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How Ghanaian, African-Surinamese and Dutch patients perceive and manage antihypertensive drug treatment: A qualitative study

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Abstract

Objectives

To explore and compare how Ghanaian, African-Surinamese (Surinamese), and White-Dutch patients perceive and manage antihypertensive drug treatment in Amsterdam, Netherlands.

Methods

Qualitative study was conducted using detailed interviews with a purposive sample of 46 hypertensive patients without comorbidity who were prescribed antihypertensives.

Results

Patients in all the ethnic groups actively decided how to manage their prescribed antihypertensive regimens. In all the groups, confidence in the doctor and beneficial effects of medication were reasons for taking prescribed antihypertensive dosage. Particularly, ethnic-minority patients reported lowering or leaving off the prescribed medication dosage. Explanations for altering prescribed dosage comprised disliking chemical medications, fear of side effects and preference for alternative treatment. Surinamese and Ghanaian men also worried about the negative effects of antihypertensives on their sexual performance. Some Ghanaians mentioned fear of addiction or lack of money as explanations for altering prescribed dosage. Surinamese and Ghanaians often discontinued medication when visiting their homeland. Some respondents from all ethnic groups preferred natural treatments although treatment type varied.

Conclusion

Patients' explanations for their decisions regarding the use of antihypertensives are often influenced by sociocultural issues and in ethnic-minority groups also by migration-related issues. Self-alteration of prescribed medication among Surinamese and Ghanaians may contribute to the low blood pressure (BP) control rate and high rate of malignant hypertension reported among these populations in the Netherlands. This study provides new information, which can help clinicians to understand how patients of diverse ethnic populations think about managing antihypertensive drug treatment and to address ethnic disparities in medication adherence and BP control.

Introduction

Hypertension is a major modifiable risk factor for cardiovascular morbidity and mortality. In the UK and USA, ethnic-minority populations of African descent have a higher prevalence of hypertension and associated cardiovascular morbidity and mortality than people of European origin (henceforth, White).¹⁻³

The Netherlands has a growing population of first generation immigrants of African descent, particularly in urban areas. In Amsterdam, African-Surinamese (hereafter, Surinamese) from the former Dutch colony of Suriname and Ghanaians are two major groups. A recent study from Amsterdam indicated that the prevalence of hypertension is higher in Surinamese than in White-Dutch people.⁴ Surinamese who received antihypertensive medication were less likely than their White counterparts to have their blood pressure (BP) adequately controlled. Hypertension is also highly prevalent among Ghanaians.^{5, 6}

Adherence to prescribed antihypertensive medication is often poor,^{7, 8} particularly among ethnic-minority populations.^{3, 6, 7, 9-12} This may be one explanation for ethnic disparities in BP control and hypertension-related complications. To reduce these disparities, enhancing adherence to prescribed antihypertensives in ethnic-minority populations is, therefore, an important challenge in current hypertension care. According to the theoretical model of Kleinman, healthcare providers and patients have different 'explanatory models' of sickness and treatment.^{13, 14} Explanatory models of healthcare providers are generally focused on the disease and rely mostly on scientific logic and evidence. Lay explanatory models are generally focused on illness (the experience of disease) and may vary according to personality and sociocultural factors. Several studies have shown that a patient-centered approach that tries to understand patients' explanatory models about antihypertensives may help healthcare providers to improve compliance.^{8, 15-20} Studies of patients' perceptions regarding antihypertensive therapy have mainly focused on White populations.²¹⁻²⁸ The only such studies among ethnic-minority populations of African descent were conducted in the USA and the UK.^{10, 11, 29-32}

For example, studies comparing ethnic groups,^{10, 11} have indicated that low income African-Americans focus more on the present regarding their daily experiences with

managing hypertension than do White-Americans and believe more strongly in the immediate beneficial effects of traditional home remedies than in those of prescribed medication.¹¹ A British study among African–Caribbeans revealed that medication decisions were influenced by traditional cultural beliefs and practices from the country of origin,¹⁰ and provided a motivation for seeking herbal remedies and other alternative resources.^{10, 31} The impact of migration-related factors on the use of antihypertensive medication has not yet been studied. Surinamese and Ghanaians in the Netherlands are mostly first generation migrants. There are also important sociocultural differences between these groups.³³ This provides an opportunity to gain more insight into the role of both sociocultural and migration-related factors in patients' decisions regarding prescribed antihypertensive medication.

