Research Article

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Why Blood Pressure Remains Uncontrolled Among Working Adults in Thailand: A Qualitative Study

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Abstract

Background: Uncontrolled hypertension remains a major public health concern and a leading risk factor for stroke and other cardiovascular diseases. Despite effective treatments, blood pressure control among working adults remains suboptimal, particularly at the community level. Working adults often face challenges related to occupational demands, family responsibilities, and limited access to continuous care, which may hinder adherence to hypertension management and stroke prevention behaviors. Understanding these barriers may help guide interventions that are more appropriate for community settings. **Objective:** This qualitative descriptive study aimed to explore barriers to blood pressure control among working adults with uncontrolled hypertension receiving care at sub-district health promoting hospitals in Pathum Thani Province, Thailand, guided by the Ecological Model. **Methods:** Data were collected from 39 working adults with uncontrolled hypertension and 5 community health nurses through focus group discussions and semi-structured interviews. Audio-recorded interviews were transcribed verbatim and analyzed using thematic analysis. **Results:** Three main themes emerged across ecological levels. Individual-level barriers included knowledge gaps and low awareness, inconsistent medication adherence, and work–life imbalance. Family-level barriers involved caregiving responsibilities, financial and family obligations. Healthcare system and social-level barriers included workforce constraints, lack of social support and traditional education limitations. **Conclusion:** Improving health literacy, strengthening family support, and increasing access to flexible healthcare services may help working adults better manage their blood pressure.

Keywords: Hypertension, Medication adherence, Working adults, Qualitative research, Ecological model

What was Known

- Uncontrolled hypertension substantially increases the risk of stroke and long-term cardiovascular complications.
- Improving health literacy, risk perception, and healthy lifestyle behaviors is essential for effective stroke prevention.

What's New and Next

- This study identifies multilevel barriers to blood pressure control among working adults across individual, family, and healthcare system and social levels using an Ecological Model framework.
- The findings support the development of integrated, community-based strategies that enhance continuous care access, strengthen family support, and promote sustainable self-management behaviors.

Introduction

Hypertension is a major public health problem and a leading modifiable risk factor for cardiovascular diseases, including stroke and ischemic heart disease[1]. According to the Ministry of Public Health of Thailand, the incidence rate of patients with hypertension at high risk of stroke increased from 2,008.92 cases per 100,000 population in 2016 to 2,245.09 cases per 100,000 population in 2018[2]. In Pathum Thani Province, uncontrolled hypertension rates from 2024 to 2026 were 61.21%, 64.01%, and 63.92%, respectively[3], exceeding the national target threshold of 60%[4]. These findings indicate a persistent gap in hypertension management at the community level. Poor blood pressure control substantially increases the risk of stroke, cardiovascular disease, chronic kidney disease, disability, and premature mortality[1,5].

Despite the availability of effective antihypertensive treatments and evidence-based clinical guidelines, blood pressure control remains inadequate in many populations[6]. Working adults with uncontrolled hypertension represent a particularly vulnerable yet often overlooked group, as they face unique challenges related to occupational demands[7], family responsibilities[8], and access to healthcare services at the community level[9].

Many working adults face demanding work schedules, financial responsibilities, and multiple family roles, which may make long-term disease management more difficult[10], attend regular follow-up appointments[11], and adhere to prescribed treatment regimens[12]. Furthermore, hypertension is often asymptomatic, which may reduce risk perception and motivation for sustained self-care among working individuals[13]. As a result, many working adults still struggle to maintain good blood pressure control despite available treatment options[14].

Previous studies have identified medication non-adherence, unhealthy lifestyle behaviors, and healthcare access limitations as major barriers to blood pressure control[15,16]. However, most studies have focused primarily on individual-level factors using quantitative approaches, while limited research has explored the interaction among individual, family, occupational, and healthcare system and social factors affecting working adults in community settings.

In community settings, working adults frequently encounter structural barriers such as restricted clinic hours[17], long waiting times[18], discontinuity of care[19], and inadequate social or family support[20]. Together, these barriers suggest that blood pressure control is affected by more than individual behavior alone. A qualitative approach was used to better understand how these barriers affect working adults in everyday life. By eliciting patients' perspectives and lived experiences, qualitative methods helped the researchers better understand participants' experiences, provide deeper insights into perceived barriers, coping strategies, and unmet needs that may not be captured through quantitative measures. These findings may help healthcare providers develop care strategies that better fit patients' daily lives.

