

**Perspectives on anti-hypertensive medication: A qualitative study in a rural Yogyakarta Province in Indonesia**

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## **ABSTRACT**

**Introduction:** Patients' perceptions and beliefs underpin their adherence to pharmacotherapeutic regimens and are influenced by access to appropriate information and education. This study explores the perceptions about anti-hypertension medication of lay persons from a low-resource community in Indonesia.

**Methods:** Individual, semi-structured interviews were conducted, transcribed and thematically analysed. Fourteen respondents (i.e. older persons with hypertension and lay health workers) from a local community-based health program in Yogyakarta province (Indonesia) were recruited for this qualitative study.

**Results:** Four themes emerged: 1) Participants felt that medication for hypertension is unnecessary, instead preferring lifestyle changes and traditional medicines; 2) A fear of becoming dependent on medication underpinned non-adherence to anti-hypertensive agents; participants with hypertension wanted to achieve normal blood pressure but without taking long-term medication; 3) Symptom-based drivers for treatment led participants to rank other health problems a higher priority than hypertension; 4) Although lay health workers had an opportunity to provide information about hypertension and its management, participants themselves considered this to be currently inadequate.

**Conclusion:** Some misconceptions regarding the role of anti-hypertension medication that negatively influenced adherence were identified. Beliefs that hypertension can be easily treated by lifestyle modifications can undermine motivation to take anti-hypertensive agents. Participants expressed their need for more targeted information about hypertension and its treatment; however, they do not expect to obtain such information from their physician. The potential role of lay health workers needs to be further explored as a strategy to enhance understanding and adherence.

### **Keywords:**

Hypertension, adherence, patient perspectives, lay health workers

## 1 Introduction

Adherence to prescribed anti-hypertensive agents and appropriate lifestyle changes are keys to the effective management of hypertension in all communities (1-3). Unfortunately, poor adherence to medication regimens is a pervasive problem in the treatment of hypertension (4-6). In Indonesia, a study involving 1,814 hypertensive adult patients reported that more than one third of patients did not take their anti-hypertensive medication (7). The complex reasons for non-adherence include factors related to the patients themselves, the health condition, the treatments, and the health system (8-10). Therefore, improving adherence to long-term medication requires multiple approaches such as improving patients' recognition of non-adherence, increasing awareness of the factors contributing to non-adherence, and enlisting social support (11).

Patients' beliefs regarding their illness and their knowledge about their medicines significantly affect medication non-adherence (12, 13) and these may be influenced by the local culture (14) and access to appropriate information (15). For example, a study in Indonesia has shown that some patients believe that it is appropriate to stop taking a medication when feeling better or feeling worse, leading to non-adherence to tuberculosis treatment (16). Such factors are particularly prevalent in certain settings, such as those with strong local cultures and/or poor access to health service e.g. rural communities. In some low resource settings, community-based programs run by lay health workers (LHWs) have been reported to address local health needs, including providing support for patients with hypertension (17-19) and access to information. Although previous studies have explored how patients' perceptions regarding hypertension medication (20), further information is needed to understand how any misperceptions can be addressed in a targeted way via LHW-based programs. This study, therefore, aimed to explore the perspectives of members of a LHW-based program (i.e. persons with hypertension participating in the support program) in a rural area in Yogyakarta Province (Indonesia) as well as the perspectives of the LHWs in Indonesia, regarding hypertension medication. Addressing their perspectives might aid the improvement of hypertension programs that involve LHWs to better support local patient populations.

## 2 Methods

### 2.1 Study design

A qualitative study comprising semi-structured interviews was conducted in a local community-based health program (Integrated Health Service Post for the Elderly/ IHSP-Elderly) in the Bantul district, a rural district in Yogyakarta province, Indonesia.

### 2.2 Recruitment of participants

A list of sites (comprising 861 IHSP-Elderly, spread across 27 community health centres in the Bantul district, Yogyakarta province) was utilised as the sampling frame (21). In the first instance, one community health centre was randomly selected using an online number generator. Second, as there were 71 IHSP-Elderly within the selected community health centre, one IHSP-Elderly was similarly randomly selected.

Within the selected IHSP-Elderly there were two groups of respondents (Figure 1). The inclusion criteria were:

- a. Participants (i.e. member of the IHSP-Elderly): persons aged 60 years and older, diagnosed with hypertension (systolic blood pressure 140 mmHg or higher/diastolic blood pressure 90 mmHg or higher) based on IHSP-Elderly records, had been members of the local IHSP-Elderly for at least one year.
- b. Lay Health Workers (LHWs): local residents who had served as volunteer workers of community-based programs in IHSP-Elderly for at least 3 years.

