Complications	180	(38.2)	0	(0.0)	291	(61.8)
Patient perception of the severity of hypertension	58	(12.3)	0	(0.0)	413	(87.7)
Composition of a low-salt diet	108	(23)	0	(0.0)	362	(77)
Recommended salt intake	15	(3.1)	0	(0.0)	456	(96.9)
Patient perception of the need for a special diet	405	(86.0)	0	(0.0)	66	(14.0)
Patients' perception of the need for physical activity	166	(35.2)	0	(0.0)	305	(64.8)
Duration of treatment	66	(14.0)	0	(0.0)	405	(86.0)
Treatment methods	166	(35.2)	0	(0.0)	305	(64.8)
Patient attitudes to forgetting medication	80	(17.0)	0	(0.0)	391	(83.0)
Role of medication and side effects	0	(0.0)	0	(0.0)	471	(100.0)
Patients' perception of the advantages and disadvantages of antihypertensives	225	(47.8)	0	(0.0)	246	(52.2)
Behaviour to avoid complications	283	(60.0)	0	(0.0)	188	(40.0)
Target BP under treatment	65	(13.8)	0	(0.0)	406	(86.2)
The need to continue treatment even if BP normalizes	86	(18.3)	0	(0.0)	385	(81.7)
The names of their antihypertensives	122	(25.9)	0	(0.0)	349	(74.1)
Complementary examinations required to monitor hypertensive patients	159	(33.8)	0	(0.0)	312	(66.2)
The average	147	(31.2)	1	(0.2)	323	(68.6)

N (%): Numbers (percentage), BP: Blood pressure.

Table 2. The level of therapeutic education depending on the general characteristics of patients.

Characteristics of patients	Group I		Group II		Group III		p-value
	N	(%)	N	(%)	N	(%)	
Age (years)							
<60	121	(34.8)	28	(27.7)	16	(72.7)	0.242
≥60	227	(65.2)	73	(72.3)	6	(27.3)	0.001
Gender							
Male	159	(45.7)	64	(63.4)	9	(40.9)	0.052
Female	189	(54.3)	37	(36.6)	13	(59.1)	0.001
Schooling							
Schooled patients	81	(23.3)	78	(77.2)	22	(100.0)	0.224
Non-schooled patients	267	(76.7)	23	(22.8)	0	(0.0)	0.001

Continued

Sources of information

New information and communication technologies	54	(15.5)	32	(31.7)	8	(36.4)	0.547
Healthcare professionals	1	(0.3)	21	(20.8)	14	(63.6)	0.871
Other people*	293	(84.2)	48	(47.5)	0	(0.0)	0.001

Place of residence

Urban	261	(75.0)	68	(67.3)	19	(86.4)	0.001
Rural	87	(25.0)	33	(32.7)	3	(13.6)	0.247

New information and communication technologies: Television, radio, internet; **Other people*:** Friends, parents, passers-by, neighbours, other patients; **Group I:** Low level of therapeutic education; **Group II:** Average level of therapeutic education; **Group III:** High level of therapeutic education, **N (%):** Numbers.

Factors that were statistically ($p = 0.001$) associated with a low level of FTE were essentially: age over 60 [OR = 1.125 (3.2 - 14.1)], severe renal failure [OR = 1.125 (1.046 - 1.176)], no schooling [OR = 1.091 (0.254 - 1.147)], sources of information through friends, relatives, passers-by, neighbors, or other patients [OR = 3.281 (2.010 - 3.579)] and Mortality increased significantly with the number of comorbidities. Deaths were due to extracardiac complications in 28.4% of cases. Although the correlation was not statistically significant, female gender and rural residence increased the risk of poor therapeutic education (**Table 3**).

Table 3. Correlation between the level of therapeutic education and the general characteristics of the study population.

