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Prevalence and factors associated with limited hypertensive health literacy among Myanmar migrant workers in Northeastern Thailand

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ABSTRACT

Background: Regarding hypertension, limited health literacy was considerably high worldwide. Although hypertensive health literacy in general population was explored by few studies, there was no specific study among Myanmar migrant workers in Thailand.

Objectives: this present study aimed to explore the prevalence of limited hypertensive health literacy and identify the associated factors among Myanmar migrant workers in Northeastern Thailand.

Methods: A cross-sectional analytical study was conducted among Myanmar migrant workers with the age between 18 and 59 years in Khon Kaen Province, Northeastern Thailand from June 2023 to August 2023. Multistage random sampling technique was applied to select 406 respondents as sample. A validated and reliable structured questionnaire was used to collect the data. Descriptive statistics and multiple logistic regression were used for data analysis. The association between limited hypertensive health literacy and each statistically significant factor (p-value < 0.05) after controlling other covariates were described by adjusted odds ratio (AOR), 95% Confidence Interval (95% CI).

Results: Of 406 participants, the overall prevalence of limited hypertensive health literacy was 56.16% (95% CI: 51.18-61.05). Among the participants, 56% were male, and 68% of them were married. Factors associated with limited hypertensive health literacy were pre-hypertension (AOR=1.95, 95% CI:1.18-3.21), primary and below level of education (AOR=2.13, 95% CI:1.28-3.53), ≤48 months duration of stay in Thailand (AOR=2.28, 95% CI:1.47-3.54), average and low level of knowledge (AOR=2.33, 95% CI:1.38-3.94) as well as moderate and poor attitude (AOR=2.27, 95% CI:1.46-3.54).

Conclusion: More than half of the study population had limited hypertensive health literacy. Educational status, duration of stay in Thailand, blood pressure, knowledge and attitude towards hypertension were associated with limited health literacy among Myanmar migrant population. Thus, creating user-friendly resources and health programs for newcomers is essential to mitigate health literacy disparities. Using multidisciplinary approach could be effective in promoting health literacy.

Keywords: Attitude, Education, Health literacy, Hypertension, Knowledge

1. Introduction

Health literacy encompasses an individual's capacity to acquire, process, and comprehend health-related information for informed decision-making about well-being [1]. Health literacy levels varies among countries based on the ways knowledge is acquired, disseminated, exchanged and utilized within various population contexts [2]. The term "hypertension" describes a condition in which the blood pressure in the arteries is noticeably increased [3]. It is one of the most common non-communicable diseases (NCDs) and contributes significantly to premature mortality [3], and insufficiently identified and treated globally, especially in Low- and Middle-Income Countries (LMICs) [3,4]. Hypertension has several serious complications affecting quality of life as well as life span unless detected early, treated appropriately, and controlled properly [5-8].

Recent attention to health literacy has surged due to its pivotal role as it was found to be the determinants of health and as mediator for health determinants [9-11] and associated with health outcomes [12-17]. However, the level of health literacy was under satisfactory level in different regions and population of the world [12,18,19]. Among vulnerable groups like migrant workers, the adequacy of health literacy remains low, with just 13.38% exhibiting sufficient levels according to one Saudi Arabia study [20]. Another study in primary health care center showed 96.3 % were limited in health literacy among migrant workers [21]. Factors those were associated with limited health literacy included gender, education, age, income, smoking, alcohol drinking and some socio-economic factors [18,22]. Arterial hypertension was also found to be inversely related to health literacy among the patient with coronary artery disease [23]. Notably, Thailand, hosting approximately 2.4 million documented migrant workers, a majority of whom (58.9%) hail from Myanmar [24]. Thus, there is a pressing need to grasp the extent of health literacy pertaining to hypertension within this population, as its absence could potentially lead to devastating consequences stemming from the development and poor control of hypertension.

However, the existing literature lacked an in-depth investigation into the health literacy orientated to hypertension, as well as potential risk factors. Moreover, there was no study specific for it among Myanmar migrant workers in Thailand. Therefore, this study conducted as the first study in Northeastern Thailand to identify the prevalence of hypertensive health literacy and factors

associated to it among Myanmar migrant workers.

2. Methods

Observational, cross-sectional analytical study conducted from June 2023 to August 2023 in Khon Kaen Province, Northeastern Thailand. Logistic regression formula of Heish was used to estimate the sample of 406 [25]. Multistage random sampling procedure was used to select the sample. Myanmar migrant workers with the age of 18 to 59 years staying in Thailand for minimum three months, able to communicate with Myanmar language and who gave informed consent were included in this study. Those with antihypertensive medications for at least six months, pregnant women and participants suffering from serious bedridden illness were excluded.