The objective of this study was to explore and compare how Ghanaian, Surinamese, and White-Dutch hypertensive patients perceive and manage their prescribed antihypertensive medications. We focused especially on their explanations for taking the medication as prescribed and/or for self-regulating the prescribed medication regimen.

Patients and methods

To elicit information on how hypertensive patients viewed and managed prescribed medication regimens, we undertook a qualitative study based on in-depth individual interviews, guided by a topic list. Such interviews are particularly useful for the exploration of patients' own ideas, as they give respondents the opportunity to address themes that researchers may not have anticipated.³⁴

We recruited patients from three primary care health centers in southeast Amsterdam. This area has a high proportion of Surinamese and Ghanaian residents. Together, these health centers have 17 general practitioners (GP), 17 practice nurses/assistants, and three pharmacies. Treatment takes place according to the Dutch GPGuidelines for hypertension.³⁵ These guidelines provide no specific recommendations concerning the diagnosis and treatment of patients of African descent.

In qualitative research, saturation is a criterion for determining the sample size. This means that the number of respondents is sufficient if interviews do not yield any new themes. Large qualitative studies seldom consist of more than 50–60 interviews.³⁶ Our aim was to recruit a purposive sample of up to 60 patients. Inclusion criteria were: age between 35 and 65 years, diagnosis of hypertension (ICPC code K.86) without comorbidity, at least 1 year of pharmacotherapy. The second criterion was used because comorbidity may interfere with patients' views on hypertension; the latter because we sought patients with established treatment patterns. Within this group, we sought maximum variety with respect to health center, physician, ethnicity, and sex. Electronic patient records from the GP-practices were used to generate a list of all patients, (453) who met our inclusion criteria. As Dutch electronic patient records provide no information on patients' ethnicity, attending physicians helped to identify Dutch, Ghanaian, and Surinamese patients from our initial list. On the basis of our criteria for variety, the researcher invited 120 patients for an interview by mail. Sixty-five expressed an interest in participating but 54 respondents were interviewed. Ethnicity (first generation) was double-checked using self-identification.³⁷ Nineteen respondents were Ghanaian; 19 were Surinamese and 16 were White Dutch.

The topic list for the interviews was built upon earlier work on patients' perceptions of medicines and illness^{13, 38, 39} and was adapted and pretested by Erik

Beune and John Schuster. It consisted of open-ended questions to explore the following issues: ideas about the nature, causes, duration, and consequences of hypertension; past and current experiences of managing hypertension, concerns, and expectations about the future and medication use. Box 1 illustrates the questions about medication use. The topic list was edited in Dutch and translated from Dutch into English by a Ghanaian-English translator. Erik Beune conducted the interviews in English with the Ghanaian respondents and in Dutch with the Surinamese and Dutch respondents. Respondents were guaranteed confidentiality. All but three interviews took place in the respondents' homes. The interviews were digitally recorded and lasted an average of 90 min.

Demographic data about each participant were collected at the end of the interview. Information concerning respondents' most recently measured BP, BMI, prescribed medication, and how often prescriptions were collected at the pharmacy in 6 months prior to the interview was collected from the electronic patient records. All respondents gave informed consent for the interviews and for consulting their records.

All interviews were fully transcribed and checked for errors. The transcripts were analyzed using content-analytical techniques: fragments containing the respondents' ideas about major themes were identified from each interview; fragments with statements about medication were selected and coded. Similar codes were assigned to related statements, resulting in a code list for each interview; code lists were compared to identify common and unique themes, yielding a thematic matrix for each ethnic group; similarities, variations, and patterns among ethnic groups were identified by comparing the thematic matrices.

To classify self-reported patterns of medication use, we used two categories suggested by Conrad:⁴⁰ use as prescribed and self-regulated use during the past month. The category self-regulated is used if a person has reduced or raised the daily dosage of prescribed medication for several weeks or more, or commonly skipped or increased dosages under specific circumstances, or stopped taking the drugs completely for 1 week or more.