Evidence from Thailand suggests that cardiovascular risk factors are more prevalent in rural communities than in urban areas[21]. However, limited research has explored the multilevel barriers contributing to uncontrolled blood pressure among working adults in community settings, particularly from the perspectives of both patients and community health nurses. Improving blood pressure control is essential to reducing the burden of complications, including stroke, cardiovascular disease, and chronic kidney disease, as well as reducing healthcare costs and improving quality of life.

The Ecological Model was used in this study because it helps explain how health behaviors are influenced by factors at multiple levels, including individual, interpersonal, organizational, and healthcare system and social factors[22]. Previous ecological studies have shown that hypertension

management is affected not only by individual knowledge and behaviors but also by family support, workplace conditions, and healthcare accessibility[23].

Therefore, this study used the Ecological Model to explore barriers to blood pressure control among working adults with uncontrolled hypertension in community settings in Pathum Thani Province, Thailand.

Materials and Methods

Study design

This qualitative descriptive study explored barriers to blood pressure control among working adults with uncontrolled hypertension in community settings. The study was guided by the Ecological Model and conducted between September 2023 and January 2025 in sub-district health promoting hospitals (SHPHs) in Pathum Thani Province, Thailand. The study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) to ensure rigor, transparency, and completeness of reporting.

Study setting

The study was conducted in SHPHs in Pathum Thani Province, Thailand. SHPHs represent primary healthcare facilities responsible for providing preventive care, chronic disease management, and health promotion services for community populations. These settings play an important role in monitoring and supporting patients with hypertension, particularly those with uncontrolled blood pressure who require continuous follow-up and behavioral support.

Study population

Purposive sampling was used to recruit 39 working adults with uncontrolled hypertension and five community health nurses. Eligible patients were aged 35–59 years, diagnosed with uncontrolled hypertension for at least one year, currently receiving antihypertensive medication, and able to communicate in Thai. Nurses were required to have at least one year of experience in primary care hypertension management.

Data collection

Data were collected through five focus group discussions (FGDs) with working adults and semi-structured interviews (SSIs) with community health nurses. Interview guides were developed based on the Ecological Model and explored barriers related to hypertension knowledge, medication

adherence, lifestyle modification, family responsibilities, occupational challenges, and healthcare access. Interviews lasted 45–90 minutes, were audio-recorded with consent, and supplemented with field notes.

Data analysis

Data were analyzed using thematic analysis following Braun and Clarke's six-phase approach[24]. Transcripts were coded inductively and deductively using the Ecological Model as an analytic framework. Themes were developed through interactive discussion among the research team until consensus was achieved.

Results

Participants with uncontrolled hypertension

Table 1 presents the characteristics of 39 working adults with uncontrolled hypertension. Most participants were female (64.1%) and aged 41–50 years (53.8%). Over half had secondary school education (51.3%), and the largest occupational group was housewives or unemployed individuals (38.5%). Most participants had comorbidities, particularly hypertension with diabetes mellitus and dyslipidemia (38.5%). More than half had been diagnosed with hypertension for 1–5 years (56.4%).

Table 1 Characteristics of participants with uncontrolled hypertension (N = 39)

Characteristics	n (%)
Gender	
Male	14 (35.9)
Female	25 (64.1)
Age (years)	
31–40	4 (10.3)
41–50	21 (53.8)
51–60	14 (35.9)
Education	
Primary school	7 (17.9)
Secondary school	20 (51.3)
University degree	12 (30.8)

Table 1 Characteristics of participants with uncontrolled hypertension (N = 39) (Cont.)

Characteristics	n (%)
Occupation	
Housewife/unemployed	15 (38.5)
Company employee	9 (23.1)
Self-employed	7 (17.9)
Government officer	2 (5.1)
Merchant	6 (15.4)
Underlying conditions	
HT only	2 (5.1)
HT with dyslipidemia	10 (25.6)
HT with DM	12 (30.8)
HT with dyslipidemia and DM	15 (38.5)
Duration of hypertension (years)	
1–5	22 (56.4)
6–10	11 (28.2)
>10	6 (15.4)

Abbreviations: HT = hypertension; DM = diabetes mellitus

Community health nurses

Five community health nurses participated in the semi-structured interviews. All participants were female and represented a range of age groups and professional experience levels. Most participants held a master's degree and had extensive experience working in primary care and hypertension management within SHPHs.

