Knowledge, Attitudes and Practices towards Hypertension among Hypertensive Patients in Rural Area, Tanvè (Benin)

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1. Introduction

Hypertension constitutes a major public health concern worldwide, due to its high frequency and mortality [1–3]. It is a long-term condition, often asymptomatic, which is revealed by cardiovascular and renal complications [4]. More than a quarter of the world’s adult population is hypertensive, and this proportion is expected to reach 30% by 2025, if the response is not effective [1].

Despite the availability of treatments, hypertension is inadequately treated and controlled [3, 5–7]. The poor prognosis for uncontrolled hypertension can be avoided by regular medical monitoring and a healthy lifestyle. Compliance with hygiene rules and drugs by hypertensive patients require good knowledge and a good perception of the hypertension associated risk.

Hypertension affects around a third of adults in sub-Saharan Africa [8]. In many of these countries, most patients fully finance care and purchase of drugs in a low socioeconomic context [8]. Several of them have already developed at least one hypertensive complication, and have associated risk factors such as obesity and dyslipidemia [9, 10]. This situation shows the severity of hypertension in sub-Saharan African countries and the importance of blood pressure normalization.

In 2015, the prevalence of hypertension in Benin was estimated at 25.9% nationally and 15.9% in the district of Zou [11]. According to a study performed in 2016 among hypertensive patients monitored in a peripheral health center of Benin, the level of knowledge relating to hypertension was poor. In addition, less than half of the
hypertensive patients enrolled had correct diet and regular physical activity; about three-quarters were not receiving any medical treatment [12].

A cohort study on cardiovascular diseases is ongoing since February 2015 in the villages of Tanvè and Dékanmè, in central Benin, district of Zou. It includes adults residents aged 25 years and over [13]. A screening for hypertension was carried out at inclusion visit in 2015. The blood pressure is measured annually during the follow-up visit [13].

2. Objectives

The objective of this study was to assess the knowledge, attitudes and practices (KAPs) towards hypertension among hypertensive patients in Tanvè in 2018.

3. Materials and Methods

3.1. Frame

The study took place in central Benin, in the villages of Tanvè and Dékanmè. These are two neighbouring villages located in the area of Tanvè, 10 km from Abomey town and 150 km from Cotonou (economic capital of Benin). The adult population is approximately 2000. The main activity is agriculture and the main language is “Fon”. Christian religions and voodoo cults are more practiced. Tanvè village has a public health center comprising a dispensary managed by a nurse and a maternity unit managed by a midwife. The Abomey departmental hospital is the region’s benchmark hospital where a cardiologist works. There is no universal health insurance system. The vast majority of care and medicines are funded by the individuals themselves and their families. Traditional medicine occupies an important place in disease management.

The Tanvè health center has electronic blood pressure monitors, glucometers, scales, measuring rods for monitoring patients. There is no laboratory for biological analysis on venous blood. A general practitioner recruited by the TAHES project provides two free medical consultation sessions per month at the dispensary. There is a small pharmacy in the health center and several private pharmacies in Abomey. Generic drugs available for the hypertension management at Tanvè health center are: amlodipine, nifedipine (calcium channels blockers); hydrochlorothiazide (diuretic) and alpha-methyldopa (central acting antihypertensive drug). The average transfer prices for a monthly treatment vary between 1 and 10 USD dollars depending on the prescriptions.

3.2. Design, Population and Data Collection

It was a descriptive cross-sectional study. It included people aged 25 and over, participating in TAHES (Tanvè Health Study), having had raised blood pressure or taking a treatment for hypertension during the 2017 visit, and having given their written consent. Patients unable to answer questions due to any disability, those who were absent after two unsuccessful visits, and pregnant women were not included.

The data were collected from October 1 to December 1, 2018. The data collection techniques used were: face-to-face structured individual interview with the respondent and direct observation (measurement of anthropometric parameters). A standardized questionnaire was administered to participants. The questionnaire was written in French and then translated into the Fon language, the main language of the locality. The questionnaire comprised sociodemographic information and questions about KAPs towards hypertension. It was tested and readjusted before the investigation began. The interview was carried out at participant's home, either in French or in “Fon” by two trained investigators (one community worker and one student in public health). The questionnaire was filled in the French form. Then, weight, height and blood pressure were measured. Three consecutive measurements of blood pressure were taken, after 10 minutes of rest, in sitting position, on left arm. The blood pressure was the average of the last two measurements.