Data analysis was performed using Maxqda software.⁴¹ Erik Beune analyzed the data using four mechanisms to increase validity: to establish the initial code list for fragments, Erik Beune and John Schuster coded four interviews independently to check for intercoder consensus concerning the assignment of text segments to major themes;

to establish a code list for fragments on the use of antihypertensive medications, Erik Beune and Joke Haafkens independently coded 20 fragments on medication use and discussed intercoder consensus; Erik Beune and Joke Haafkens compared the thematic matrices from each ethnic group independently to check for consensus on conclusions regarding similarities and variations; the main results of the study were presented in separate meetings with six physicians and eight other primary healthcare professionals from practices who were involved in the study to receive feedback about the plausibility of the conclusions.

Results

Respondent characteristics

Forty-six of the 54 interviews were included in the data analysis. Eight interviews were discarded because they did not meet the inclusion criteria or could not be recorded.

Table 1 shows characteristics of the participants. All Ghanaian and Surinamese respondents had been living in the Netherlands for several years. Most Ghanaian respondents did not want to stay in the Netherlands permanently; Surinamese respondents were more ambivalent on this issue. Ghanaians were generally less educated. With the exception of one Ghanaian, all respondents had a regular income through work, social security benefits or a pension. Two Ghanaians did not have a health insurance because of lack of residency permit.

Most respondents had been living with hypertension for many years (varying from one to thirty years). Dutch patients generally reported longer histories of hypertension than Ghanaian and Surinamese patients. According to the electronic patient records, most respondents (37/46) had a BMI above normal ($>25 \text{ kg/m}^2$), and nearly half (22/46) were obese ($>30 \text{ kg/m}^2$). Only 39 of the 46 patient records provided information about BP readings during the last medical check-up preceding the interview. Nearly half of those readings reported uncontrolled BP. According to patient records, three-quarters (35/46) had collected prescription medication at the pharmacy during 6 months immediately preceding the interview.

Reported patterns of medication use

Using the criteria proposed by Conrad, respondents reported three major patterns of antihypertensive medication use (Table 2). The first group reported having taken their medication according to prescription consistently since they were diagnosed with hypertension. Most of these respondents were Dutch. The second group reported currently taking their medication according to prescription, after having experimented with self-regulation earlier. Most of these respondents were Surinamese. The third group reported regulating their medication use themselves. Most of these respondents were Ghanaians. None of these respondents reported raising the daily dosage of

prescribed medication. Overall, 10 respondents reported forgetting to take medication once a week or more.

Patients' explanations for using antihypertensive medication according to prescription

The group of respondents who said they had always used their antihypertensives according to prescription (six Ghanaians, 11 Dutch, five Surinamese) gave five major reasons for this choice (Box 2).

- (1) Eleven respondents mentioned trust in their doctors' decision authority as an important reason for adopting this pattern of medication use (ID41, ID1, ID26).
- (2) The beneficial effect of the medication on the BP was mentioned by nine respondents (ID37). Interestingly, particularly Surinamese (3/5) and Ghanaian respondents (4/6) emphasized that they also adhered to the prescribed regimen to reduce the symptoms they experienced from hypertension (ID1, ID4, ID25).
- (3) For some respondents the absence of side effects had been an important condition for following the prescribed medication regimen (ID45). Indeed, the majority (16/22) of these 'adherent' patients reported they had not experienced side effects; but those who had experienced such effects (6/22) felt they had to accept them, and moreover, they did not always discuss this with their doctors (ID24).
- (4) The prevention of the potentially harmful effects of hypertension was another reason why people adhered to the prescription. Particularly Ghanaian and Surinamese respondents felt that this pattern of use might prevent the sudden complications they expected and feared from elevated BP (ID25). In contrast, others thought that medications might help prevent long-term cardiovascular damage (ID40). Two Dutch respondents reported taking medication as prescribed to avoid making any other lifestyle changes (ID44).
- (5) A final consideration, particularly mentioned by Ghanaians, was that the medication would be necessary only for a limited time. They believed that hypertension is curable for instance under healthier living conditions, or by praying (ID14).

