

Knowledge, Attitude And Practice Of Preventive Behaviour Towards Hypertension
Among Myanmar Migrants In Samutsakhon Province, Thailand



Miss Thet Su San

จุฬาลงกรณ์มหาวิทยาลัย

บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)
เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ ที่ส่งผ่านทางบัณฑิตวิทยาลัย

The abstract and full text of theses from the academic year 2011 in Chulalongkorn University Intellectual Repository (CUIR)
are the thesis authors' files submitted through the University Graduate School.

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health Program in Public Health

College of Public Health Sciences

Chulalongkorn University

Academic Year 2017

Copyright of Chulalongkorn University

ความรู้ ทักษะ และพฤติกรรมป้องกันโรคความดันโลหิตสูงในผู้พยาบาลเมียนมา จังหวัด
สมุทรสาคร ประเทศไทย



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
สาขาวิชาสาธารณสุขศาสตร์
วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2560
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title Knowledge, Attitude And Practice Of Preventive
Behaviour Towards Hypertension Among
Myanmar Migrants In Samutsakhon Province,
Thailand

By Miss Thet Su San

Field of Study Public Health

Thesis Advisor Samlee Plianbangchang, M.D., M.P.H & T.M.,
Dr.P.H.

Accepted by the College of Public Health Sciences, Chulalongkorn
University in Partial Fulfillment of the Requirements for the Master's Degree

.....Dean of the College of Public Health Sciences
(Professor Sathirakorn Pongpanich, Ph.D.)

THESIS COMMITTEE

.....Chairman
(Associate Professor Ratana Somrongthong, Ph.D.)

.....Thesis Advisor
(Samlee Plianbangchang, M.D., M.P.H & T.M., Dr.P.H.)

.....External Examiner
(Nanta Auamkul, M.D.,M.P.H)

เตี๊ต ชู ชาน : ความรู้ ทักษะคติ และพฤติกรรมการป้องกันโรคความดันโลหิตสูงในผู้อพยพชาวเมียนมา จังหวัดสมุทรสาคร ประเทศไทย (Knowledge, Attitude And Practice Of Preventive Behaviour Towards Hypertension Among Myanmar Migrants In Samutsakhon Province, Thailand) อ.ที่ปริกษาวิทยานิพนธ์หลัก: สำลึ เปลี่ยนบางข้าง, 86 หน้า.

การศึกษาแบบภาคตัดขวางในอำเภอมหาชัย จังหวัดสมุทรสาคร ระหว่างเดือนเมษายนถึงพฤษภาคม 2561 วัตถุประสงค์หลักคือการประเมินความรู้ทัศนคติ(การรับรู้) และการปฏิบัติในการป้องกันและควบคุมความดันโลหิตสูงในคนงานชาวเมียนมาร์ที่อาศัยอยู่ในจังหวัดสมุทรสาคร ประชากรในการศึกษาจำนวน 422 คน (เพศชาย 219 คน และ เพศหญิง 203 คน) ดำเนินการเก็บข้อมูลโดยการสัมภาษณ์ด้วยแบบสอบถาม การศึกษานี้ได้รับการอนุมัติจากคณะกรรมการจริยธรรมการวิจัยของจุฬาลงกรณ์มหาวิทยาลัย เมื่อวันที่ 17 เมษายน 2561 ดังปรากฏในรูปแบบฟอร์มการวิจัยเลขที่ 070.1/61 แบบสอบถามประกอบด้วยคำถามคุณลักษณะประชากร ความรู้ ทักษะคติ และพฤติกรรมในการป้องกันและควบคุมความดันโลหิตสูง วิเคราะห์ข้อมูลทางสถิติโดยใช้ความถี่ การกระจายของข้อมูล การทดสอบไคสแควร์และค่าสถิติฟิชเชอร์เอ็กแซค ผลการศึกษา ประชากรส่วนใหญ่เป็นคนงาน ร้อยละ 76 มีอายุระหว่าง 18-34 ปี อายุเฉลี่ย 30 ปีส่วนมากเป็นชาวพม่าตามด้วยมอญกะเหรี่ยงและชนกลุ่มน้อยอื่นๆ ส่วนมากเป็นผู้ที่อยู่ในสถานภาพสมรสจบการศึกษาระดับมัธยมและทำงานในโรงงานและการก่อสร้างร้อยละ 96 เป็นผู้ที่มีการลงทะเบียนถูกต้องตามกฎหมาย ร้อยละ 88 มีหลักประกันสุขภาพ ร้อยละ 7 ของประชากรกลุ่มศึกษานี้ มีประวัติของการมีความดันโลหิตสูง และ ร้อยละ 6.4 มีประวัติของการเป็นเบาหวาน ร้อยละ 54 ได้รับข่าวสารเกี่ยวกับความดันโลหิตสูง แหล่งที่มาของข่าวสารคือโทรทัศน์และจากเพื่อนร่วมงาน ร้อยละ 58 ของคนที่ตอบแบบสอบถามมีความรู้เรื่องความดันโลหิตสูงระดับน้อย ร้อยละ 95 ไม่รู้ว่าระดับความดันโลหิตของตัวเองอยู่ในระดับใด และ ร้อยละ 65 ไม่เคยตรวจวัดความดันโลหิตใน 6 เดือนที่ผ่านมา ผู้ตอบแบบสอบถามส่วนใหญ่มีทัศนคติและการปฏิบัติในการป้องกันและควบคุมความดันโลหิตสูงในระดับปานกลาง ตัวแปรอายุ($p < 0.001$) เพศ ($p < 0.001$), สถานภาพสมรส ($p = 0.025$) ระดับการศึกษา ($p < 0.001$) อาชีพ ($p < 0.001$), ระดับความดันโลหิต($p = 0.001$) ประวัติครอบครัว($p < 0.001$) และระดับน้ำตาล ($p = 0.003$) มีความสัมพันธ์อย่างมีนัยสำคัญกับความรู้เรื่องโรคความดันโลหิตสูงอายุ ($p = 0.002$) และ อาชีพ ($p = 0.05$) มีความสำคัญกับทัศนคติอย่างมีนัยสำคัญ. อายุ ($P = 0.044$) ชาติพันธุ์ ($p < 0.001$) ระดับการศึกษา ($P = 0.045$), อาชีพ ($p < 0.001$), ประวัติครอบครัวในโรคความดันโลหิตสูง ($p < 0.001$) และการได้รับข้อมูลข่าวสารเรื่องโรคความดันโลหิต ($p = 0.021$) นอกจากนี้ พบว่า ความรู้และทัศนคติมีความสัมพันธ์กัน ($p = 0.046$) ความรู้และการปฏิบัติ มีความสัมพันธ์กัน ($p < 0.001$) และ ทัศนคติและการปฏิบัติมีความสัมพันธ์กันเช่นกัน ($p = 0.046$) ตามลำดับการศึกษาครั้งนี้ทำให้ได้มาซึ่งข้อมูลพื้นฐานในด้านสังคมและประชากรศาสตร์ของคนงานเมียนมาร์ในจังหวัดสมุทรสาคร ผู้เข้าร่วมการศึกษานี้ มีความรู้เรื่องความดันโลหิตสูงระดับน้อย ซึ่งเป็นเครื่องบ่งชี้ถึงความจำเป็นในด้านสุขภาพที่เกี่ยวกับการป้องกันและควบคุมความดันโลหิตสูง ซึ่งเป็นสาเหตุสำคัญประการหนึ่งของโรคไม่ติดต่อ ระดับของทัศนคติและการปฏิบัติเพื่อการป้องกันและควบคุมอยู่ในระดับปานกลาง จึงควรต้องรักษาระดับไว้และเพื่อให้ประโยชน์แก่ประชากรของการศึกษานี้ จึงควรมีการศึกษาเพิ่มเติมเพื่อให้ได้มาซึ่งข้อมูลที่เกี่ยวข้องกับความชุกของความดันโลหิตสูงในคนงานเมียนมาร์ ในจังหวัดสมุทรสาครต่อไป