2.1 Research Instruments

The health literacy questionnaire of previous study was used to assess the outcome which was HLS-Asia questionnaire updated with hypertension information [15]. There were seven parts of the questionnaire: (1) Sociodemographic characteristics; (2) Physical health status; (3) Behavioral factors; (4) Knowledge on hypertension; (5) Attitude towards hypertension; (6) Health literacy; (7) Blood pressure measurement. There were 24 questionnaires about health literacy according to level of difficulties into very difficult, fairly difficult, fairly easy and very easy. The questions cover the health domains of health care, disease prevention and health promotion as well as four dimensions of health literacy such as access, understand, appraise and apply. According to the results, there were four degrees of health literacy: "inadequate" (≤50%), "problematic" (>50% to 66%), "adequate" (>66% to 80%), and "excellent" (>80% - 100%) [26]. The "inadequate" and "problematic" levels were combined as one group "limited health literacy" to explore vulnerable groups [27] and the remaining adequate and excellent levels were considered one group and considered as not limited in health literacy. According to Seventh Report of Joint National Committee (JNC7), blood pressure was measured for two times and average blood pressure was taken, then defined as normal, pre-hypertension, and hypertension [28]. Content validity was checked by 3 expertise and revised accordingly. The questionnaire was translated forward and backward into Myanmar and English and pretested to 30 Myanmar migrant workers who were not the potential participants of this study. Cronbach alpha value of health literacy was 0.85, knowledge was 0.88 and attitude was 0.77.

2.2 Data analysis

Data were recorded into Microsoft excel and analyzed by STATA program, version 15, Texas USA, serial number of 301506215585. Descriptive statistics with frequency and percentage for categorical data, similarly, mean, standard deviation (S.D.), median, minimum and maximum were used for continuous data. Multiple logistic regression was used analyze the association between each factor and the limited hypertensive health literacy. After bivariate analysis, factors which had p-value of less than 0.25 were checked for multicollinearity and got VIF value of 1.22 then entered into multivariable analysis. The association was described by Adjusted Odds Ratio (AOR), 95% Confidence Interval (95% CI), p-value < 0.05.

2.3 Ethical consideration

This study was approved by "Khon Kaen University Ethics Committee for Human Research Ethic" with the reference number of HE662091. All the participants were ensured to be volunteers and informed consent was taken before participation. The confidentiality of the participants was taken as the priority, and the identity was not revealed by name or by other ways. Only given identification number was used. Apart from research team, data was not shared to anyone. Soft copy of the data was stored by protecting password. Hard copies of the data were kept in locked drawer.

3. Results

3.1 Sociodemographic characteristics of the study population

Among 406 participants, average age was 32 years, more than half of them (56.9%) were male and more than half of them (67.98%) were married. Their median duration of staying in Thailand was 48 months (Table 1).

Table 1: Sociodemographic characteristic of the sample (n=406)

Sociodemographic characteristic	Number (n)	Percentage (%)
Age (completed years)		
<30	182	44.83
30 - 45	180	44.33
≥46	44	10.84
Mean(±SD)	32.28 (±9.29)	
Med (Min:Max)	31(18:56)	
Gender		
Male	231	56.90
Female	175	43.10
Marital status		
Never married	130	32.02
Married	276	67.98
Educational status		
Secondary and higher	300	73.89

Sociodemographic characteristic	Number (n)	Percentage (%)
Primary and below	106	26.11
Monthly income (Thai Baht)		
≤10000	271	66.75
>10000	135	33.25
Mean(±SD)	10251.23(±1806.61)	
Med (Min: Max)	10000(4000:25000)	
Monthly expenditure (Thai Baht)		
≤3000	226	55.67
>3000	180	44.33
Mean(±SD)	3525.86(±1518.97)	
Med (Min: Max)	3000(1000:10000)	
Health insurance		
Yes	326	80.30
No	80	19.70
Duration of stay in Thailand (months)		
>48	191	47.04
≤48	215	52.96
Mean(±SD)	59.92(±61.45)	
Med (Min: Max)	48(3:360)	

3.2 Physical health status, behavioral factors, knowledge and attitude of Myanmar migrant workers

Concerning physical health status, only 21.43% reported as healthy and only few of them (15.52%) had chronic disease rather than hypertension. About one third of the participants had normal blood pressure (36.7%) whereas the remaining two thirds were pre-hypertensive (36.45%) and hypertensive (26.85%). Only 22.17% of Myanmar migrant workers had high level of knowledge. However, 56.16% of them had a good attitude towards hypertension (Table 2).