3.3. KAPs Evaluation

KAPs were assessed by series of questions with two optional answers marked 0 or 1. The level was rated good when the score is ≥ 3rd quartile of theoretical score. The knowledges were assessed by 24 questions and were classified as good when the score was ≥ 18. The attitudes were assessed by 8 questions and were classified as good when the score was ≥ 6. The practices were assessed by 12 questions and were classified as good when the score was ≥ 9.

3.4. Ethic Consideration

The favorable opinion of the educational committee of ENATSE (National school for training of senior technicians in public health and epidemiological surveillance) of Parakou University was obtained for the study. All the data have been managed confidentially.

4. Results

A total of 380 respondents were investigated out of 385 hypertensive people identified.

4.1. Characteristics of the Respondents

The mean age was 52.4 ± 16.5 years with extremes of
26 and 98 years. Sociodemographic and economic data are presented in the second column of table 1. We noted a female predominance (67.9%). The age group [40-54 years] was most represented (34.7%). Nearly two-thirds of them had no school education (62.6%). There were 38.4% of traders. Around 97.1% had a low monthly income ≤ 80 USD (minimum salary in Benin).

Almost all the respondents (379/380) have heard of hypertension. The frequent sources of information were the TAHES project (99.5%) and relatives (15.5%). Among 380 surveyed, 11.1% were obese and 61.3% had raised blood pressure (systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mm Hg) on the day of the survey.

Table 1. Link between socio-demographic factors and KAPs among respondents, Tanvè (Benin) 2018

|                          | Total = 380 | Good Knowledge | Good attitudes | Good practices |
|--------------------------|-------------|----------------|----------------|----------------|
|                          | n (%)       | n (%)          | p              | n (%)          | p              | n (%)          | p              |
| Sex                      |             |                |                |                |                |                |                |
| Male                     | 122 (32.1)  | 29 (23.8)      | 0.715          | 110 (90.2)     | 0.850          | 3 (2.5)        | 1.000          |
| Female                   | 258 (67.9)  | 57 (22.1)      |                | 231 (89.5)     |                | 7 (2.7)        |                |
| Age (years)              |             |                |                |                |                |                |                |
| 25-39                    | 96 (25.3)   | 22 (22.9)      | 0.252          | 84 (87.5)      | 0.287          | 1 (1.0)        | 0.372          |
| 40-54                    | 132 (34.7)  | 32 (24.2)      |                | 121 (91.7)     |                | 6 (4.6)        |                |
| 55-69                    | 86 (22.6)   | 23 (26.7)      |                | 80 (93.2)      |                | 1 (1.2)        |                |
| ≥ 70                     | 66 (17.4)   | 9 (13.6)       |                | 56 (84.9)      |                | 2 (3.0)        |                |
| Educational level        |             |                |                |                | 0.986          | 0.130          | 0.277          |
| No school education      | 238 (62.6)  | 54 (22.7)      |                | 215 (90.9)     |                | 5 (2.1)        |                |
| literate                 | 39 (10.3)   | 9 (23.1)       |                | 37 (94.9)      |                | 1 (2.6)        |                |
| Primary                  | 66 (17.4)   | 14 (22.2)      |                | 60 (90.9)      |                | 4 (6.1)        |                |
| Secondary or university  | 37 (9.7)    | 9 (24.3)       |                | 29 (78.4)      |                | 0 (0.0)        |                |
| Employment status        |             |                |                | 0.104          | 0.188          | 0.795          |
| Trader                   | 146 (38.4)  | 30 (20.6)      |                | 131 (89.7)     |                | 3 (2.1)        |                |
| Artisan/worker/peasant   | 130 (34.2)  | 36 (27.7)      |                | 120 (92.3)     |                | 4 (3.1)        |                |
| Homemaker                | 86 (22.6)   | 15 (17.4)      |                | 76 (88.4)      |                | 3 (3.5)        |                |
| Employed/Student         | 18 (4.8)    | 7 (38.9)       |                | 14 (77.8)      |                | 0 (0.0)        |                |
| Monthly income (USD)     |             |                |                | 0.468          | 0.087          | 0.950          |
| ≤80                      | 369 (97.1)  | 85 (23.0)      |                | 333 (90.2)     |                | 10 (2.7)       |                |
| >80                      | 11 (2.9)    | 1 (9.1)        |                | 8 (72.7)       |                | 0 (0.0)        |                |
4.2. Knowledge and Attitudes of Respondents

Data on hypertension knowledge among respondents are presented in table 2. Headache (71.1%) and dizziness (76.8%) were the main symptoms cited by the respondents. Stress was recognized by 94.7% of them as a risk factor. The most cited complication was stroke or “paralysis of one side of the body” (96.3%). Less than a twentieth had confirmed that hypertension was not communicable. The majority knew that hypertension is a long-term condition (82.6%) and that it requires monitoring by a health worker (92.4%). More than three-quarters did not know the maximum duration of action for antihypertensive drugs.