สาขาวิชา สาธารณสุขศาสตร์

ปีการศึกษา 2560

ลายมือชื่อนิสิต

ลายมือชื่อ อ.ที่ปริกษาหลัก

6078819353 : MAJOR PUBLIC HEALTH

KEYWORDS: KNOWLEDGE, ATTITUDE, PRACTICE, HYPERTENSION, MYANMAR MIGRANTS, THAILAND

THET SU SAN: Knowledge, Attitude And Practice Of Preventive Behaviour Towards Hypertension Among Myanmar Migrants In Samutsakhon Province, Thailand. ADVISOR: SAMLEE PLIANBANGCHANG, M.D., M.P.H & T.M., Dr.P.H., 86 pp.

A cross sectional study was done in MaharChai Subdistrict, Samut Sakhon, Thailand in April and May 2018. The main purpose of this study was to assess the knowledge, attitude and practice of preventive behaviour regarding hypertension among Myanmar migrants living in the Samutsakhon province. The study was done on 422 participants(219 male and 203 female).Face to face interview was carried out using structured interviewer administered questionnaire. The ethical approval was given on 17th April, 2018 with protocol no.070.1/61. Questionnaire consists of socio-demographic characteristics, knowledge, attitude and practice of preventive behaviour regarding hypertension. Frequency distribution, chi-square and Fisher-exact tests were used for statistical analysis. Most of the respondents are working age group (76% are between 18-34 years of age). Major ethnic is Burma followed by Mon, Karen and others. Majority of the participants are married, attained secondary educational level and worked mainly at factories and construction sites. 96% are registered migrants. Seven percent of the study population has medical history of hypertension and 6.4% had DM. 54% received information about hypertension. Main source of hypertension information is from television and health worker. Fifty-eight percent of the respondents have poor knowledge level. Ninety-five percent do not know their own blood pressure and sixty five percent never checked blood pressure within last six months. Most of the respondents have moderate attitude and moderate practice level regarding hypertension. Age($p < 0.001$), gender($p < 0.001$), marital status ($p = 0.025$), education($p < 0.001$), occupation($p < 0.001$), hypertension status($p = 0.001$), family history($p < 0.001$), and diabetes status($p = 0.003$) are significantly associated with knowledge of hypertension. Age ($p = 0.002$), and occupation ($p = 0.05$) of the participants are associated with attitude level. Age ($P = 0.044$) ethnicity ($p < 0.001$), education ($P = 0.045$), occupation ($p < 0.001$), medical history of hypertension($P = 0.001$), family history of hypertension ($p < 0.001$) and receiving hypertension information ($p = 0.021$) are significantly associated with practice of preventive behaviour regarding hypertension. There are association between knowledge and attitude($p = 0.046$), knowledge and practice ($p < 0.001$), and attitude and practice($p = 0.046$) respectively. This study provides the baseline characteristics and knowledge of the Myanmar migrant in Samutsakhon Province. Poor knowledge level indicates the need for health educating program towards hypertension, one of the most common cause of emerging non-communicable disease. Moderate positive attitude and practice level need to be maintained for preventive benefits. Further study should be done on investigating the prevalence of hypertension.