Lay health workers in the IHSP-Elderly worked as volunteers with responsibility for approximately 70 older persons. In the study, they helped to prepare a list of participants who fulfilled the inclusion criteria (potential participants), and also promoted the study to the participants (i.e. members). All eligible members were invited to take part in the study. Considering the scope of the study, the amount of information per participants, and participants' homogeneity, an estimated 8-10 participants was initially sought to achieve theme saturation, based on requirements for this type of qualitative method (26, 27). Theme saturation was attained after interviewing 11 participants.

### 2.3 Ethical Consideration

Approval to conduct the study was obtained from the local government, authorised in providing approval for conducting research studies. It was an independent administrative process, which involved reviewing the study protocol and other supporting documents. The study was not commenced before obtaining the approval. All participants were informed about the study and were required to provide consent to participate in the study. No participants received financial reward for their interview.

### 2.4 Data collection and analysis

Data were collected through in-depth interviews. The interviews were conducted by the lead researcher, using an interview guide that was designed to elicit participants' perspectives via open-ended questions and probes to trigger discussion. The questions were developed based on previous studies exploring medication-taking behaviour in hypertension patients (28, 29). For the convenience of the participants, the interviews were undertaken at an IHSP-Elderly meeting venue.

Interviews were audio-recorded and transcribed verbatim in the local language (Javanese or Indonesian). The lead researcher translated each transcript from the local language into English. An external independent translator verified the accuracy of the translation. All transcripts were subsequently analysed using thematic analysis via manual inductive coding. Once the initial themes were elicited, they were independently reviewed by the co-researcher. Each theme was supported by using the participants' quotes. To ensure validity of the analysis, the final themes were fed-back to selected participants. Interviews were conducted until theme saturation was reached, i.e. no new themes emerged.

## 3 Results

Eleven members of the IHSP-Elderly with hypertension and three LHWs participated in the study (Table 1).

Four key themes were identified: (1) Misconceptions about hypertension and the role of medication; (2) fear of dependence on medication underpin non-adherence (3) symptom-based drivers for treatment; and (4) inadequate information on hypertension medication.

### 3.1 Misunderstanding of Hypertension and the Role of Medication

Regarding the cause of hypertension, participants and LHWs in this study believed that hypertension was more likely to be associated with diet and lifestyle factors. They acknowledged the relationship between hypertension and food consumption (particularly salty and unhealthy food, and a high meat intake), heavy workload and stress:

*“I consumed a lot of lamb last month. Actually, I was afraid my blood pressure would increase because of that.”* (Member)

*“I realized that at that time I was very tired and had many things to manage. My blood pressure was 180; it was usually only 140. I believe that by taking a rest, my blood pressure will go back to normal.”* (Member)

*“I am amazed at how many people, not only the elderly, suffer from hypertension. I think it is because they cannot stay relaxed, and the food, you know, salty, oily, there are so many kinds of unhealthy food surrounding them.”* (LHW)

These beliefs were reinforced by the advice received from LHWs regarding how to deal with diet and stress:

*“She [LHW] asked me to be more patient. That’s a good thing. I want to have normal blood pressure.”* (Member)

*“Usually, I tell them not to worry, not to get angry and to be active in IHSC-Elderly because they can laugh together. It releases the stress.”* (LHW)

*“LHWs told me to reduce salty and oily food.”* (Member)

This in turn affected participants' willingness to take medicines. Although participants were aware that they had hypertension, some of them decided not to consume anti-hypertensive agents as a way to lower their blood pressure, preferencing lifestyle changes instead.

*"No, I didn't take any medicine at all. I only need to drink a glass of hot water. It made me sweaty and then I felt better."* (Member)

*"I never take medicines for high blood pressure. I didn't do anything except come here [IHSP-Elderly] to find out my blood pressure level. In case it is high, I will be more conscious of my diet."* (Member)

*"I prefer drinking herbal remedies. I just asked the seller to give me "healthy herbal", and they would mix some ingredients and serve it in a glass. I do not know what the ingredients are, but at least all of them are natural, not harmful to my body."* (Member)

Using complementary medicine to reduce blood pressure was believed to be safer than using conventional medicine. Furthermore, some participants also reported purposefully consuming several foods which they believed could lower blood pressure, such as Jamaican strawberries, cucumbers, and watermelons.