Patients' explanations for self regulating antihypertensive medication

At the time of the interview, 11 respondents were not taking their medication according to the prescription (seven Ghanaian, one Dutch, three Surinamese). The most frequently mentioned patterns of self-regulation comprised reducing the prescribed daily dosage for several weeks or more, skipping doses regularly under specific circumstances, discontinuing medication for several days each week or for even longer time intervals, and substituting alternative therapies.

Respondents' accounts yielded five major reasons for changing the prescribed regimen (Box 3).

- (1) Distrust in modern doctors. This consideration was only mentioned by the Dutch respondent (ID42).
- (2) Avoiding actual or expected side effects of the medication was a more commonly mentioned reason, for example, weakness, weight gain or increased urination (ID3). Surinamese and Ghanaian men also mentioned concerns about their sexual performance as a reason for regularly omitting medication (ID31, ID9). A Ghanaian respondent explained this in terms of the experience that the loss of sexual performance affects the social status of men in his community. Some Ghanaian respondents also feared antihypertensives may lose their efficacy if they are used regularly (ID8) or that they might cause addiction. This might present problems, should they return to Ghana in future (ID10).
- (3) Perception concerning the cause and nature of hypertension was a third reason for altering the prescribed dosage. Whereas many respondents (37/46) linked the cause of their hypertension to stress, Ghanaian and Surinamese often saw their hypertension as a result of stress due to their migrant status. For some, this was a major reason for discontinuing medication use when visiting their homelands (ID9, ID31). Some Ghanaian and Surinamese respondents also said they could monitor their own BP through physical signs and symptoms, and that they regulated their medication accordingly (ID31). Others used BP measurement outcomes from doctor visits as a reason for adjusting the dosage. Some interpreted a normal BP reading at the doctor's office as evidence of being cured, and therefore as a sign that no further medication was needed (ID12).

Conversely, an uncontrolled BP reading when medication was used consistently as prescribed could indicate that medication was not effective, and that it could therefore be reduced.

- (4) Most Surinamese respondents had a great deal of knowledge about traditional Surinamese remedies for hypertension. One respondent in this group replaced the prescribed medication with Surinamese herbal remedies (ID31), because he had more confidence in herbal treatment. He believed the pharmaceutical drugs had caused his sexual problems and, in addition, he was concerned of future harmful effects.
- (5) A lack of money was also an explanation for reducing the prescribed daily dosage. This was only mentioned by two Ghanaians without a residency permit and, therefore, no health insurance. For instance, a Ghanaian woman (ID2) explained she could only buy her medication if the church had provided sufficient financial support.

Despite the fact that most self-regulating respondents had major concerns about the prescribed medication regimen, only a few had sought advice from the healthcare professionals who were in charge of their treatment.

Patients' explanations for shifting from self-regulation to a prescribed pattern of antihypertensive medication use

Thirteen respondents reported having self-regulated their antihypertensives earlier, but had eventually resumed using the medication as prescribed (three Ghanaian, three Dutch, seven Surinamese). The interviews revealed that explanations for self-regulation differ little from those mentioned before (Box 3). Nevertheless, four major reasons emerged why respondents shifted from self-regulation to the prescribed pattern of use (Box 4).

- (1) Respondents in all groups reversed their self-regulated medication regimen after noticing undesirable effects. For example, after symptoms had returned (ID18) or after measurement at the doctor's office or elsewhere had shown that their BP was too high (ID36).

- (2) Some respondents reported changing their medication patterns after they had come to the conclusion they might be at serious risk for cardiovascular disease. For some, their age or increasing physical disabilities had triggered this realization. For others, particularly Surinamese and Ghanaians, the realization emerged when other people in their communities had suffered strokes or other serious consequences of hypertension (ID19).
- (3) For some respondents, discussing their self-regulated patterns with their doctors had led to the decision to return to the prescribed regimen (ID11).
- (4) Finally, some reported resuming the prescribed medication just for practical reasons, because natural remedies were sometimes difficult to find and may require lengthy preparation (ID21).

