



ความชุกและปัจจัยที่มีความสัมพันธ์กับความเครียดโรคความดันโลหิตสูง ของแรงงานต่างด้าวชาวพม่าในจังหวัดสุราษฎร์ธานี

Prevalence and Factors Associated with Pre-hypertension among Myanmar Migrant Workers in Surat Thani Province

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บทคัดย่อ

การศึกษาเชิงวิเคราะห์แบบภาคตัดขวางครั้งนี้มีวัตถุประสงค์เพื่ออธิบายความชุกของความเครียดโรคความดันโลหิตสูงและประเมินปัจจัยที่มีความสัมพันธ์กับความเครียดโรคความดันโลหิตสูงของแรงงานต่างด้าวชาวพม่าในจังหวัดสุราษฎร์ธานี เก็บข้อมูลในช่วงเดือนตุลาคม 2563 – มีนาคม 2564 โดยมีกลุ่มตัวอย่าง จำนวน 508 คน ทำการสุ่มกลุ่มตัวอย่างแบบหลายขั้นตอน วิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนาและสถิติถดถอยโลจิสติกพหุตัวแปร ผลการวิจัยพบว่า แรงงานต่างด้าวชาวพม่าในจังหวัดสุราษฎร์ธานีมีความเสี่ยงของโรคความดันโลหิตสูง คิดเป็นร้อยละ 68.30 (95%CI: 64.12-72.72) และปัจจัยที่มีความสัมพันธ์กับความเครียดโรคความดันโลหิตสูง ประกอบด้วย อายุ >30 ปี (AOR = 2.77; 95%CI: 1.77-4.33) น้ำหนักเกิน/อ้วน (AOR = 2.30; 95%CI: 1.50-3.53) รายจ่ายเฉลี่ยทั้งครอบครัว \geq 5,000 บาทต่อเดือน (AOR = 2.28; 95%CI: 1.17-4.44) ไม่ได้รับข้อมูลข่าวสารทางด้านสุขภาพ (AOR = 2.28; 95%CI: 1.44-3.61) เพศชาย (AOR = 1.97; 95%CI: 1.27- 3.07) มีประสบการณ์ทำงาน \geq 48 เดือน (AOR = 1.69; 95%CI: 1.06-2.71) และมีจำนวนชั่วโมงในการทำงาน \leq 8 ชั่วโมงต่อวัน (AOR = 1.60; 95%CI: 1.03-2.49) ตามลำดับ สรุปผลการศึกษานี้ พบว่า แรงงานต่างด้าวชาวพม่า 2 ใน 3 มีความเครียดโรคความดันโลหิตสูง และปัจจัยด้านประชากรศาสตร์และเศรษฐกิจและสังคมรวมทั้งปัจจัยด้านข้อมูลข่าวสารทางด้านสุขภาพมีความสัมพันธ์กับความเครียดโรคความดันโลหิตสูง

คำสำคัญ: ความชุก, โรคความดันโลหิตสูง, แรงงานต่างด้าวชาวพม่า, จังหวัดสุราษฎร์ธานี

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Abstract

The objectives of this cross-sectional analytical research were to describe the prevalence of pre-hypertension and assess factors associated with pre-hypertension among Myanmar migrant workers in Surat Thani province. Data were collected from October 2020–March 2021. Of these, 508 samples were selected using the multi-stage random sampling method. The data were analyzed using descriptive statistics and multiple logistic regression. The results show that Myanmar migrant workers had pre-hypertension at 68.30 percent (95%CI: 64.12-72.72). Factors associated with pre-hypertension were; age over 30 years old (Adjusted odd ratios [AOR] = 2.77; 95%CI: 1.77-4.33), overweight or obese (AOR = 2.30; 95%CI: 1.50-3.53), family expenditure \geq 5,000 baht/month (AOR = 2.28; 95%CI: 1.17-4.44), not received health information (AOR = 2.28; 95%CI: 1.44-3.61), males (AOR = 1.97; 95%CI: 1.27-3.07), working experience \geq 48 months (AOR = 1.69; 95%CI: 1.06-2.71), and working period \leq 8 hours/day (AOR = 1.60; 95%CI: 1.03-2.49), respectively. In summary, it was found that two-thirds of Myanmar migrant workers had pre-hypertension. In addition, the factors such as demographic characteristics, socioeconomic, and health information were associated with pre-hypertension.