Field of Study: Public Health

Academic Year: 2017

Student's Signature

Advisor's Signature

ACKNOWLEDGEMENTS

First of all, I would like to express my heartfelt thanks to my thesis advisor Dr. Samlee Plianbangchang for motivating me and guiding me throughout the year. Not only for thesis, but also he gave me good advice for my career.

Secondly, I would like to express my gratitude to my parents who gave me financial and emotional support during the academic year.

Special thanks to Prof. Sathirakorn Pongpanich, Dean of the College of public health Science, Chulalongkorn University, Chairperson Asso.Prof. Ratana Somrongthong and examiners Dr. Nanta Auamkul for giving me suggestion for my thesis.

Thanks to each and every one of the 422 participants for their contribution in this study and Heartfelt thanks to Mr. Aung Thin Khaing and his friends from Se-Lone-In-Ar Library in Mahachai who helped me a lot during data collection process.

Finally I give my sincerely thanks to all who helped me in different way to finish my master thesis.



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

CONTENTS

Page

THAI ABSTRACT	iv
ENGLISH ABSTRACT	v
ACKNOWLEDGEMENTS	vi
CONTENTS	vii
List of Figure	i
List of table	i
Abbreviations	ii
CHAPTER I	1
INTRODUCTION	1
1.1. Background and Rationale	1
1.2. Research Gap	3
1.3. Research Questions	4
1.4. Research Objectives	4
1.5. Research Hypothesis	5
1.6. Conceptual Framework	6
1.7. Operational Definitions	7
CHAPTER II	10
LITERATURE REVIEW	10
2.1. Hypertension	10
2.1.1 Hypertension Definition	10
2.1.3 Types and Causes	11

	Page
2.1.4. Risk Factor	11
2.1.4.2 Behavioural Risk Factors.....	12
2.1.4.3. Metabolic Risk Factors	12
2.1.5 Symptoms	13
2.1.6 Diagnosis and Treatment of hypertension.....	14
2.1.7. Complications	14
2.1.8 Prevention of Hypertension.....	15
2.1.8.1. Physical activity.....	15
2.1.8.2. Healthy Diet.....	16
2.1.8.3.Avoidance of Tobacco	18
2.1.8.4. Moderation of Alcohol Drinking.....	18
2.2. Hypertension Situation.....	20
2.3. Migration.....	21
2.4. Background of Myanmar Migrant Workers in Thailand	21
2.5. Migrants and Health Care	23
2.6. Related Research.....	23
CHAPTER III METHODOLOGY	28
3.1. Study Design.....	28
3.2. Study Area	28
3.3. Study Population.....	28
3.4. Duration of the study	28
3.5. Sample Size.....	28
3.6. Sampling Technique	29

	Page
3.7. Measurement Tools.....	29
3.8. Validity and Reliability Test.....	31
3.9. Data Collection.....	32
3.10. Data analysis.....	34
3.11. Ethical consideration.....	37
3.14. Expected benefits and and application.....	37
CHAPTER IV.....	38
RESULTS.....	38
4.1 Background Information of the Study Area.....	38
4.2 Socio-demographic Characteristics.....	39
4.3. Knowledge of Hypertension.....	41
4.4. Source of Information.....	43
4.5. Attitude towards Hypertension.....	45
4.6. Practice of Preventive behaviour regarding hypertension.....	47
4.7. Relationship between sociodemographic characteristics and Knowledge of hypertension.....	49
4.8. Relationship between sociodemographic characteristics and Attitude regarding hypertension.....	52
4.9. Relationship between sociodemographic characteristics and practice of hypertension prevention.....	54
4.10. Relationship between receiving hypertension information and Knowledge of Hypertension.....	57
4.11. Relationship between receiving hypertension information and Attitude regarding Hypertension.....	57

	Page
4.12. Relationship between receiving hypertension information and practice of preventive behaviour	58
4.13. Relationship between source of hypertension information and practice of preventive behaviour	58
4.14. Relationship between Knowledge and attitude of hypertension.....	59
4.15. Relationship between knowledge and practice of preventive behaviour regarding hypertension	60
4.16. Relationship between attitude and practice of preventive behaviour regarding hypertension	60
CHAPTER V	62
DISCUSSION, CONCLUSION AND RECOMMENDATION	62
Discussion	62
Conclusion.....	68
Limitation of the studies	69
Public Health Implications	69
Recommendation for further research.....	70
3.15. Time Schedule.....	71
3.16. Budget estimation	72
REFERENCES	73
VITA.....	86

List of Figure

Figure 1 Conceptual Framework	6
Figure 2. One Standard Drink (WHO STEP Survey)	9
Figure 3. Factors contribute to the development of hypertension and its Complications (JNC VII 2004).....	13