Factors associated with a low level of therapeutic education	Group I	OR	CI at 95%		p-value
	N (%)		<	>	
Patients aged over 60	227 (65.2)	1.125	1.046	1.176	0.001
Female gender	189 (54.3)	1.103	1.019	1.246	0.065
Out-of-school patients	267 (76.7)	1.091	0.254	1.147	0.001
Patients residing in urban areas	261 (75.0)	1.254	1.024	1.356	0.058
Sources of information other than health professionals*	347 (99.7)	3.281	2.010	3.579	0.001

Sources of information*: New information and communication technologies (television, radio, internet), friends, parents, passers-by, neighbours, other patients; **Group I:** Low level of therapeutic education; **CI at 95%:** 95% confidence interval; **N (%):** Numbers (percentage).

4. Discussion

Limitations: The main limitations of our study are methodological. Cross-sectional studies cannot establish a causal association between the dependent variable and the independent variables. Also, the duration of the study did not allow us to obtain a large number of patients to carry out statistical tests with sufficient power. Two main biases were observed: the Hawthorne effect, corresponding to the influence of the observer's presence on observed attitudes, and the Halo effect, corresponding to the observer's tendency to be influenced by the general impression given by the person being observed.

This was a cross-sectional and descriptive study carried out from May 1 to October 31, 2023 in the Cardiology department of the Ignace Deen University Hospital Center. It focused on outpatients suffering from hypertension, all under antihypertensive treatment for at least three months. Low level of TPE is one of the main reasons for poor treatment compliance in hypertensive patients. Of the 471 patients who responded to the questionnaire, 73.9% had a low level of TPE, 21.4% a medium level and 4.7% a high level. This high rate of patients who have a low level of TPE could be explained in our context by the language barrier on the one hand and the absence of a therapeutic education program on the other hand. Indeed, the high number of local languages spoken in Guinea represents a challenge because the majority of medical staff do not seem to master all of these languages while the vast majority of our patients are not educated. These difficulties could be circumvented by initiating a therapeutic education program in a formal setting with a multicultural team. The average age of the patients was 57.4 plus or minus 11.9 years. This result is comparable to those found in other studies [9] [10]. Two-thirds of patients aged 60 and over had a low level of therapeutic education. Moreover, it is perceived that these patients were 1.125 times more likely to have a low level of TPE than those under the age of 60. Elderly patients are often affected by multiple chronic diseases including HBP [11], they are exposed to an increased risk of decompensation, complications and death. However, in practice they are often forgotten in therapeutic education programs even though they can benefit from them while adapting educational approaches to the specificities of the elderly patients: cognitive disorders, mobility difficulties, neurosensory disorders, poly-pathology, etc. Despite a slight female predominance (50.7% of the study population and 54.3% low TPE level), women had a higher risk of having a low TPE level compared to men well that the correlation is not statistically significant (OR = 1.103, 95% CI = 1.019 - 1.246, $p = 0.0650$). Studies carried out in Poland [12] and Congo [13] noted a similar trend. Despite this result, TPE is aimed at anyone with a chronic illness, regardless of their sex and socio-professional status. This offer also concerns those close to them if they wish and if the patient wishes to involve them in the management of their illness. Almost half of our patients were not in school, SOW A [14] also found a similar figure (57.6%). Among patients who had a low level of TPE, 76.7% were not in school. Similarly, out-of-school patients were more likely to have a low level of TPE (OR = 1.091, 95% CI = 0.254 - 1.147, $p = 0.0001$). In fact, unschooled patients may have more difficulty understanding medical directives and following therapeutic regimens while schooled patients have the advantage of not having a language barrier. Almost all (92.4%) of patients say they are informed about their illness other than health professionals (new information and communication technology, media and other sources of information). Digital technology and social networks are experiencing rapid growth, patients benefit from increased access to information through these channels, but the quality of the latter is not necessarily guaranteed. This is all the more true as 99.7% of patients who use these tools as a source of information had a low level of