### 3.2 Fear of Dependence on Medication as a Driver for Non-adherence

The participants believed that long-term medication was not a safe option. They assumed that consuming anti-hypertensive medication regularly would cause them to become dependent, leading to negative effects:

*"I don't want to depend on medicine; as we know, it is a kind of poison."* (Member)

*"Actually, I don't want to depend on medication, but the doctor has asked me to consume anti-hypertension medication routinely. Should I do it?"* (Member)

Those IHSP-Elderly members who also utilized other standard health care services reported that they generally received their medication supplies from a health provider (e.g. physician or nurse), with each supply lasting for 4–10 days only. Once the medication was initiated and provided by a health provider, participants reported that they adhered to the instructions (dosage, frequency and

schedule) but intended to stop consuming the medicine once the supply ran out. Participants tended to adhere to short-term medication use, initiating their own “drug holidays”.

*“I got medication for ten days, and then after it ran out, I just maintained my healthy diet until the check-up date the next month. I think it’s better for me. I will not consume too much medicine.”*

(Member)

### 3.3 Symptom-based Drivers for Treatment

Most of the participants could not define exactly when they were diagnosed with hypertension, although some participants mentioned they had been diagnosed with hypertension for more than five years. Participants stated that they could not tell when they first had high blood pressure because they did not experience any symptoms.

*“No symptoms at all, that’s exactly no symptoms. I cannot determine when the blood pressure rises.”* (Member)

*“I surrender to God; there was no symptom, no headache.”* (Member)

*“Eight years ago, I got information from a midwife that hypertension without a symptom was dangerous. She told me about the risk of stroke. I didn’t really understand her explanation. She tried to scare me; however, I didn’t feel anything wrong with me. So, I don’t really care. I sincerely resign my condition to God.”* (Member)

When discussing medicines for illness, the vast majority of participants were able to describe the symptoms (especially pain) associated with other conditions and how this affected their quality of life. It was apparent that the presence of symptoms affected the patient’s motivation to seek therapy for their illness.

*“Did I take medicine? Yes I did, for my low back pain. It’s really disturbing. I have tried to take a lot of medicines. They were from the health staff in the community health centre, private doctors, pharmacies and groceries. The pain would be relieved after medication but it returned again and again. For the last two days, I didn’t take any chemical medicine. Two days ago, I took herbal medicine. It also relieved my pain significantly, but unfortunately it was not long lasting. It is usually just for 3–4 days, and then I will suffer from pain again.”* (Member)



The participants in this study seemed to be more likely to use medication for pain because they could easily assess its efficacy based on symptom reduction. In contrast, they tended to minimise the use of *chemical* medication for hypertension and instead considered other options such as lifestyle changes and complementary medicine.

*“It’s not the usual back pain, it’s very painful. My friend gave me these medicines [dexamethasone 0.5 mg and piroxicam 10 mg]. I have taken these medicines for more than a year. They were really helpful. When I took them before going to sleep, I felt much better in the morning. I could walk without severe pain. I am still taking these medications: two of this [dexamethasone] and one of this [piroxicam]. My friend even takes three of this [dexamethasone].” (Member)*

Pain (as a particular symptomatic complaint) was regarded by participants as a chronic condition rather than an acute one, and as such they were happy to take medication indefinitely. Participants were prepared to use medication when effectiveness could be tangibly ascertained, i.e., when the pain symptoms decreased. In the above case, the patient self-medicated because she felt that the analgesics worked well, and so continued to take them long-term, even though there was a possibility of side effects (based on our observation, the participant already displayed visible side effects from steroid use).

### 3.4 Inadequate Information on Hypertension Medication

A number of patients reported that they had obtained anti-hypertensive agents from health providers. When they visited health providers to manage other symptoms, they obtained more than one type of medicine and were unable to recognise which was the anti-hypertensive agent:

*“I am not sure what the medicine was. I just took it as the doctor prescribed. It was for four days and now it has run out. I don’t take any medicine anymore now.” (Member)*

*“I am not sure. At that time, the doctor might have given me medication for hypertension, I don’t know. I took them for a week. For the last year I only consumed medicine for pain routinely [dexamethasone and piroxicam]. When it would almost run out, my daughter would buy it in the pharmacy.” (Member)*

*“I don’t know. The doctor gave me three different pills and he didn’t tell me which one was the anti-hypertensive agent.” (Member)*

Some participants, however, accepted the lack of information from the doctor as *normal* because they understood the doctor's heavy workload:

*"No, I didn't want to ask more. I was ashamed to ask many questions; the doctor was very busy, and there was a long queue behind me. It would annoy the other patients."* (Member)

They also reported receiving limited information from the LHWs, and that the information provided seemed to focus only on blood pressure readings, without further explanation about how this connected to their medicines or other management. Most participants confirmed the need for more detailed information and follow-up for their hypertension.