Table 2: Physical health status, behavioral factors, knowledge and attitudes (n=406)

Characteristic	Number (n)	Percentage (%)
Physical health status		
Current health status (Self-reported)		
Healthy	87	21.43
Unhealthy	319	78.57
Having chronic disease		
No	343	84.48
Yes	63	15.52
Family history of hypertension		
No	249	61.33
Yes	157	38.67
Family history of chronic disease		
No	345	84.98
Yes	61	15.02
Blood pressure (mmHg)		
Normal (SBP < 120 and DBP < 80)	149	36.70
Pre-hypertension (SBP 120-139 and/or DBP 80-89)	148	36.45
Hypertension (SBP ≥ 140 and/or DBP ≥ 90)	109	26.85

Characteristic	Number (n)	Percentage (%)
Behavioral factors		
Tobacco use		
Never used	178	43.84
Former user	47	11.58
Current user	181	44.58
Alcohol use		
Never used	192	47.29
Former user	85	20.94
Current user	129	31.77
Knowledge on hypertension		
High (≥80%)	182	44.83
Average (60% - 79%)	134	33.00
Low (<60%)	90	22.17
Mean knowledge scores (±SD)	6.58 (±2.57)	
Median knowledge scores (Min:Max)	7 (0:11)	
Attitude towards hypertension		
Good (≥ 80%)	19	4.68
Moderate (60% - 79%)	159	39.16
Poor (<60%)	228	56.16
Mean attitude scores (±SD)	36.17 (±5.29)	
Median attitude scores (Min: Max)	36 (24:45)	

*n=number of samples, SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure

3.3 Prevalence of hypertensive health literacy among Myanmar migrant workers

Prevalence of limited hypertensive health literacy among Myanmar migrant worker was 56.16% (95% CI: 51.18 – 61.05). The level of health literacy was shown in figure (Figure 1).

Prevalence of limited health literacy ranged from 53.94% to 61.82% by health domains with the highest prevalence was seen in health care domain and from 41.38% to 55.17% by dimensions of health literacy with the highest prevalence was seen in dimension of access (Table 3).

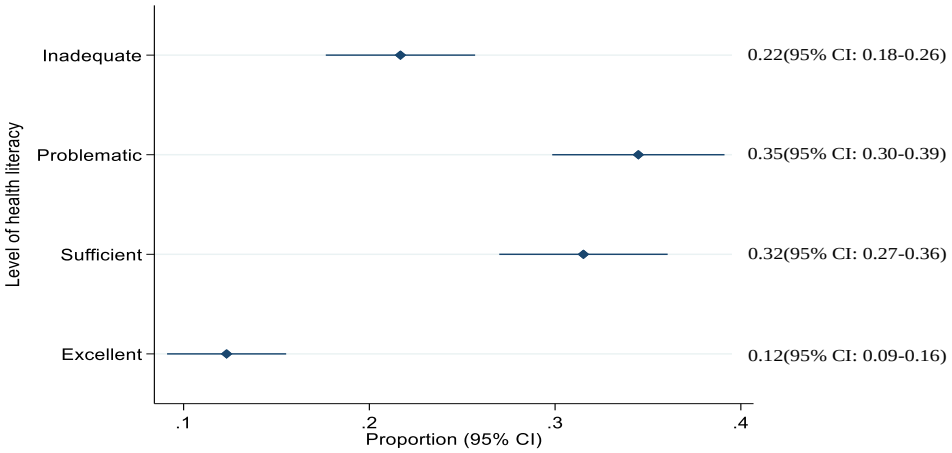

Figure 1. Prevalence of hypertensive health literacy among Myanmar migrant workers

Table 3: Prevalence of limited hypertensive health literacy according to health domains and health literacy dimensions (n=406)