The findings showed that blood pressure control among working adults was influenced by barriers across individual, family, and healthcare system and social levels. Three major themes emerged: (1) individual-level barriers, (2) family-level barriers, and (3) healthcare system and social-level barriers. (Figure 1)

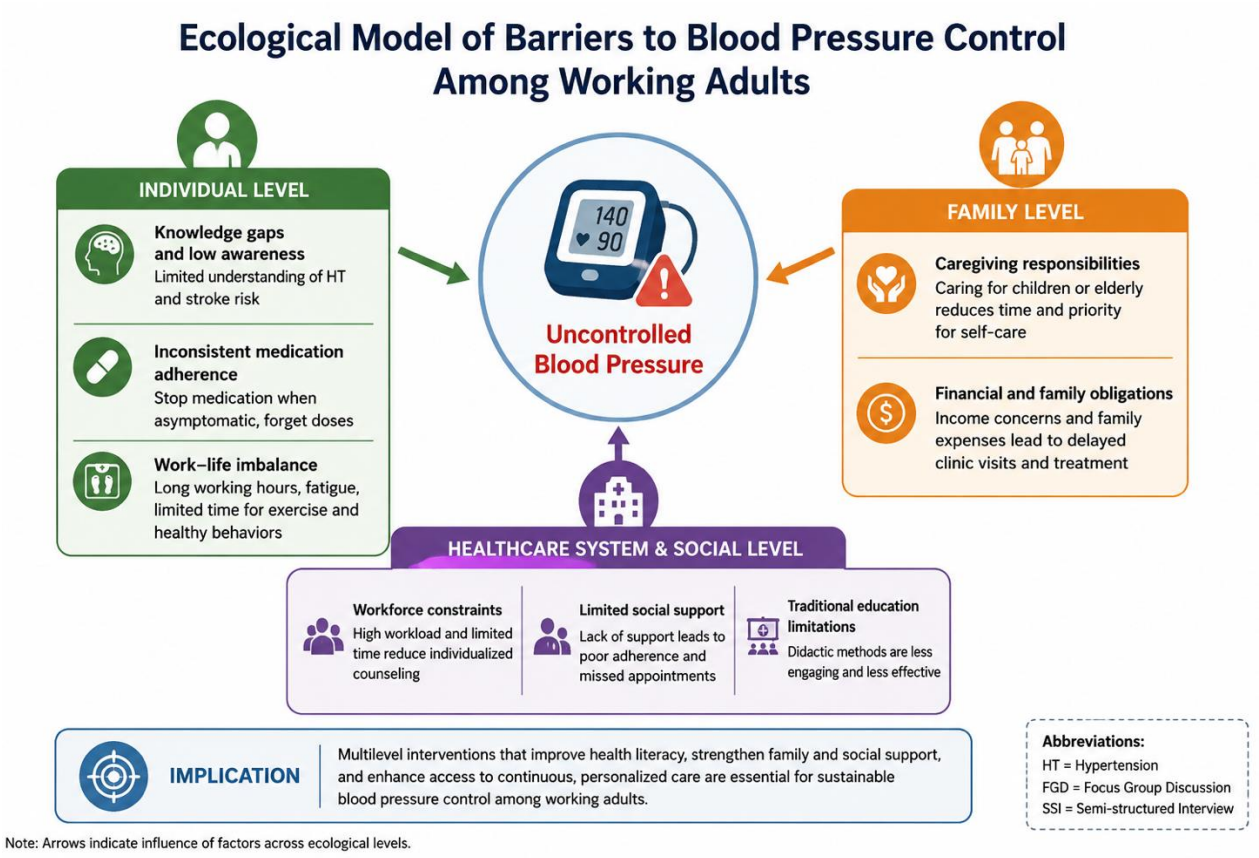


Figure 1 Ecological model of barriers to blood pressure control

Theme 1: Individual-level barriers

Three subthemes were identified at the individual level: limited knowledge and misconceptions about hypertension and stroke, inconsistent treatment adherence, and work–life imbalance affecting lifestyle modification

1.1 Knowledge gaps and misconceptions regarding hypertension and stroke

Many participants had limited understanding of the relationship between uncontrolled hypertension and stroke. Many individuals were unaware of stroke warning signs and did not recognize hypertension as a serious chronic condition requiring continuous management.

"I had no symptoms, so I did not feel anything was wrong." (FGD4-P1)

"My blood pressure was 200 mmHg, and after taking the medicine, it dropped to 170 mmHg. After that, I didn't take any more medicine because I had no headaches or dizziness." (FGD4-P4)

Community health nurses also described that many patients often lack awareness of stroke symptoms and underestimate the seriousness of hypertension.