Among the 380 respondents, 86 (22.6%) had a good level of knowledge towards hypertension. The mean score was 14.7 ± 3.4 with extremes of 4 and 21.

Table 2. Evaluation of knowledge towards hypertension among respondents, Tanvè (Benin) 2018

| Symptoms                      | Total=380 | %    |
|-------------------------------|-----------|------|
| Headache                     | 270       | 71.1 |
| Dizziness                     | 292       | 76.8 |
| Ringing in the ears           | 262       | 68.9 |
| Visual blur                   | 264       | 69.5 |
| Heaviness of the neck         | 226       | 59.5 |

| Risk factors                  | Total=380 | %    |
|-------------------------------|-----------|------|
| Low physical activity practice| 276       | 72.6 |
| Excessive salt intake         | 314       | 82.6 |
| Fat diet                      | 323       | 85.0 |
| Tobacco consumption           | 109       | 28.7 |
| Stress                        | 360       | 94.7 |
| Obesity                       | 21        | 5.5  |
| Diabetes                      | 180       | 47.4 |
| Heredity                      | 64        | 16.8 |

| Complications                 | Total=380 | %    |
|-------------------------------|-----------|------|
| Stroke (“Paralysis of one side of body”) | 366 | 96.3 |
| Kidney disease                | 286       | 75.3 |
| Heart failure                 | 260       | 68.4 |
| blindness                     | 320       | 84.2 |
| Non-traumatic foot amputation | 277       | 72.9 |

| Other informations            | Total=380 | %    |
|-------------------------------|-----------|------|
| Hypertension can be asymptomatic | 61   | 16.1 |
| Hypertension "HTA:Hypertension Artérielle" is not communicable | 5 | 1.3 |
| Hypertension is diagnosed by a device placed on the arm "HTA:Hypertension Artérielle" | 377 | 99.2 |
| Hypertension requires long-term treatment | 314 | 82.6 |
| Hypertension requires follow-up by a health-worker | 351 | 92.4 |
| Maximum duration of anti-hypertensive drug effect is 24h | 3 | 0.8 |

Data on attitudes towards hypertension among respondents are presented in table 3. Around 99.2% of respondents considered that hypertension is a serious disease and that it is important to monitor blood pressure regularly (99.5%). According to their opinion, compliance with hygiene rules can help blood pressure control. However, 97.6% have declared that hypertension can be linked to a spell.

Among the 380 respondents, 341 (89.7%) had good attitudes towards hypertension. The mean score was 5.9 ± 0.6 with extremes of 1 and 8.

4.3. Practices of Respondents towards Hypertension

Only half of the respondents (50.1%) were aware of their status and stated that they had a history of raised blood pressure. Among them, 3.2% also had a history of diabetes. Among the 191 respondents who knew they were hypertensive, 110 (59.6%) were taking medication prescribed by a health worker. About half (53.4%) of known and treated hypertensive regularly took their treatment.

Data on hypertension practices among respondents are presented in table 4. Near a tenth of the respondents (8.2%) smoked. About two-thirds of them (59.5%) had an insufficient consumption of fruits and vegetables and a near a fifth (16.3%) had a low physical activity practice. The majority did not have a health notebook (93.7%) nor a follow-up appointment with a health worker (98.4%).

Only 10 (2.6%) had good practices towards hypertension in the sample. This frequency represented 5.2 % of 191 hypertensive who knew their status. The mean score of practices was 5.7 ± 1.6 with extremes of 2 and 6.

4.4. Link between Sociodemographic Factors and KAPs

The study didn’t show a significant association between sociodemographic factors and knowledge nor between sociodemographic factors and practices.

Table 3. Evaluation of attitudes towards hypertension among respondents, Tanvè (Benin) 2018