Health literacy by health domains and health literacy dimensions	Number (n)	Percentage (%)	95% CI
Health Domains			
Health care (8-32 scores)			
Limited (≤ 21 scores or ≤ 66%)	251	61.82	56.98 – 66.44
Adequate & excellent (> 21 scores or > 66%)	155	38.18	33.56 – 43.02
Disease prevention (8-32-2cores)			
Limited (≤ 21 scores or ≤ 66%)	238	58.62	53.75 – 63.33
Adequate & excellent (> 21 scores or > 66%)	168	41.38	36.67 – 46.25
Health promotion (8-32 scores)			
Limited (≤ 21 scores or ≤ 66%)	219	53.94	49.06 – 58.75
Adequate & excellent (> 21 scores or > 66%)	187	46.06	41.25 – 50.94
Health literacy dimensions			
Access (6-24 scores)			
Limited (< 16 scores or ≤ 66%)	224	55.17	50.29 – 59.97
Adequate & excellent (≥ 16 scores or > 66%)	182	44.83	40.04 – 49.71
Understand (6-24 scores)			
Limited (< 16 scores or ≤ 66%)	217	53.45	48.56 – 58.27
Adequate & excellent (≥ 16 scores or > 66%)	189	46.55	41.73 – 51.44
Appraise (6-24 scores)			
Limited (< 16 scores or ≤ 66%)	209	51.48	46.60 – 56.32
Adequate & excellent (≥ 16 scores or > 66%)	197	48.52	43.68 – 53.40
Apply (6-24 scores)			
Limited (< 16 scores or ≤ 66%)	168	41.38	36.67 – 46.25
Adequate & excellent (≥ 16 scores or > 66%)	238	58.62	53.75 – 63.33

*95% CI=95% Confidence Interval

3.4 Factors associated with limited hypertensive health literacy among Myanmar migrant workers

After controlling other covariates, person with pre-hypertension were found to be limited in health literacy 95% more than those with normal blood pressure (AOR=1.95, 95% CI:1.18-3.21). Those who had hypertension were 40% more likely to be limited in health literacy than those with normal blood pressure (AOR=1.40%, 95% CI: 0.81-2.42). Those who had primary and below level of education were more than two times risker to be limited in health literacy in compared to those with secondary and higher level of education (AOR=2.13, 95% CI:1.28-3.53). Those who stayed in Thailand for up to 48 months were found to be susceptible to limited in health literacy by 2.28 times than those who lived longer than 48 months (AOR=2.28, 95% CI:1.47-3.54). Migrant workers with average and low level of knowledge had more than 2 times higher odds of limited in health literacy than those with high knowledge (AOR=2.33, 95% CI:1.38-3.94). Similarly, in compared to good level of attitude, those who had moderate and poor level of attitude had 2.27 times increasing risk to have limited health literacy (AOR=2.27, 95% CI:1.46-3.54) (Table 4).

Table 4: Crude and Adjusted Odds Ratio of factors associated with limited hypertensive health literacy (n=406)

Factors	Number of samples	Limited hypertensive health literacy		COR	AOR	95%CI	p-value
		n	(%)				
Blood pressure							0.033
Normal (SBP < 120 and DBP < 80)	149	75	50.34	1	1		
Pre-hypertension (SBP 120-139 and/or DBP 80-89)	148	94	63.51	1.72	1.95	1.18-3.21	
Hypertension (SBP ≥ 140 and/or DBP ≥ 90)	109	59	54.13	1.16	1.40	0.81-2.42	
Sociodemographic factors							
Educational status							0.004
Secondary and higher	300	159	53.00	1	1		
Primary and below	106	69	65.09	1.65	2.13	1.28-3.53	
Duration of stay in Thailand (months)							<0.001
>48	191	90	47.37	1	1		
≤48	215	138	63.89	1.97	2.28	1.47-3.54	
Knowledge on hypertension							0.002
High	90	31	34.44	1	1		
Average & low	316	197	62.34	3.15	2.33	1.38-3.94	
Attitude towards hypertension							<0.001
Good	228	106	46.49	1	1		
Moderate & poor	178	122	68.54	2.51	2.27	1.46-3.54	

*n=number, COR=Crude Odds Ratio, AOR=Adjusted Odds Ratio, 95% CI=95% Confidence Interval

4. Discussion

To our current understanding, this marked the initial investigation into the health literacy levels of Myanmar migrant laborers in Northeastern Thailand. The findings of this study exposed a notable majority (56.16%) of Myanmar migrant workers facing limitations in health literacy. This observation could be attributed to the insufficient knowledge and attitudes toward hypertension prevalent within this demographic. Additionally, the challenges of daily life faced by migrant workers may contribute to their limited capacity to absorb health-related information. It's worth noting, however, that this percentage was lower than the 60% limited hypertensive health literacy among elderly individuals in Myanmar [15]. The participation of a younger generation in our study implies a potentially better ability to access health information through the internet compared to the elderly population.