List of table

Table 2.1 Classification of High Blood Pressure for Adult(JNCVII, 2004).....	10
Table 3. 1 Variables, Measurement Scale and Descriptive Statistics	39
Table 3. 2 Variables, Measurement Scale and Inferential Statistics.....	40
Table 4. 1 Frequency and Distribution of Socio-demographic Characteristics ...	39
Table 4. 2 Frequency and distribution of knowledge of hypertension	42
Table 4. 3 Frequency and distribution of knowledge level regarding hypertension.....	43
Table 4. 4 Frequency and distribution of Source of hypertension information ...	44
Table 4. 5 Frequency and distribution of attitude regarding hypertension	46
Table 4. 6 Frequency and distribution of attitude level regarding hypertension .	47
Table 4. 7 Frequency and percentage distribution of practice of Preventive behaviour regarding hypertension.....	48
Table 4. 8 Frequency and distribution of practice levels regarding hypertension.....	49
Table 4. 9 Relationship between sociodemographic characteristics and Knowledge of hypertension	49
Table 4. 10. Relationship between sociodemographic characteristics and Attitude regarding hypertension	52

Table 4. 11 Relationship between sociodemographic characteristics and practice of hypertension prevention	55
Table 4. 12. Relationship between receiving hypertension information and knowledge of hypertension	57
Table 4. 13. Relationship between receiving hypertension information and attitude of preventive behaviour	58
Table 4. 14 Relationship between receiving hypertension information and practice of preventive behaviour.....	58
Table 4. 15 Relationship between source of hypertension information and practice of preventive behaviour.....	59
Table 4. 16 Relationship between attitude and Knowledge of hypertension.....	60
Table 4. 17 .Relationship between knowledge and practice of preventive behaviour regarding hypertension.....	60
Table 4. 18 Relationship between attitude and practice of preventive behaviour regarding hypertension.....	61

Abbreviations

AHA- American Heart Association

BMI-Body Mass Index

CDC-Centre for Disease Control

CHD-Chronic Heart Disease

CRD- Chronic Renal Disease

DBP diastolic blood pressure

DM-Diabetes Mellitus

HTN-Hypertension

JNC-Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure

NCDs-Non-Communicable Diseases

NHANES-The National Health and Nutrition Examination Survey

SBP -systolic blood pressure,

WHO-World Health Organization



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

CHAPTER I

INTRODUCTION

1.1. Background and Rationale

In the 21st century, non-communicable diseases (NCDs) continues to be one of the major public health challenges threatening social and economic development of the countries throughout the world (WHO, 2017a). Hypertension or raised blood pressure is one the chronic non-communicable diseases with fatal serious complications if left untreated. Emerging Non-communicable diseases burden move United Nations for prevention and control of NCDs through the 9 global NCDs targets which is adopted during the high level meeting of UN general Assembly in 2011 calling for a 25% relative reduction in hypertension prevalence by the year 2025, according to the national circumstances. (WHO, 2015b).

Hypertension is affecting more than one fifth of adults globally. Among the total world population of seven billion, over one billion people have hypertension according to WHO 2015 data. The prevalence of hypertension in adult was expected to be increased by 60% or 1.56 billion by the year 2025. Two-thirds of hypertension cases are in developing countries. Prevalence is high in low income and middle income countries and lowest in the Region of the Americas. Approximately one in three adult has high blood pressure in the South East-Asia Region (WHO, 2013c) In Myanmar, prevalence of hypertension is 24.9% in male and 24.2% in female according to 2015 NCDs country profile, WHO. In Thailand, prevalence of raised blood pressure is 24.2% in male and female 20.3 in female total 22.3% according to 2015 NCDs country profile, WHO.

Hypertension kills almost 9.4 million people every year globally and nearly 1.5 million people each year in the South-East Asia (SEA) Region accounting for one

of the most important causes of premature death worldwide. It is a major risk factor for coronary heart disease and ischemic as well as hemorrhagic stroke responsible for around fifty percent of all deaths from heart disease and stroke. Although the cause is unknown for about 95% of cases of hypertension, most of the cases share the common behavioral risk factors such as tobacco use, harmful use of alcohol, physical inactivity and unhealthy diet. The burden of the disease is further increased by rapid urbanization, globalization, population growth and population aging.

The disease complications occur mainly in the adulthood although most of the risk behaviour has adopted since early life. Mortality impact of the NCDs can be prevented through government policies by delivering universal health care and increasing public awareness of hypertension, enhancing avoidance of tobacco, moderation of alcohol, eating of healthy diets and physical activity. Effective interventions for preventing the occurrence and management of the non-communicable diseases has proved the reduction in the burden of diseases. Early detection and management of individuals with hypertension or people at high risk improves survival and quality of life. Owing to better access to services for prevention and treatment of NCDs, mortality from cardiovascular disease has declined in high-income countries (Nissinen A et al., 2001).

In developing countries, many people with high blood pressure do not aware of their disease and encounter difficult access to treatments to control their blood pressure.(WHO, 2013b). Weak health services are one of the barrier for prevention and control of hypertension. Difficult access to health service results in delay for early detection and getting treatment. Lack of good environment which enhance healthy lifestyle adoption is one of the major barriers to prevention and control of hypertension. (WHO, 2013c)

Health is recognized is a fundamental human right and migrants are of no exception. Thailand has estimated migrant population of 3.7 million according to Thailand migration report 2014, IOM. Some 3.25 million of people from neighboring countries come and work in the Thailand. Thailand's largest migrant population are Burmese 86% and other countries composed of Cambodia 10% and Laos 4%.