Keywords: Prevalence, Hypertension, Myanmar migrant workers, Surat Thani Province

Introduction

Hypertension is an important indicator of global public health problems. It is known as raising blood pressure (BP), which is one of the most common medical disorders among individuals⁽¹⁻²⁾. Hypertension is a greater risk of cardiovascular disease⁽³⁾ and cerebrovascular diseases and is a leading cause of death⁽⁴⁾. More than a half of deaths (60%) are due to non-communicable diseases (NCDs) which are preventable diseases by reducing cardio metabolic factors and high blood pressure⁽⁵⁻⁶⁾.

Pre-hypertension is defined as an elevation of BP lower than the standard cutoff point. Hypertension is diagnosed as systolic blood pressure (SBP) greater than 140 mm Hg and diastolic blood pressure (DBP) greater than 90 mm Hg. Several studies indicate that early detection and controlling high blood pressure assist to prevent development of advanced disease and its complications⁽⁷⁾.

Health status among migrants depends on socio-cultural and health determinant factors⁽⁸⁾ which are associated with the occurrence of hypertension. The prevalence of hypertension primarily increases

in low-income and middle-income countries (LMICs). Whereas, it is stable and dramatically decreases in high-income countries⁽⁹⁾. It is reported that approximately 2.17 million migrants are residing in Thailand. Half of them are Myanmar migrant workers (1.3 million), about 235,000 in the southern region of Thailand. Almost one-fourth of them is in Surat Thani province (57,000 populations) mainly working in agriculture and fishery manufacturing⁽¹⁰⁾.

A little is known about the association between factors and pre-hypertension. A previous study in the northern region of Thailand determined the prevalence of pre-hypertension among Myanmar migrant workers⁽¹¹⁾. However, there is diversity in economics, living, and working conditions contexts between the northern and southern regions of Thailand. Its limitations on socio-economic factors were found. In addition, the small sample size was detected to be low potential generalizability to the Myanmar migrant workers.

Thus, this study focused on the prevalence and its association with occurrence of pre-hypertension among Myanmar migrant workers in Surat Thani Province, which there were large enough sample

sizes to detect the prevalence of pre-hypertension and association between factors and occurrence of pre-hypertension with the appropriate statistical approaches. Therefore, this study aimed to determine the prevalence of pre-hypertension and the factors associated with the occurrence of pre-hypertension among Myanmar migrant workers in Surat Thani Province.

Methods

This research is a cross-sectional analytical study was conducted between September 2020 to March 2021. The setting of this study was Surat Thani Province, Thailand where situated in the central part of southern Thailand. The setting area was purposively selected due to having the highest number of Myanmar migrant workers in southern Thailand. The populations of this study were Myanmar migrant workers in Surat Thani Province. The inclusion criteria were a Myanmar nationality; had working permit certificate; working in Surat Thani Province for at least 6 months; aged between 18-59 years old; able to verbally communicate whether Thai or Myanmar; consent to blood pressure (BP); and agreed to participate in the study with written informed consent. The participants who had a critical illness on hypertension were excluded. The sample size was calculated by using the formula of Hsieh⁽¹²⁾ to estimate the sample size for logistic regression analysis. We yielded 508 estimated sample sizes in this study. The Myanmar migrant workers were selected by using a multi-stage random sampling method.