Natural therapy

In general, the type of natural therapies used as an addition to or a substitute for prescribed medication differed by ethnic group. Dutch respondents preferred homeopathy, acupuncture, Philippine healing, magnetization, or home remedies (e.g., apricots). Surinamese respondents primarily used herbal and home remedies from Suriname, such as bush-sopropo, coconut bark, red cotton, neem, papaya leaf, garlic tea, blanched celery, cucumber, and lemon, but also homeopathy and acupuncture. A few Ghanaians used perekesse, a Ghanaian herbal remedy for BP; but most Ghanaian respondents were reluctant to use Ghanaian herbs for fear that the combination of herbs and medicines would be dangerous. Some also associated herbal treatment with lower social status. In Ghana, these treatments are used most commonly by those who cannot afford western medicines.

Discussion

In this study, we explored and compared explanations of Dutch, Ghanaian, and Surinamese hypertensive patients concerning their use of prescribed antihypertensives in Amsterdam, Netherlands. Our findings show that patients do not simply follow doctors' orders but actively decide how to manage their prescribed medication regimens. About half of the respondents had decided to adopt self-regulated regimens to reduce the prescribed dosage. Half of these self-regulating respondents, however, had eventually resumed the prescribed pattern of medication use.

The explanations the participants of three ethnic groups mentioned for their reported pattern of antihypertensive medication use were similar in many respects and not exclusive for one ethnic group. Nevertheless, the results also suggest that cultural and social considerations play a role in patients' medication decisions.

Some considerations for taking antihypertensives as prescribed were only mentioned by Ghanaians and Surinamese and not by the Dutch. One consideration was that medication helped relieving the symptoms that they attributed to hypertension. This may be related to cultural differences in patients' explanatory models of hypertension, which is consistent with results of previous studies that suggest that hypertension is more often experienced as a symptomatic condition among ethnic-minority patients than among Whites.^{10, 42} The other consideration was that medication was only needed for a limited time as hypertension was thought to be curable. In contrast, only a few Dutch participants reported taking antihypertensives as prescribed to counteract unhealthy habits that may increase the risk of cardiovascular disease.

Whereas all groups mentioned side effects as a reason for decreasing the prescribed medication, only some Surinamese and Ghanaian men mentioned concerns about the negative influence of the medication on their sex lives as a major reason for choosing this pattern of medication use. A Ghanaian participant attributed this concern particularly to the social pressures on sexual performance in his community (loss of sexual performance affects the social status of men). Such concerns require further attention, as they may offer one possible explanation for the low rates of hypertension control found among African–Surinamese men recently in southeast Amsterdam.⁴

Another interesting finding is that many Ghanaian and Surinamese patients mentioned discontinuing their medication when visiting their homelands. This may be related to how first generation migrants view hypertension. In a prior paper, we reported that there was a widely held belief in both groups that hypertension is caused by the stresses and changes in climate and nutrition patterns associated with migration to a new environment.⁴² Some Ghanaians mentioned concerns about becoming dependent on antihypertensives as a reason for reducing their dosage, emphasizing that this side effect might be particularly problematic should they return to Ghana, where this medication may be less readily available. In addition, for migrants without health insurance, financial difficulties may be a reason for limited medication use. In the Netherlands, access to health insurance is particularly problematic for migrants without a residency permit, such as two Ghanaian participants in this study. This is in line with a recent study in southeast Amsterdam, which found an association between low antihypertensive medication adherence and insurance status among African patients.⁶

Finally, some respondents from all ethnic groups, particularly Surinamese, preferred natural treatments to antihypertensives, but treatment type varied by culture.