Samutsakhon is the central province of Thailand where about 300,000 Burmese migrants are living. Only one third of the migrant populations are registered which makes them Access to health and other social services are poor among migrant especially when they are undocumented (Migration, 2009). A core challenge for expanding health services includes difficulties in accessing health status of migrant's population due to high mobility and illegal status of living in Thailand (Jitthai, 2010).

Regarding Thailand health insurance, migrants are provided with compulsory scheme for registered migrants and optional health insurance scheme for irregular migrants with enrollment fee 2800 baht and 30 baht per hospital visit. (IOM, 2014) Health screening is also included in Insurance scheme. In some areas of Thailand, health facilities are provided with relevant language facilitators in order to have better accessibility for migrants. According to Thailand Migration Report 2014, the improvements were seen in provision of education, health care accessibility, and the enrolment in Social Security Fund. (IOM, 2014). However, migrants who registered for the scheme often practice self-medication or not seeking medical care until they encounter very severe health problems as a result of reluctance to access government medical facilities. (Srithamrongsawat, 2009).

Effective prevention and control of NCDs is a national public health priority for Thailand nowadays. (IOM, 2014). Data for non-communicable diseases status of migrants are even sparser although some evidence for migrants' health seeking behaviour for cardiovascular diseases has been noted in hospital inpatient care data. (Ministry of Public Health, 2011)

1.2. Research Gap

Increasing trend of hypertension prevalence in all over the world needs awareness and prevention in the community and migrants are no exception. Hypertension status of the migrant population in the Samutsakhon province is not known previously. Data for non-communicable diseases status of migrants are even sparser although some evidence for migrants' health seeking behaviour for cardiovascular diseases has been noted in hospital inpatient care data. (Ministry of Public Health, 2011). Little have been studied about the hypertension among migrant

population in Thailand. This study assesses the knowledge, attitude and preventive behavior towards raised blood pressure among Myanmar migrants in Samutsakhon Province, Thailand. Understanding of knowledge, attitude and practice level regarding hypertension of the migrant population will enhance the knowledge base for expansion of national health services and interventions to migrant population and will also guide in decision making and enable objective evaluation of migrant health policies to expand programs targeting prevention and control of hypertension.

1.3. Research Questions

1. What are the socio-demographic characteristics of Myanmar migrants in Samutsakhon Province?
2. What are the level of knowledge and attitude towards hypertension among Myanmar migrant adult in Samutsakhon Province?
3. What are the level of practice of preventive behaviour towards hypertension among Myanmar migrants in Samutsakhon Province?
4. Is there association between socio-demographic factors, level of knowledge, attitude and practice of preventive behaviour towards hypertension?

1.4. Research Objectives

1.4.1. General objective-To identify the level of knowledge, attitude and practice of preventive behavior towards hypertension among Myanmar migrants of studied population in Samutsakhon Province, Thailand.

1.4.2. Specific objective

- 1) To identify the socio-demographic characteristics of Myanmar migrants in studied population in Samutsakhon province, Thailand.
- 2) To measure the level of knowledge and attitude towards hypertension prevention among Myanmar migrant in studied population in Samutsakhon Province, Thailand.
- 3) To assess the level of preventive behaviour on hypertension among Myanmar migrants in studied population.

4) To identify the association between socio-demographic characteristic, level of knowledge and attitude and hypertension preventive behaviour among Myanmar migrants in studied population.

1.5. Research Hypothesis

1. Socio demographic characteristic is associated with preventive behaviour of hypertension.
2. Knowledge of Hypertension is associated with preventive behaviour towards hypertension.
3. Attitude of Hypertension is associated with preventive behaviour towards hypertension.