*"No she didn't. She [the LHW] didn't say anything. She just said that my blood pressure was high, that's it."* (Member)

*"I wish they [LHWs] had given me more advice, because you know, I am not an educated person."* (Member)

*"No, they [LHWs] didn't tell me anything; there was no advice. I need more suggestions actually."* (Member)

*"They [LHWs] should be smarter than us, so they can give us solutions when we have health problems."* (Member)

Lay health workers themselves said that they had tried to motivate participants to use hypertension medicines effectively, but emphasized lifestyle changes more so than medication use. LHWs based this advice on the information they received during their own training (as provided by the community health centre) as well information that they had self-sourced.

*"I usually advise them [members with hypertension] to stay relaxed and be conscious of their diets. I also motivate them to come routinely to IHSP-Elderly for physical exercise."* (LHW)

*"I read magazines or leaflets and other resources to add to my knowledge on health problems of the elderly, and then I will give the information to the elderly."* (LHW)

*"The speaker in the training for LHWs said to us, 'Grandmas, you should not be angry, one minute anger means one year of wasting time.' He reminded us to always keep our minds peaceful. I shared this knowledge with the elderly in IHSP-Elderly. I reminded them to be more patient."* (LHW)

#### **4 Discussion**

Despite the known effects of anti-hypertensive agents in reducing cardiovascular complications, this study revealed that some participants perceived medication to be unnecessary. This aligns with previous findings in Indonesian adult population that 37.2% of hypertensive patients did not take any medication (7). A person's understanding about hypertension is interconnected with their beliefs about the necessity for medication (12); misconceptions about the role of medication appear to be related to patients' perceptions that hypertension can be easily controlled by lifestyle changes alone.

Participants' expressed fears about medication dependence are concerning, since they appear to underpin their discontinuation of medication, supporting the findings from previous studies (30, 31). Moreover, in considering the cultural background of participants in this study, previous research has shown that patients with an Asian background are more likely to have negative views about medication use, compared to patients with a European background, based on their perceptions about the dangers of medicines (14). Patients appear to formulate their own views about "chemical medicines", develop personal strategies to minimize the amount of medication taken, and eventually stop using their prescribed treatments (32). Patients additionally prefer other treatment options, such as lifestyle modification and traditional medicine (31, 33), to minimize their intake of conventional medicine.

Patients with comorbidities tend to place lower priority on the management of hypertension than on their other diseases (34, 35) because a diagnosis of high blood pressure is not frightening for them (31). As highlighted in this study, participants are more likely to prioritize the use of medication for reducing pain because it is highly symptomatic. The presence and severity of symptoms are associated with patients' beliefs about the need for medication and their decision to take it (36). Difficulties in assessing the effectiveness of the therapy, combined with the potential for medication side effects, are important barriers to patients' motivation to take anti-hypertensive agents (9, 10).

This study identifies the need for participants to be given more targeted information about hypertension while at the same time revealing participants' acceptance of the lack of information from health providers. In developing countries the lack of time for patient-doctor consultations, due to the heavy patient loads, seems to be widespread (31, 37, 38). Furthermore, patients in Indonesia, especially those in the low-education group, feel relatively powerless during consultations with doctors, creating a barrier to effective communication and information exchange (39). Thus, there is limited opportunity to discuss the proposed treatment plan and educate patients to facilitate adherence to treatment. Ethnic differences in attitudes toward medicine-taking have also been considered in a study of the New Zealand population (40), reporting that Asian patients were less likely to discuss their medicines with the doctor than European patients. There is a need for health care providers to become more cognisant of the views and beliefs that underpin their patients' low adherence to medication, as well as address patients' concerns about management hypertension and the specific role of medication (33, 41). The role of the community pharmacist, therefore, is central to provide appropriate medicines information and to support patients in their overall adherence to therapy. Previous studies have shown that community pharmacist-led services can significantly improve anti-hypertensive medication adherence (42, 43).