> "The patient had warning signs of stroke, such as weakness for two to three days, but stayed at home waiting for the next appointment because he thought it was a minor symptom." (SSI-N2)

1.2 Low awareness and inconsistent adherence to treatment

Participants reported inconsistent medication adherence, particularly when blood pressure readings appeared normal or when symptoms were absent.

> "When my blood pressure was lower than 140 mmHg, I thought it was normal, so I stopped taking medication for a few days." (FGD2-P3)

Several participants said they often forgot to take medication because of busy daily routines.

> "Sometimes I forget to take my evening medication." (FGD3-P1)

Healthcare providers observed that many patients missed follow-up appointments and did not consistently adhere to treatment plans.

> "Most hypertensive patients do not take care of their health, do not take medication regularly, and miss appointments." (SSI-N2)

1.3 Work-life imbalance as a barrier to lifestyle modification

Many participants described work-related fatigue and irregular schedules as barriers to healthy behaviors.

> "I feel exhausted from work and do not have time to exercise." (FGD2-P5)

Healthcare providers also described occupational risk factors for stroke among working adults.

> "We found stroke cases particularly among taxi drivers who wake up at 2 or 3 a.m., eat junk food daily, and cannot control their diet. Many patients work shifts, which affects their eating patterns and lifestyle." (SSI-N4)

Theme 2: Family-level barriers

Family-level barriers consisted of two interrelated subthemes: caregiving responsibilities that reduced prioritization of self-care and financial and family obligations influencing healthcare-seeking behavior.

2.1 Caregiving responsibilities that reduced prioritization of self-care

Many participants said they often prioritized caregiving responsibilities over their own health needs. Caring for children, older adults, and family members limited opportunities for exercise, medication management, and clinic attendance.

> "I have to take care of my bedridden mother, so I rarely have time to take care of myself." (FGD2-P2)

Some participants also described sacrificing personal dietary control to accommodate family eating practices.

> "It is difficult to control diet because other family members eat the same food." (FGD3-P4)

Despite these challenges, family members were also perceived as important sources of emotional motivation.

> "I want to stay healthy so I can see my grandchildren grow up." (FGD5-P3)

2.2 Financial and family obligations influence healthcare-seeking behavior

Participants described financial responsibility and work obligations as barriers to attending appointments and maintaining continuous care. Many participants prioritized employment and income generation over healthcare utilization.

> "If I stop working to go to the clinic, I lose my daily income." (FGD2-P3)

Healthcare providers similarly observed that working adults often delayed healthcare visits due to occupational responsibilities.

> "Patients prioritize earning a living. They cannot afford to spend long hours waiting to see a doctor because it affects their daily income." (SSI-N4)

These findings illustrate how work and financial responsibilities often take priority over healthcare.

Theme 3: Healthcare system and social-level barriers

Healthcare system and social-level barriers consisted of three interrelated subthemes: workforce constraints that reduce opportunities for individualized counseling, insufficient social support influencing medication adherence and follow-up attendance, and limited effectiveness of traditional health education approaches in promoting long-term behavior change.

3.1 Healthcare workforce constraints limit personalized care

Healthcare providers described heavy workloads due to increasing numbers of patients with noncommunicable diseases, which limited opportunities for individualized counseling.

> "SHPHs are burdened beyond their capacity due to the increasing number of NCD patients." (SSI-N4)

Group education was often used instead of individualized counseling due to time constraints.

> "We provide group health education, but individual counseling is reserved for severe cases." (SSI-N4)

Healthcare providers also described structural limitations affecting continuity of care.

> "The workload is overwhelming, and nurses must perform multiple roles." (SSI-N4)

Follow-up laboratory monitoring was limited due to resource constraints.

3.2 Lack of social support affects medication adherence and follow-up

Healthcare providers reported that lack of family or social support contributed to medication errors and missed appointments.

> "Sometimes patients take the wrong medication because no one helps them check." (SSI-N2)

Lack of reminders or encouragement from family members often affected long-term adherence.

> "Many patients with uncontrolled hypertension do not take medication or attend appointments because no one reminds them at home." (SSI-N2)

Some participants also felt encouraged when they saw others exercising or taking care of their health.

"When we see others exercising, we feel motivated to exercise as well." (SSI-N4)

Healthcare providers suggested using role models to improve motivation.

3.3 Limitations of traditional health education approaches

Traditional health education methods were perceived as insufficient to support behavior change among working adults.