1.6. Conceptual Framework

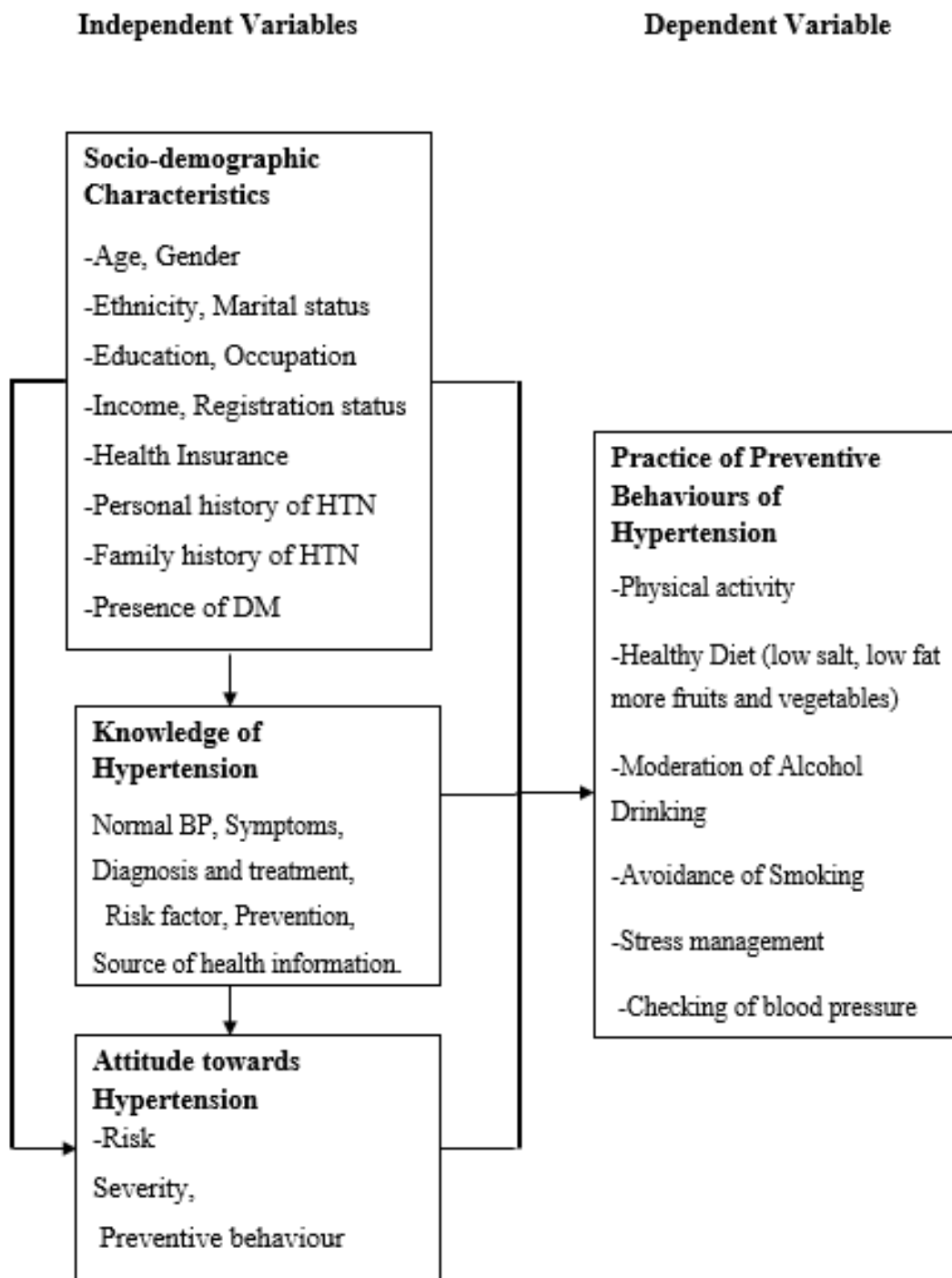


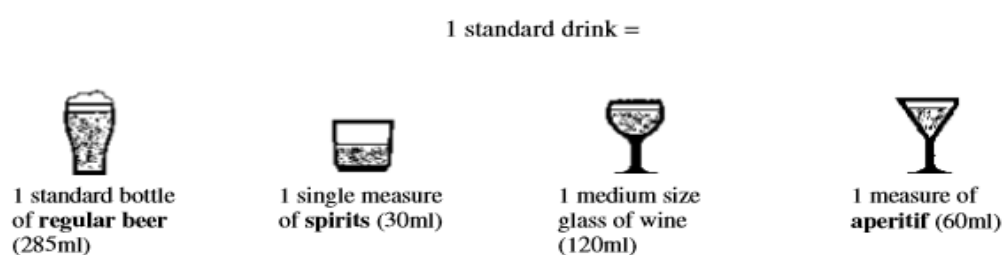
Figure 1 Conceptual Framework

1.7. Operational Definitions

- **Myanmar migrants** in this study refers to any Myanmar Nationalities who has moved across the international border from Myanmar to Thailand regardless of the person's legal status and the causes for the movement.
- **Undocumented Migrant** in this study refers to non-Thai nationals who enter and stay in Thailand without legal documentation or, after legally entering, those staying beyond the authorized time.
- **Premature death** –refers to death that occurs before the average age of death in a certain population.
- **Age** – refers to the last completed birthday of the respondent at the time of the interview.
- **Ethnicity**- refers to the ethnic origin of the respondent which is categorized into Burma, Mon, Karen, Shan and others.
- **Marital Status**- means the status of marriage of the respondents at the time of interview. It was categorized as single, married, divorced, separated, widow and others.
- **Education Level** - refers the self-report highest attained level of education of the respondents and it is measured in five categories, “No Education, Primary or monastery education (grade 1-4), Secondary education (grade 5-8), Higher education (grade 9-10) and University graduate and above.
- **Occupation** - refers to the respondent's current occupational status. It is classified into factory worker, construction worker, agriculture worker (including fishery and livestock), general worker and unemployed”.
- **Income**- Refers to respondent's average income in baht per month.
- **Registration status** referred to the respondent's self-reported current registration status of work in Thailand. It was categorized into registered and unregistered.
- **Personal history of hypertension**- Referred to respondents' status of hypertension whether he or she is diagnosed as hypertensive patient by professional healthcare providers in the past or receiving treatment for hypertension.

- **Family history of hypertension-** refers to the medical history of the respondents' family whether they have history of hypertension.
- **Knowledge on Hypertension** in this study means, the understanding of the respondents about hypertension regarding the risk factors, preventive behaviour, symptoms and complication.
- **Attitude on hypertension** in this study means, the respondent thoughts and beliefs about the hypertension.
 - Risk: means that the opinions of the respondents on getting Hypertension.
 - Severity of the complication of hypertension: means that the opinions of the respondent on how severe the complications of hypertension.
 - Preventive behaviour: mean that the opinions of respondents on the prevention of hypertension.
- **Practice of Preventive Behaviours of Hypertension** in this study refers to the respondents' activities to prevent hypertension through primary preventive strategies for hypertension.
 - Physical activity
 - Healthy diet
 - Moderation of alcohol
 - Avoidance of smoking
 - Management of stress
 - Checking of blood pressure
- **Healthy diet** means balanced diet that are low in salt content, saturated animal fat, total fat and rich in fruits and vegetables.
- Participants will be asked how frequently they choose to eat fruits and vegetables, (5 portion of fruit and vegetables during most of the day in a week) choosing of healthy food over unhealthy food whenever available (processed food, canned food, deep fried and salty food).
- **Physical activity** refers to exercise as well as other activities which involves bodily movement and are done as part of playing, working, active transportation and house chores and recreational activities. (WHO)