Research instrument

A structural questionnaire was developed based on the research questions and relevant literature. The questionnaire consisted of 5 parts as follow: Part A: Demographic and socioeconomic

characteristics were gender, age, body mass index (BMI), waist circumference, marital status, education, occupation, family incomes (Baht/month), family expenditures (Baht/month), types of migrants, and health insurance. Part B: Living and working environments: types of community, number of person in residence, working experience (month), workplaces, working period (hour/day), the problem of living conditions, and the problem of working conditions. Part C: Health behaviors and health service factors: exercise during the past one month, smoking, alcohol consumption, sleeping, health status, and health information. Part D: the Perceived Stress Scale (PSS)⁽¹³⁾ was used to assess the stress. The scores were categorized into three groups: a) low (0-13 points), b) moderate (14-26 points) and c) high (27-40 points)⁽¹³⁾. Part E: Risk assessment of pre-hypertension. The level of the systolic blood pressure (SBP) and diastolic blood pressure (DBP) were categorized into four groups: a) normal (SBP less than 120 mmHg and/or DBP less than 80 mmHg), b) moderate risk (SBP 120-139 mmHg and/or DBP 80-89 mmHg), c) high risk (SBP 140-179 mmHg and/or DBP 90-109 mmHg) and d) severe risk (SBP greater than or equal to 180-179 mmHg and/or DBP greater than or equal to 110 mmHg). Blood pressures were measure by the researchers.

Instrument improvement

The questionnaire was undergone content validation by 5 experts and was revised to improve its validity. All questionnaires had an index of item-objective congruence (IOC) between 0.80-1.00. The experts who specialized on contents related to hypertension, methodology and statistics, and Myanmar migrant workers were approved the questionnaires. The Cronbach's alpha coefficient of the Perceived Stress Scale (PSS) was 0.78. In addition, the questionnaires had 2 versions in both Thai and Myanmar languages which were

constructed using back translation from Thai to English and English to Myanmar. The questionnaire in Myanmar version was approved by the medical doctor and being the owner language of Myanmar language. A structural questionnaire was conducted by interviewing to collect the data by 3 research assistants who were trained and standardized for data collection skills.

Statistical analysis

The data were analyzed using descriptive statistics. A simple logistic regression was used for bivariate analysis to identify factors associated with pre-hypertension. The outcome of this study was pre-hypertension classified into 2 groups using the standard cutoff score as a pre-hypertension as the SBP ≥ 120 mmHg and/or DBP ≥ 80 mmHg⁽¹⁴⁾. The independent factors which had a p-value < 0.25 in bivariate analysis⁽¹⁵⁾ were considered in the multivariable analysis of logistic regression. To identify the magnitude of the effect of the association between factors and pre-hypertension was presented using Adjusted Odd Ratios (AOR) and 95 percent confidence interval (95%CI). The result was interpreted as having no association if AOR was 1, as an association if the AOR was > 1 , and as a protective effect if AOR was < 1 .

Ethical consideration

This study was approved by the Suratthani Rajabhat University Ethics Committee in Human research as REC-SRU 045/2020. All participants received a hard copy of the research information and a verbal explanation. After fully understanding, the written informed consent was requested and signed before data collection.

Results

Two-thirds of Myanmar migrant workers were females (60.34%). Their average age was 35.38

(± 9.43) years old. Most of them were married (79.13%) and two-thirds had graduated in secondary school (63.00%). Nearly half of them had a normal body mass index (40.94%). Most of them had normal waist circumference (78.35%). The highest proportion of working was in agriculture and animal husbandry (46.85%) followed by manufacturing, fishery (13.98%), and housework (5.12%), respectively. An average family income was 14,253 ($\pm 6,961$) Baht/month. The average family expenditure was 6,818 ($\pm 4,730$) Baht/month. More than half of them had an identification certificate (55.71%) and almost all had health insurance (92.72%). However, the characteristic demographic factors among subjects had been partially published elsewhere⁽¹⁶⁾.

Most of them resided in the Myanmar community (47.25%). Two-thirds of them had the number of persons in residence > 2 people (65.75%) and had working experience ≥ 72 months (61.81%). More than half of them worked in both indoor and outdoor (59.45%). Two-thirds of them had a working period ≤ 8 hours/day (69.88%). More than half of them had problems both of living and working conditions at low level (52.95%, 53.74%), respectively as shown in Table 1.