| Total=380 | %    |
|-----------|------|
| Hypertension is a serious condition | 377  | 99.2 |
| Hypertension can be linked to a spell | 371  | 97.6 |
| Hypertension can be favored by life style | 378  | 92.1 |
| Blood pressure measurement is important | 370  | 99.5 |
| Compliance with hygiene rules prevents hypertension | 376  | 97.4 |
| Compliance with hygiene rules contributes to the control of blood pressure in patients | 367  | 98.9 |
| Regular use of antihypertensive drugs normalizes blood pressure | 367  | 96.6 |
| It’s important to continue treatment even when the blood pressure is normalized | 17   | 4.5 |
frequency (14.0%) was reported in Cameroon, among 221 hypertensive patients in the Bamenda health district in 2014 [22]. Similar studies in other regions showed various results from 25.2% in Iran, 41.2% in India, 62.0% in Pakistan, 69.9% in Sri Lanka, to 82.3% in Brazil [23-27]. In USA, Oliveira et al. had reported in 2004 among 826 patients that most of them had good knowledge: 81.8% knew the meaning of the term of hypertension, 70.2% how dangerous hypertension is for health and 90.2% knew lowering high blood pressure would improve the health [28]. Almost all (91.2%) were aware of their status [28]. Several reasons could explain the differences. People living in high income countries as the USA have higher levels of school education, more access to the media and health education program than those living in low income countries, which could improve their knowledge relating to hypertension.

High salt intake is widely known in our sample as hypertension risk factor. This finding suggests a good acceptability of possible interventions for salt reduction in the target population.

Contrary to this study, poor attitudes towards hypertension were noted among hypertensive patients by Bacha et al. in Ethiopia in 2019 (48.6% in St Paul’s hospital, Addis-Ababa) and by Bollampally et al. in India in 2016 (53.8% in Gandi hospital) [19, 24]. Positive attitudes towards lifestyle modifications (99%) were rather reported in Nigeria (Kano teaching hospital) in 2017 [29].

Regarding good practices, higher frequencies were estimated among hypertensive patients in hospital-based studies in Ethiopia (20.3% and 49%) and in India (41.2%) [14, 15, 29]. Iloh et al. had reported low adherence of lifestyle modifications in Nigeria in 2014 (20.3%) while Dejene and Rathore indicated the opposite in Ethiopia in 2017 (61.4%) [30, 31].

We didn’t find any link between socio-demographic factors and KAPs. A larger sample could show significant associations. A significant link between educational level and knowledge towards hypertension was described in other studies in Ethiopia and Iran [15, 17].

This study was carried out in community among hypertensive screened people, informed of the results of blood pressure measurements. Over half of them have uncontrolled blood pressure. These people had received advice, directives and even prescriptions. However, about 50% said they had no history of raised blood pressure. Communication on the result should be improved during hypertension screening campaigns. We observed higher proportion of smoking (8.2%) than that reported in the general population in Benin (5%) [11]. Health monitoring and taking medication were irregular in more than half of the respondents who recognized that they were hypertensive. This situation does not promote blood pressure control in these patients. In view of these results, it is necessary to conduct a continuous awareness of hypertensive patients and to provide them support (implementation of support group, patient associations) in the management of hypertension. The implementation of

| Table 4. Evaluation of practices towards hypertension, among respondents, Tanvè (Benin) 2018 |
|---------------------------------------------------------------|
| Total=380 | % |
| Tobacco consumption (≥ 1 cigarette during 12 last months) | 31 | 8.2 |
| Low physical activity (< 150 minutes of moderate physical activity / day) | 62 | 16.3 |
| Low fruits and vegetables consumption (< 5 portions or 400 g / day) | 226 | 59.5 |
| Excessive alcohol intake (≥ 2 standard drinks / day) | 12 | 3.2 |
| Excessive soda consumption (≥ 1 bottle or 330 ml of soda/day) | 69 | 18.2 |
| Adding salt at the table in the meal (often) | 260 | 68.4 |
| Too salty meal consumption (often) | 352 | 92.6 |
| Irregular blood pressure measurement (< twice / year) | 203 | 53.4 |
| Irregular follow-up by a health worker (< once / year) | 335 | 88.2 |
| Lack of follow-up appointment | 374 | 98.4 |
| Lack of health book | 356 | 93.7 |
| Irregular blood sugar measurement (< once /year) | 163 | 42.9 |
therapeutic education program appears relevant in the studied population.

This study fills the information gap on the KAPs among hypertensive screened in the TAHES cohort in rural area. It will allow setting up local adapted interventions to their behaviour change. The sample was recruited from the community; the assessment of knowledge was broader (based on 24 items) and concerned all the respondents.

The study is based on statements. Information bias (memorization bias, social desirability bias) may have influenced the results. However, they were downplayed by the standardization of questions and the neutrality of investigators who were not health workers.

6. Conclusions

This study shows a low level of knowledge relating to hypertension and inadequate practices for secondary prevention. Interventions aimed at providing correct information on hypertension and support to hypertensive patients for the adoption of good behaviours would be effective in the target population. These interventions could also be relevant among hypertensive patients in others African rural areas with similar characteristics.

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