- **Vigorous physical activity**- any physical activity that cause heavy sweating or large increases in breathing or heart rate. e.g. fast cycling, Carrying heavy loads
- **Moderate alcohol consumption in this study** refers to respondent's activity in reducing daily amount of alcohol intake to be not more than 1 standard drink per day for women and up to 2 drinks per day for men.
- **One standard drink** means a bottle of beer, a glass of wine and a shot of hard liquor (Gin, whiskey)



Note: net alcohol content of a **standard drink** is **approximately 10g** of ethanol.

Figure 2. One Standard Drink (WHO STEP Survey)

- **Avoidance of tobacco** refers to the status of the respondents' action in relation to cessation or avoidance of smoking.
- **Managing stress**-refers to participant's strategy of controlling stress in order to reduce its impact by means of changing the source of stress or changing the reaction to it.
- **Checking of Blood Pressure** refers to the respondents' action of measuring their blood pressure.

CHAPTER II

LITERATURE REVIEW

2.1. Hypertension

2.1.1 Hypertension Definition

Hypertension is a long-term medical condition where there is persistent elevation of the systolic blood pressure of 140 mmHg or greater and diastolic blood pressure of 90 mmHg or greater. Blood pressure is the force of blood pumped by the heart through the arteries to the rest of the body with every heartbeat. It has two measurements; systolic and diastolic blood pressure. Systolic blood pressure is the pressure during the contraction of heart muscle and diastolic blood pressure when the heart is in relaxation state between each contraction.

Table 2. 1. Classification of High Blood Pressure for Adult

Blood Pressure	SBP	DBP
Classification	mmHg	mmHg
Normal	<120	and < 80
Prehypertension	120-139	80-89
Stage I hypertension	140-159	90-99
Stage II hypertension	≥160	≥100

Table 1.1 Classification of High Blood Pressure for Adult(JNCVII, 2004)

2.1.3 Types and Causes

There are two types; primary or essential hypertension and secondary hypertension.

Primary Hypertension- When the cause is unknown, it is called primary hypertension. About 95% of hypertension cases diagnosed are essential.(Eskridge, 2010.)

Secondary hypertension –When there is a known cause or diseases such as chronic kidney disease (CKD), diabetes mellitus (DM), thyroid disease, endocrine disease, malformations of blood vessels and medications such as prednisolone. About 5% of hypertensive patients are diagnosed with secondary hypertension (AHA, 2014.).

2.1.4. Risk Factor

2.1.4.1. Unmodifiable risk factor

Age, gender and race are unmodifiable risk factor for hypertension.

The risk of hypertension increases as the blood vessel gradually loses its' elasticity and becomes stiffen as people grow older.(AHA, 2014.) According to NHANES survey, the approximate 5% rise in age specific prevalence of hypertension is seen in every 10 year increase in age of the population.(Dreisbach, 2014)

High blood pressure is more prevalent in men until age 64. After 64 years, women are more likely to get hypertension (AHA, 2014.). In the United States, the National Health and Nutritional Examination Survey reported that the prevalence of hypertension was lower in women than in men between the age of 18-49 years.(5% in women and 12% in men) However, the age-related BP rise for women exceeds that of men after 70 years of age and older(50% for white men and 55% for white women) (Vicki L. Burt et al., 1995).

Estimated 30 percent of cases of essential hypertension are contributed by genetic factors. Not all the risk is attributed to the genetics but because of the thing that family share the same lifestyle. In the United States, high blood pressure develops more commonly in African-Americans rather than people of any other racial background. Compared to non-Hispanic Whites, they tend to have hypertension in early age of life. Some may present with more severe clinical sequel and some treatment are less effective for them(AHA, 2014.). Risk for developing hypertension

for an adult 45 years of age without hypertension is greater in African,Hispanic (93% and 92%) than Whites and Chinese adults(86% for whites and 84% for Chinese adults.)(Paul K. Whelton et al., 2017).

2.1.4.2 Behavioural Risk Factors

The major behavioural risk factors for the development of hypertension include Sedentary life-style, unhealthy dietary pattern (excess salt and saturated animal fat, low amount of vegetables and fruits), alcohol drinking, cigarette smoking and engaging in stressful conditions. People's working and living conditions such as housing, income, education and employment and rapid unplanned urbanization leads to promote the development of hypertension as a result of unhealthy environments that encourage sedentary behavior, consumption of fast food, harmful use of alcohol and tobacco use. (JNC VII 2004)

2.1.4.3. Metabolic Risk Factors

Metabolic risk factors for hypertension includes high cholesterol, being overweight and diabetes. More than half of people with hypertension also have high cholesterol. Being overweight and high cholesterol level increase individual risk of cardiovascular complication as it can put extra strain on heart and circulatory system. There are increasing population of people who have both diabetes and hypertension and their cardiovascular risk is higher because of the strong linkage of the diseases with all cardiovascular diseases. Diabetes occurs two and a half-time more commonly in hypertensive patients are more likely to develop diabetes within five years. Hypertension is also disproportionately higher in the diabetics. (JNCVII, 2004)