Table 1 Living and working environments among Myanmar migrant workers (n = 508)

Living and working environments	n	%
Types of community		
Myanmar community	240	47.25
Semi-urban community	145	28.54
Rural community	87	17.13
Urban community	24	4.72
Other	12	2.36

Table 1 Living and working environments among Myanmar migrant workers (n = 508) continued

Living and working environments	n	%
Number of person in residence		
Alone	89	17.52
1-2	85	16.73
> 2	334	65.75
Experience working (month)		
<24	33	6.50
24-47	101	19.88
48-72	60	11.81
≥72	314	61.81
Workplace		
Indoor	206	40.55
Indoor and outdoor	302	59.45
Working period (hour/day)		
≤8	355	69.88
>8	153	30.12
Problem of living conditions		
Low	269	52.95
Moderate	235	46.26
Severe	4	0.79
Problem of working conditions		
Low	273	53.74
Moderate	231	45.47
Severe	4	0.79

Most of them had exercised during the past one month (80.31%). were former smoking (82.87%), non-alcohol drinker (91.15%), and enough sleeping (94.29%). About one-third had health status at a very strong level (68.50%), received health information (86.22%). Nearly all had stress at a moderate level (93.70%) as shown in Table 2.

Table 2 Health behaviors and health service factors among Myanmar migrant workers (n = 508)

Health behaviors and health service factors	n	%
Exercise in past one month		
No	100	19.69
Yes	408	80.31
Smoking		
Nonsmoker	2	0.40
Former smoker	421	82.87
Smoker	85	16.73
Alcohol consumption		
Nondrinker	463	91.15
Former drinker	8	1.57
Drinker	37	7.28
Sleeping		
Not enough	29	5.71
Enough	479	94.29
Health status		
Unhealthy	8	1.57
Moderately strong	152	29.93
Very strong	348	68.50
Received health information		
No	70	17.78
Yes	438	86.22
Perceived Stress Scale (PSS)		
Low	14	2.76
Moderate	476	93.70
High	18	3.54

Concerning hypertension, 2.36% of them were severe risk of pre-hypertension, one-fourth of them were high risk of pre-hypertension (22.24%). Nearly half of them were the moderate risk (43.70%), and one-third of them were normal (31.70%) as shown in Table 3.

Table 3 The prevalence of hypertension level among Myanmar migrant workers (n = 508)

Level	n	%	95%CI
Normal	161	31.70	27.78 – 35.88
moderate	222	43.70	39.43 – 48.06
High	113	22.24	18.83 – 26.07
Severe	12	2.36	1.34 – 4.11

Multivariable analysis of logistic regression revealed that factors were significantly associated with pre-hypertension such as; BMI, receiving health information, family expenditures, age, gender, working period, and working period as shown in Table 4.

Table 4 Factors associated with pre-hypertension among Myanmar migrant workers (n = 508).

Factors	n	% Pre-HT	Crude OR	AOR	95%CI	p-value
Gender						0.002
Female	305	62.62	1	1	1	
male	203	76.85	1.98	1.97	1.27 - 3.07	
Age (year)						<0.001
≤ 30	142	48.59	1	1	1	
>30	366	75.96	3.34	2.77	1.77 - 4.33	
BMI (kg/m ²)						<0.001
Underweight /Normal	249	58.63	1	1	1	
Overweight/Obese	259	77.61	2.44	2.30	1.50 - 3.53	
Family expenditures (Baht/month)						0.015
<5,000	158	54.43	1	1	1	
≥5,000	350	74.57	2.45	2.28	1.17 - 4.44	
Experience working (month)						0.027
<48	134	51.49	1	1	1	
≥48	374	74.33	2.72	1.69	1.06 - 2.71	
Working period (hour/day)						0.036
>8	153	58.82	1	1	1	
≤8	355	72.39	1.83	1.60	1.03 - 2.49	
Receiving health information						<0.001
Yes	438	66.67	1	1	1	
No	70	78.57	1.83	2.28	1.44 - 3.61	

Note: OR = Odds ratio, AOR = Adjusted odds ratio, 95%CI = 95 Percent confidence interval

Discussion

Our findings of this study indicated that the majority of Myanmar migrant workers had pre-hypertension (68.30%). It is a high proportion of pre-hypertension. It is possible that they usually consume too many oily dishes related to hypertension. In addition, our study indicated that Myanmar migrant workers suffer from being the moderate risk (43.70%), and high risk (22.24%), and severe risk (2.36%). Thus, Myanmar migrant workers may have a high proportion of pre-hypertension. Our result of this present study is different from the study in China by Shen Y et al and the study in Thailand by Aung TNN et al shows that the lower prevalence of pre-hypertension among Myanmar migrant workers was 41.50%⁽¹⁷⁾ and 44.7%⁽¹¹⁾, respectively.