In this study, a qualitative method based on detailed interviews proved to be a useful approach to elicit perspectives on the use of prescribed antihypertensive medication of White-Dutch and two previously unstudied ethnic-minority groups in Europe. The strength of the chosen method is that it builds on direct experiences of patients. We interviewed a sufficient number of people to reach saturation, which is a criterion for sample size in qualitative studies.⁴³

Our study has, however, some limitations. First, the group we interviewed was limited to White-Dutch and first generation Ghanaian and Surinamese hypertensive patients, without comorbidity or complications, who were between 35 and 65 years old and, chiefly, of lower to middle socioeconomic status. In addition, Ghanaian participants were more socioeconomically disadvantaged compared to Dutch and Surinamese. Moreover, participants had received treatment for an average of 5 years. Consequently, our findings may not capture the perspectives of other groups of patients, for example, second-generation migrants. Future studies may want to explore the perspective on antihypertensive medication use in these populations. Secondly, adherence was measured by self-report and not by pill counts or other more objective

measures. Although the size and uniqueness of our study population do not allow for generalizations, the analysis of the data was rigorous. Furthermore, the information we obtained is credible in the light of other studies on decisions about antihypertensive medications among different ethnic-minority groups in the UK and the USA.^{10, 11, 16, 21-23, 31, 32}

In conclusion, although we found similarities between patients from the ethnic-minority groups and the host culture, the study reveals that the patients in all groups also have culturally specific explanatory models for medication management. There were some consistent accounts of Surinamese and Ghanaians, suggesting that the experience of symptoms of hypertension, side effects of medications, the meaning of remedies from their countries of origin, and the migration itself are important considerations for following or altering the prescribed medication regimen. Patient-centered approaches are currently recognized as a means of improving adherence,^{15, 18-20, 25} thus possibly increasing hypertension control rates. Our findings imply that healthcare professionals in multi-ethnic clinical practices should consider both culturally specific issues and migration-related issues regarding the use of antihypertensives in ethnic-minority patients. Our findings provide new information that can help clinicians to understand how patients of diverse ethnic populations think about managing antihypertensive drug treatment. They may be used in clinical practice and for future research to address the ethnic disparities in medication adherence and BP control.

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Table 1 Respondent characteristics

	Ghanaian (n=16)	Dutch (n=15)	Surinamese (n=15)	Total (n=46)
Socio-economic characteristics:				
Sex (woman)	9	8	9	26
Age				
Median (range)	45(35-54)	50(40-62)	50(37-65)	47(35-65)
Educational level*				
-Low	6	1	3	10
-Middle	7	12	10	29
-High	1	2	2	5
-Missing data	2	0	0	2
Income from				
-Employment	7	9	9	25
-Social security or disablement benefits	7	5	4	16
-Pension	0	1	2	3
-No income**	1	0	0	1
-Missing data	1	0	0	1
Duration of stay in NL (years)				
Median (range)	14.5(4-26)	-	24(6-43)	-
Migration perspective				
-Wants to stay in NL	1		2	
-Wants to return to country of origin	10		3	
-Does not know yet	3		7	
-Missing data	2		3	
Health insurance				
-Public health insurance	14	12	11	37
-Private insurance	0	3	4	7
-No insurance**	2	0	0	2
Disease specific characteristics:				
Years since diagnosis of hypertension				
Median (range)	6(1-24)	18(1-30)	5(1-23)	7(1-30)
Body Mass Index (kg/m²)				
Median	28.7	27.8	31.6	29.5
(range)	(23.0-37.1)	(21.6-47.4)	(25.5-60)	(21.6-60)
<25	4	4	0	8
25-30	6	4	5	15
>30	5	7	10	22
-Missing data	1	0	0	1
Blood pressure controlled (patient record)***				
-Yes	6	8	6	20
-Missing data	2	3	2	7
Prescribed antihypertensives collected at pharmacy (patient record)				
-Yes	11	13	11	35
-Missing data	2	2	0	4

*Categories: low: up to primary school, middle: up to secondary school or middle vocational training; high: up to higher vocational training or university.

**Due to illegal status

***BP less than 140/90 mmHg

BP, blood pressure; NL, Netherlands

Table 2 Self-reported patterns of medication use in three ethnic groups

	Always as prescribed	As prescribed now, self- regulated ^a in the past	Self- regulated ^a	Forgets once a week or more
Dutch	11	3	1	2
Surinamese	5	7	3	4
Ghanaian	6	3	7	4
Total	22	13	11	10

^aSelf-regulated.⁴⁰

Ask about prescribed medication (last year – present)

How do you feel about it?
How do you feel about medicines in general?