TPE. Likewise, these patients are 3.281 times more likely to have a low level of TPE compared to patients who are informed by health professionals. The management of HBP requires information and educational time for patients which is carried out within the framework of a dedicated consultation or as part of an TPE program. In practice, few doctors take the time necessary to educate and train their patients to manage their illness. The level of TPE does not seem to be linked to the origin of the patients even if patients who reside in urban areas were more inclined to have a low level urban TPE compared to those who reside in rural areas (OR = 1.254, 95% CI = 1.024 - 1.356, $p = 0.0583$). This result could be explained by the fact that people living in urban areas are more vulnerable to social networks which sometimes convey erroneous information. By going into detail on the knowledge, skills and knowledge of patients, we found 20% of patients who responded correctly to the definition of HBP, which is alarming given the importance of this knowledge of base. Similarly, the principles of self-measurement are only known by 21.9%. Wolde *et al.* [15] reported that 55.3% of participants had a low level of knowledge about the definition of HBP. A Health Insurance publication dated October 22, 2023 also noted that hypertensive patients have insufficient knowledge of their condition, which harms their therapeutic compliance and the effective management of their HBP [16]. Most patients (58.4%) are unaware of the risk factors for HBP, highlighting a crucial need for education on the causes and risks associated with HBP. Almomani *et al.* [17] found that 32% of participants knew that alcohol consumption was a risk factor for HBP, particularly alcohol consumption, family history and pregnancy [18]-[20]. Three-quarters of patients correctly identified the symptoms and signs, which is encouraging. However, 24.8% are unaware of them, which can pose problems for early detection and management of the disease. Knowledge of the complications of HBP is relatively low at 38.2%, as well as the perception of the seriousness of HBP (12.3%). Data on knowledge of the severity and complications of HBP vary from one study to another [21] [22]. Knowledge regarding the composition of a low-sodium diet and the recommended amount of salt per day is extremely low. Shim *et al.* [23] found that experience with diet education was lower among adults. Hypertensive patients often know they need to reduce their sodium intake, but do not follow this dietary recommendation [24]. Patients' perception of the need to adopt a particular diet is relatively high at 86%, but the perception of practicing physical activity is much lower at 35.2%. shim *et al.* [23] noted that the majority of participants were aware of the need for lifestyle changes and understood that changing their diet improved blood pressure control. However, the proportions of those who thought their current diet needed to be changed and those who said manage their diet did not correspond to the level of knowledge regarding the treatment of hypertension. In general, health and diet measures are part of the therapeutic arsenal of doctors in the management of HBP, but its implementation remains extremely difficult in a society where the level of education is very low on the one hand, and difficulties in respecting an individual low-sodium diet linked to socio-cultural

constraints on the other hand. Patients show deficiencies in several aspects of treatment management: duration of treatment (14%), attitude in the event of forgetting medications (17%) and knowledge of the names of antihypertensive medications (25.9%). These gaps can be sources of poor compliance even if certain studies [25] have not been able to establish a link between knowledge of the treatment and the level of therapeutic compliance ($p = 0.265$). We believe it is necessary, even urgent, to initiate a therapeutic education program in this department in order to ensure better adherence to treatment.

5. Conclusion

Our study reveals that despite good general knowledge about the severity of hypertension, a majority of hypertensive patients present significant gaps in the knowledge, know-how and interpersonal skills necessary for optimal management of their disease. The level of therapeutic education is low, statistically associated with advanced age, non-schooling and sources of information other than health professionals. In order to reverse this trend, it seems necessary, even urgent, to initiate a therapeutic education program in this department in order to help patients acquire or maintain the skills they need to best manage their illness.

Contribution of the Authors

All authors contributed in some way to the design, data collection, statistical analysis, discussion of results, drafting and/or revising the manuscript. Mamadou Barry: He is one of the initiators and coordinator of the writing of the manuscript in its final version. He participated in the bibliographic research and in the adaptation of the final version to the journal's instructions. Tiguidanké Baldé, Ousmane Mamadama Camara, Mariama Djalakan Diallo, Hassatou Diallo, Ibrahima Sory Sylla, Mamadou Mouctar Diallo, Abdoulaye Fodé Touré, Abdoul Karim Kaba and El Hadj Yaya Baldé participated in the collection, synthesis and entry of data. They also carried out bibliographic research and participated in the preparation of the essay. Finally, they all reread the manuscript.

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Conflicts of Interest

The authors have declared that they have no conflicts of interest.

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