Furthermore, the prevalence of limited health literacy in our study was lower than the 86.62% recorded among migrant workers in Saudi Arabia [20] where a significant factor was the lower educational attainment of the majority of participants distinguishing it from our study. Our investigation unveiled that health literacy was most vulnerable within the healthcare domain (61.82%). Given their status in a

foreign land, migrant workers may encounter challenges in navigating Thailand's healthcare system, comprehending medical information, and effectively communicating with healthcare professionals. Notably, among the dimensions of health literacy, access was particularly susceptible to limitations (55.17%). This could be attributed to potential obstacles hindering migrant workers' access to health information, including limited education, language barriers, and transportation constraints, among others.

The findings from our study, following a multiple logistic regression that considered multiple variables simultaneously, revealed a significant association between pre-hypertension and limited health literacy. Specifically, individuals who were identified as having pre-hypertension were observed to be 95% more prone to experiencing limitations in their health literacy compared to those who exhibited normal blood pressure levels. This association did not imply a direct cause-and-effect relationship, but rather indicates a strong statistical connection between these two factors. This could be attributed to the understanding that individuals with normal blood pressure possessed a comprehensive awareness of hypertension-related information, enabling them to incorporate preventive measures into their daily routines and thereby reduce their susceptibility to this condition. However, our study could not find significance association between hypertension and health literacy. This could be due to the inclusion criteria of our study as some of the participants could be on hypertension medication for less than six months duration and possibility of having awareness on their disease, health information and health services which might have effects on their health literacy. Moreover, our research identified a correlation between reduced levels of education and limited health literacy. Specifically, individuals with primary and lower education levels were found to face twice the risk of limited health literacy compared to those who had attained a secondary education or higher. As majority (59.81%) of the participants in this study were under secondary level of education, this should be an important factor to be considered in implementing health promotion activities. This association was consistently reported by several studies [9,18,29,30]. Furthermore, this study revealed that individual who stayed in Thailand for shorter period of time were more prone to be limited in health literacy. This could be due to the increasing ability of accessing, understanding, appraising and applying health information in accordance with longer duration of stay. This indicated that the more familiar with the environment, the less

barrier of the migrant workers in utilizing health information. However, this result was contradicted with a study from Saudi Arabia where the migrant workers working for more than five years had the lower health literacy scores [20].

Our research also revealed that individuals possessing high knowledge exhibited a higher level of health literacy. Given that only a minority of study participants demonstrated high knowledge, only a limited number of individuals possessed the enhanced capacity to lay the groundwork for informed decision-making, problem-solving, and effective interpersonal interactions. Likewise, our study discovered people with moderate and poor attitude towards hypertension were 2.51 times prone to be limited in health literacy than good attitude. This occurred because attitude could influence motivation to seek information, comprehension, decision-making, trust in sources, communication with healthcare providers, and behavior change pertaining to hypertension, thereby impacting health literacy.

Although health literacy itself is not a health outcome or may not directly influence health outcomes alone, gaining insight into the contributing factors from our study will take advantageous in implementing health promotion initiatives aimed at enhancing the health literacy of both individuals and the broader community. To address lower education levels, it's important to develop easily accessible and comprehensible materials, while implementing health promotion programs for newcomers can help bridge health literacy gaps. Collaborating with healthcare professionals using a multidisciplinary approach is crucial to enhance knowledge sharing and foster positive attitudes not only towards hypertension but also other non-communicable diseases (NCDs). Further cross-sectional research is warranted to explore potential intervention options for augmenting health literacy within this study's population, with a particular focus on addressing broader social and policy determinants. To ascertain the impact of health literacy on health outcomes, experimental trials and longitudinal studies are imperative.

Despite we tried our best, there were some limitations that needed to be mentioned. According to the structured questionnaire, we could not address every potential determinant of health literacy including policy literacy. Due to our study design, we could not prove the causal relationship of the exposure and outcome. Moreover, our inclusion criteria allowed people with hypertension on

medication for less than six months duration. This might affect our study result, as some of the hypertensive participants could have health literacy promotion activities in the recent months.

5. Conclusion

More than half of the study population was limited in hypertensive health literacy. Educational status, duration of stay in Thailand, blood pressure, knowledge and attitude towards hypertension were associated with health literacy among Myanmar migrant population. These findings suggested the need to promote the hypertensive health literacy of this vulnerable group by means of all health domains and all dimensions of health literacy. Creating user-friendly resources and health programs for newcomers is essential to mitigate health literacy disparities. Using multidisciplinary approach could be effective in promoting health literacy.

Conflict of interest

There was no conflict of interest in our study.

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