Day-to-day routine
Routine during holidays or stay in Ghana/Suriname
Expected duration of use
Explanations for medication-taking pattern

Expectations
Experiences

Perceptions
Experiences
If applicable, explanations for use of it
How does it interfere with prescribed medication?
Is doctor aware? If no, why?

From whom?
How do you feel about them?
How do they affect you?

How do you feel about it?

Box 2 Patients' explanations for using antihypertensive medication according to prescription (n=22)

Reported reason	Examples of statements
<i>The doctor knows best</i>	<p>ID41: <i>I properly stick to what he (the doctor) tells me to do, because he knows more about it than I do (62-year-old Dutch female).</i></p> <p>ID1: <i>They say I should use it. Maybe it can help me. And he says if I'm using this correctly maybe a time will come, it's not two but just one pill... (39-year-old Ghanaian female).</i></p> <p>ID26: <i>The doctor didn't prescribe it without reason, so... (38-year-old Surinamese female).</i></p>
<i>Beneficial effects on hypertension</i>	<p>ID37: <i>I am taking them because with these very simple medications I am able to keep my BP completely in control (59-year-old Dutch male).</i></p> <p>ID1: <i>Always I'm taking it. I think that one is helping me to get more energy. To work a lot (39-year-old Ghanaian female).</i></p> <p>ID4: <i>Any time I feel the eye pain... I know that the pressure is playing around with me. And when I take the medicine, then it goes down (35-year-old Ghanaian male).</i></p> <p>ID25: <i>I take my tablet every day. Because if I don't do this, I get palpitations (65-year-old Surinamese female).</i></p>
<i>No decisive side effects</i>	<p>ID45: <i>I am not afraid of medicines, but I am afraid of medicines that have side effects; That's why I refused to take antidepressants</i> <i>I: And what about Adalat?</i> <i>R: I have never had any side effect of that drug (57-year-old Dutch male).</i></p> <p>ID24: <i>I just want to keep this BP in control, so I just swallow them. ..you do notice that it has an effect on sexual potency. But eh.. I haven't really discussed this with the GP... God, it is always, how shall I say this, yes a painful topic. It's a bit taboo isn't it.. (37-year-old Surinamese male).</i></p>
<i>Prevention of harmful effects from hypertension</i>	<p>ID25: <i>That fear, I even carry my tablets always with me. In case I forgot, I could take it at once...That fear, in case I don't take it, my heart or my BP.. (65-year-old Surinamese female).</i></p> <p>ID40: <i>You have to use these medicines over a longer period of time, in case you want to realise an effect (50-year-old Dutch male).</i></p> <p>ID44: <i>Look, they just say: you shouldn't smoke and do this, do that! Well, I really don't feel like doing that. Cuz..well uhm.. ye-ah.. really, I feel like I'm on the right track with these medications.. I've been slowing down and cutting down, but I'm not just going to sit here, like I'm a hermit or somethin' (49-year-old Dutch male).</i></p>
<i>Hypertension may be time limited</i>	<p>ID14: <i>The house doctor told me, I'm going to take this medicine forever.</i> <i>I: What did you think of that?</i> <i>R: I, well, I said to the doctor, I don't think so. Every time I pray to God to cure this disease. So every time I pray for it. And I believe, one day, maybe the God will answer my prayer (39-year-old Ghanaian female)</i></p>

Box 3 Patients' explanations for self-regulating antihypertensive medication (n=11)