"Providing only written materials may not effectively increase awareness." (SSI-N5)

Participants preferred interactive formats such as videos or digital platforms.

"Short video clips can help patients understand more easily." (SSI-N5)

Participants expressed interest in accessible digital communication channels for continuous consultation.

"It would be helpful to have a doctor available through a mobile application." (FGD5-P1)

Overall, the findings suggest that blood pressure control is affected by several related factors across ecological levels. Individual-level barriers include knowledge gaps, low perceived susceptibility, and work-life imbalance. Family-level barriers influence prioritization of self-care and healthcare-seeking behaviors. Healthcare system and social-level barriers include limited workforce capacity, reduced continuity of care, and insufficiently tailored health education approaches. Social support also plays a critical role in influencing adherence to treatment and lifestyle modification.

Discussion

This study explored multilevel barriers to blood pressure control among working adults with uncontrolled hypertension using the Ecological Model[22]. In this study, many working adults described difficulties managing their blood pressure because of challenges related to work, family responsibilities, and healthcare access.

Individual-level barriers

At the individual level, many participants had limited understanding of hypertension and stroke, particularly regarding the long-term consequences of uncontrolled blood pressure and the importance of continuous treatment. Previous studies have reported similar experiences among patients with limited health literacy and low awareness of hypertension complications contribute to poor medication adherence and suboptimal blood pressure control[25,26]. Because many participants

did not experience obvious symptoms, they often felt that their condition was not serious unless symptoms occurred and prioritized occupational responsibilities over long-term disease prevention, leading to delayed treatment-seeking and poor lifestyle modification[27]. Participants also described feeling too tired from work to exercise regularly or attend clinic appointments. Similar barriers have been reported among working populations, where long working hours, inflexible schedules, and fear of income loss reduce healthcare access and continuity of care[28]. Occupational health studies also indicate that individuals in labor-intensive employment face greater barriers to preventive care and chronic disease follow-up [29,30]. Better understanding of hypertension and its complications may help patients maintain long-term self-management behaviors.

Family-level barriers

At the interpersonal or family level, caregiving responsibilities and financial obligations limited participants' ability to prioritize self-care and healthcare utilization. Many participants placed family and work responsibilities ahead of their own health needs. Previous studies have shown that family roles and competing responsibilities significantly influence chronic disease management [31]. In Thai and other Asian collectivist contexts, family and economic obligations are often prioritized over personal health needs[32,33]. Although family support may improve adherence, limited family understanding of hypertension can hinder lifestyle modification and self-management behaviors [34]. Family support may play an important role in helping working adults manage hypertension over time.

Healthcare system and social-level barriers

At the healthcare system and social level, both participants and community health nurses described structural barriers including high workload, limited consultation time, fragmented follow-up, and restricted service accessibility, which reduced opportunities for individualized counseling and continuity of care. These findings are consistent with previous studies reporting that limited staff and high patient numbers reduce opportunities for individualized care in primary care settings[35,36]. Mobile applications and teleconsultation may also help working adults who have limited time to attend regular clinic visits and medication adherence[37–40]. Overall, many working adults found it difficult to manage hypertension because of challenges related to daily life, work responsibilities, and healthcare access.

Strengths

This study provides in-depth insights into multilevel barriers to blood pressure control among working adults using the Ecological Model. Inclusion of both patients and community health nurses helped provide a broader understanding of barriers from both patient and provider perspectives. The study also contributes context-specific evidence from community-based primary care settings in Thailand.

Limitations

This study has several limitations. Participants were recruited from one province, which may limit transferability to other settings. Data were based on self-reported experiences and may be affected by recall or social desirability bias. In addition, perspectives from physicians, caregivers, and healthcare administrators were not included in this study.

Conclusion

Blood pressure control among working adults is affected by interconnected barriers across individual, family, and healthcare system and social levels. Improving health literacy, strengthening family support, and providing more flexible healthcare services may help working adults achieve better long-term blood pressure control

Ethical Approval Statement

This study was approved by the Ethical Review Committee for Human Research, Faculty of Public Health (PHIRB) of Mahidol University with the code of COA.No.MUPH 2022-109. Informed consents were obtained from all participants.

Author Contributions

RF and NA designed the study and the instrument and authored the original manuscript. RF and NA contacted participants and collected data. SL and PP reviewed and edited the manuscript. All authors read and approved the manuscript prior to submission for publication.

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Conflicts of Interest

The authors declare that there are no conflicts of interest.

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