It found that Myanmar migrant workers who were males had significantly more severe pre-hypertension than those who were females. It is possible that male workers had the chance to take on alcohol and cigarette more than a female that the side effect related to hypertension. The finding of this study is relevant to a study conducted in Peru which was presented that male workers (Adjusted relative prevalence ratio = 5.15, 95%CI: 4.63–5.73)⁽¹⁸⁾

This study also illustrated that those aged greater than 30 years old had significantly more severe pre-hypertension than those who aged less than or equal to 30 years old. It is possible that the prevalence of hypertension increases due to physiological and pathological degeneration resulting in vascular resistance. It reduces the ability of anti-inflammation, raises cellular oxidative stress and endothelial dysfunction⁽¹⁹⁾. The results of this are similar to the study conducted in India. It presented that Myanmar migrant hypertension More than 35

years (OR= 3.60, 95%CI: 2.11–6.15)⁽²⁰⁾. A study conducted in the United Arab Emirates shows that aged 36-45 years old (AOR = 1.82, 95%CI: 1.17-2.85)⁽²¹⁾. Also, a study conducted in China showed that aged 30-39 years old (OR = 1.42, 95%CI: 1.14-1.78)⁽¹⁷⁾.

It found that Myanmar migrant workers who were overweight/obese had 2 times higher pre-hypertension, compared to those who were underweight/normal. It is probably that those groups were riskier for chronic diseases. This study is relevant to the cross-sectional analytical study conducted in China by Shen Y and showed that the working population who had overweight associated with pre-hypertension (OR = 2.10, 95%CI: 1.76-2.51)⁽¹⁷⁾.

Our study indicated that those who had family expenditures greater than or equal to 5,000 Baht per month had significantly more severe pre-hypertension than those had family expenditures less than 5,000 Baht per month. The socioeconomic factors may be linked to the health behaviors and types of food for intake of them.

Myanmar migrant workers who had working experience greater than or equal to 48 months had significantly higher severe pre-hypertension, compared to those who had work experience less than 48 months. It is possible that those who have experience more can be self-respond to the need of food intakes such as junk food or fast food that linked to the stability of the job.

However, the Myanmar migrant workers who had a working period less than or equal to 8 hours had significantly higher severe pre-hypertension than those who had a working period of more than 8 hours. However, the result of this study is different from the Canadian study. It found that long working hours were associated with the prevalence of hypertension⁽²²⁾.

Finally, Myanmar migrant workers who had not received health information had significantly higher pre-hypertension, compared to those who received health information. It is possible that about two-thirds of them had graduated from secondary school. It may also involve an opportunity to understand the process of obtaining health information and problems with language differences.

Demographic characteristic factors, socioeconomic factors were directly related to pre-hypertension and lack of or limited access to health information could worsen their conditions. These results could help Myanmar migrant communities, employers, health sectors, and local administrations to increase their understanding of pre-hypertension and to develop effective interventions or projects for the prevention and supporting them afar of hypertension.

Limitation of the study

This cross-sectional analytical study was conducted among Myanmar migrant workers in Surat Thani Province, Thailand; therefore, it might not represent other locations or other migrants in Thailand. It is also important to be aware that a limitation of a cross-sectional analytic study is that exposure and outcome are simultaneously assessed; no causal relationship can be identified. It is an important suggestion for a further study that could identify the causal relationship by using other study designs such as a cohort study.

Conclusion

This present study observed that two-third of Myanmar migrant workers in Surat Thani Province had pre-hypertension. In addition, factors associated with pre-hypertension include gender, age, BMI, family expenditures, working experience, working period, and receiving health information.

Suggestion of the further research

Researchers should continue to develop research to develop patterns or activities to create

learning processes about hypertension such as to create learning spaces and expression in physical health promotion activities to modify in terms of health behavior.

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