The potential role of LHWs in supporting the management of hypertension in low resource communities has been previously recognized (17-19). Considering the long-term nature of hypertension treatment, LHWs can assist in liaising between the local community and health service providers (44). They also have relatively more time to engage with patients, compared to other health professionals, to provide education and counselling (17), as identified by the participants in our study. However, the LHWs' own limited knowledge of medicines and hypertension therapy may be an obstacle, and needs to be addressed to realise these opportunities. A study in South Africa showed that appropriate training at LHWs can be cost-effective (45). Further, clinical trials using LHWs trained in hypertension care have demonstrated positive findings in enhancing medical follow-up visits (46) and improving blood pressure control (17, 47). Collectively, this suggests the need for better policy support and accompanying resources to enhance the contribution and role of LHWs in practice,

particularly for chronic diseases (such as hypertension) where patient perceptions need to be addressed in a targeted and culturally appropriate way (19). Health system policies should more specifically consider the role of LHWs, and optimise their contribution to patient care enable through the provision of targeted training and supervision, and allocation of appropriate resources (e.g. calibrated sphygmomanometers for blood pressure checks). Training for LHWs should be developed to enrich their knowledge on hypertension and the medications used, and to improve their communication skills (specifically in supporting behavioural change), technical skills (e.g. accurate blood pressure measurement), and referral skills (access to appropriate health care services) (48).

#### 4.1 Limitations

As this qualitative study was conducted in one rural district with a relatively small sample, the results might not be representative of the broader Indonesian population. However, since the Bantul district is a typical rural district in Indonesia (socio-economically), the findings of this study provide insights into lay people's understandings about hypertension medication and the potential role of LHWs in supporting hypertension programs in other settings with similar social contexts.

### 5 Conclusion

Some misconceptions regarding the role of anti-hypertension medication that negatively influenced adherence were identified. Beliefs that hypertension can be easily treated by lifestyle modifications can undermine motivation to take anti-hypertensive agents. Participants expressed their need for more targeted information about hypertension and its treatment; however, they do not expect to obtain such information from their physician. The potential role of lay health workers needs to be further explored as a strategy to enhance understanding and adherence.

### Acknowledgments

This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. We are grateful for contributions from all study participants. We also acknowledge the Head of the Bantul Health District for permitting this study.

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#### Figure Captions

**Fig. 1** Scheme of Indonesian population and study sample. IHSP-Elderly Integrated Health Service Post for the Elderly

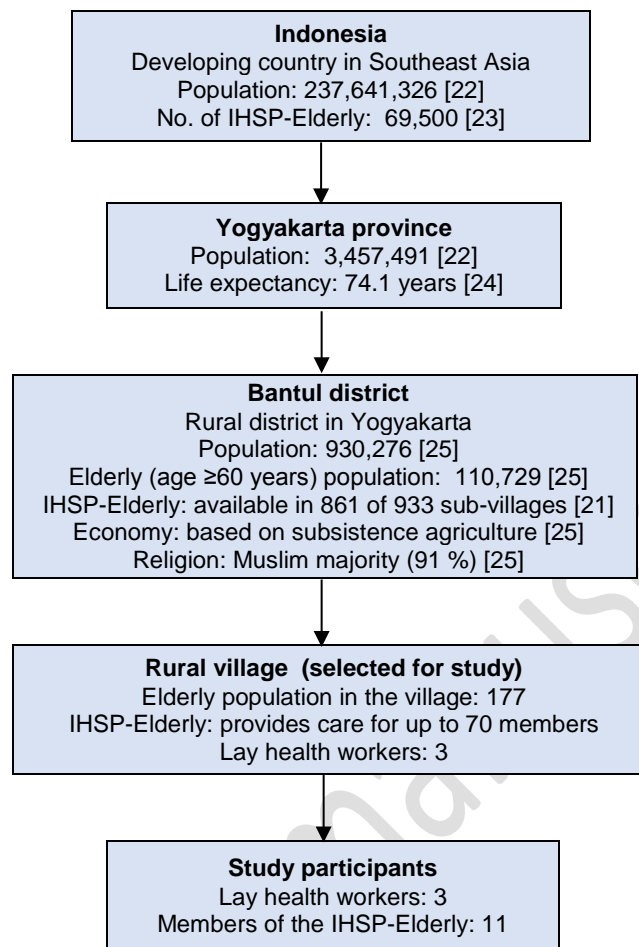


**Table 1** Characteristics of Respondents

Characteristic	Respondent group (no. of respondents)	
	IHSP-Elderly members (11)	Lay health workers (3)
Mean age (years) [SD]	69.8 [9.2]	55.7 [14.5]
Ratio of female : male (%)	8 : 3 (73 : 27)	2 : 1 (67: 33)
Education (no.) [%]		
Less than primary school	6 [55]	
Primary school	2 [18]	
High school	3 [27]	3 [100]
University		
Mean blood pressure (mmHg) [SD]		
Systolic	165.5 [15.1]	NA
Diastolic	94.5 [5.2]	NA

*IHSP-Elderly* Integrated Health Service Post for the Elderly, *NA* not applicable, *SD* standard deviation,

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**Fig.1** Scheme of Indonesian population and study sample. *IHSP-Elderly* Integrated Health Service Posts for the Elderly