Reported reason	Example of statement
<i>Distrust in doctors</i>	ID42: <i>I really don't want to put down Dr. S. But, you know, the doctors we have today..I really don't trust them much, and I really mean that! If I get a prescription for two pills and I find that one pill does the trick, why take another? I decide, it's my body! (40-year-old Dutch male)</i>
<i>Side effects</i>	<p>ID3: <i>If I will stay away a long day, maybe one day I don't take, because of the urine, so I don't take it (50-year-old Ghanaian female)</i></p> <p>ID31: <i>When you use those tablets you get other troubles, for instance kidney problems or.. you lose your erection, that's number one. Because of all the tablets I am using now, my erection has deteriorated. I tell you this honestly.. (57-year-old Surinamese male)</i></p> <p>ID9: <i>During the medication my sexual intercourse doesn't work normal as I see it...Every time I take the medicine, I find it real hard to make sex. I don't feel like making sex, you know. But when my medication is not there, then I feel like making sex, you know. So that is the way I see the difference (45-year-old Ghanaian male)</i></p> <p>ID8: <i>It will come to some point the medicine cannot work anymore. So most of the doctors here tell me, ...like if you take paracetamol every day, it will be sometime that you take paracetamol and your headache will stay (51-year-old Ghanaian male).</i></p> <p>ID10: <i>... you depend on the tablets every day. Maybe one day, you need tablet and you'll be in Ghana. And there's no tablet anymore there.. Then, that can going to give problem. Because already the body has got used to the tablet, you know. That's why I'm trying now to minimise it. So two times a week, or one time, then it is okay, it come down then (50-year-old Ghanaian male)</i></p>
<i>Perceptions of hypertension</i>	<p>ID9: <i>When I was in Ghana I didn't took the medication. But here, I come and the pressure is going high! Because the situation here, you have to think about your tax, every time it's just pay, pay, pay... Once the pressure is high, I think it makes sense [to take the medication], because, that BP I can control it myself, when I look inside me I feel there's no need to take the medication (41-year-old Ghanaian male)</i></p> <p>ID31: <i>In Suriname I don't have any problems with my hypertension. Everything is normal.. No symptoms at all. Life is relaxed there.</i> <i>I: Do you still take your medication if you are there?</i> <i>R: Not at all. I don't need them. Really, You look surprised but that's how it is.. (57-year-old Surinamese male)</i></p> <p>ID30: <i>I went back to the doctor and he said: It is going in the right direction, because the BP is somewhat lower again, man, all right. But I didn't tell him I had stopped (63-year-old Surinamese male)</i></p> <p>ID12: <i>Sometimes when it's regulated I stop for some time (43-year-old Ghanaian female)</i></p>
<i>Natural therapy treatment of choice</i>	ID31: <i>now and than I take a tablet in between.. once a week a tablet and for the rest I drink this [Niem], you know? (57-year-old Surinamese male)</i>
<i>No health insurance</i>	<p>ID2: <i>I quit my medication sometimes.</i> <i>I: Why is that?</i> <i>R: I'm not working. I have problems with my stay permit. That's why.</i> <i>I: And you cannot pay for the medicines?</i> <i>R: No. I'm not working. I only want to quit the medicine for one..; one week is okay. After one week I have to find a way to get medicine to take (38-year-old Ghanaian female)</i></p>

Box 4 Patients' explanations for shifting from self-regulation to prescribed pattern of antihypertensive medication use (n=13)

Reported reason	Example of statement
<i>Unsatisfactory outcomes</i>	<p>ID18: Last year in Suriname it struck me that I became nauseated and dizzy. So I thought this is because I stopped the medication. So I decided it would be better to take them (38-year-old Surinamese female)</p> <p>ID36: A friend of mine is a Philipino healer and he was giving me treatments. He said you are still using the medications but you can just as well stop, now that you are receiving these treatments. I thought, well let's try. But in the same period I joined a meditation group, and I needed a medical check up to enter the group. Then it appeared that my BP was extremely high, so then I started using them again. That was the turning point. I realised I shouldn't mess around with the medication (51-year-old Dutch female)</p>
<i>Increased awareness of the risks associated with hypertension</i>	<p>ID19: Since I got this message of someone in my family who's very ill, and I am also getting older, I realised..., I don't want anything to happen, I still want to go on living. So now I'm more careful with my tablets than before...(61-year-old Surinamese female)</p>
<i>Discussing medication-use with the doctor</i>	<p>ID11: I stopped the medicine about six months or something. And when I go to the doctor I told, now I stop the medicine. And the doctor tell, no I should continue to drink, if I don't drink the medicine, they will, infect something or... Then I started to drink the medicine again (44-year-old Ghanaian male)</p>
<i>Convenience</i>	<p>ID21: I stick to the prescribed medicines. It is much easier, as compared to celery. Celery you have to buy and then you have to cook it a long time. Pills, you have already at home and the only thing you have to do is press the strip and to take one (42-year-old Surinamese female)</p>