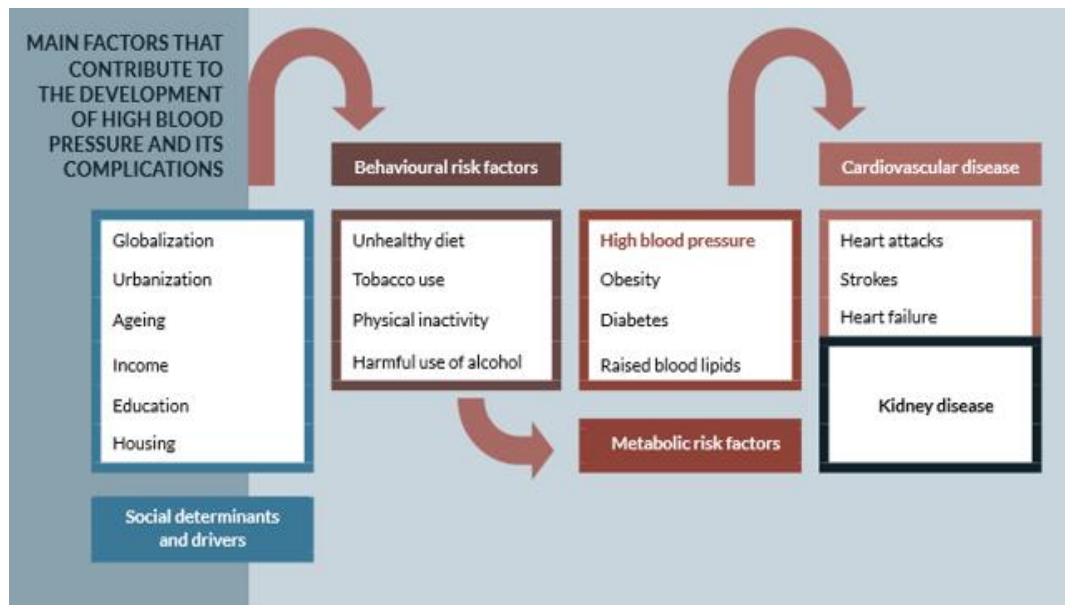


Figure 3. Factors contribute to the development of hypertension and its Complications (JNC VII 2004)

Other factors

Pre-eclampsia or pregnancy induced hypertension- Some pregnant women has raised blood pressure when measured which resolves usually after giving birth. Women who experience preeclampsia have more chance to develop hypertension in later life and it can sometimes remain.

White Coat Hypertension- Temporary increase in the blood pressure which is caused by anxiety of visiting a doctor or hospital setting. They may increase their blood pressure than usual when measured and it is known as white coat hypertension (WHO, 2013a).

2.1.5 Symptoms

Hypertensive people rarely have symptoms. Sometimes it causes symptoms such as headache, anxiety, shortness of breath, dizziness, chest pain, palpitations of the heart and nose bleeds. Such symptoms are not to be ignored, but neither can they be relied upon to signify hypertension. Hypertension, the silent killer, is a serious warning sign that significant lifestyle changes are required and it is important for everybody to know their blood pressure reading (WHO, 2013a).

2.1.6 Diagnosis and Treatment of hypertension

Diagnosis of hypertension is made when the blood pressure readings shows consistent high results in more than two separate occasions (SBP 140 mmHg or more and DBP 90 mmHg and more). As the diagnosis is confirmed, it is also important to determine the extent of cardiovascular risk and complications by blood test, urine test, electrocardiogram, ultrasound and echocardiogram.

Treatment of hypertension include long-term antihypertensive medication as well as life style modification. Common medications for hypertension include single or combination therapy of calcium channel blockers, angiotensin II receptor blockers, angiotensin-converting enzyme (ACE) inhibitors, beta blockers and diuretics. Pre-hypertensive and high risk individual are also encouraged to adopt healthy life style behaviour such as losing weight for overweight persons, exercising at least 30 minutes a day, eating a low-sodium, low-fat diet that's rich in potassium and fiber, quitting smoking, limiting of alcohol intake and reducing stress levels.

2.1.7. Complications

Persistent elevation of blood pressure gives rise to damage of the major target organs such as brain, heart and kidney resulting in fatal serious complication to premature death. For each increase in 20/10 mmHg of blood pressure, the cardiovascular risk becomes doubled. Uncontrolled hypertension can give rise to a wide variety of complications;

- 1)heart attack,
- 2)enlargement of the heart and eventually heart failure due to increased workload from high blood pressure
- 3)stroke resulting from rupture of blood vessels or aneurysms
- 4) kidney failure,
- 5) Visual impairment and blindness

6)cognitive impairment.

7)Sexual dysfunction

8)Peripheral artery disease (PAD) — Atherosclerosis caused by high blood pressure can cause a narrowing of arteries in the legs, arms(ESCESH, 2013).

2.1.8 Prevention of Hypertension

Adoption of healthy lifestyle is important for prevention as well as management of hypertension. (JNC 2004.) Preventive behaviours adopted early in life provide the greatest potential for avoiding the unhealthy habits that give rise to hypertension and its related burden of complications.(NIH, 2002)

The odds of developing high blood pressure and its adverse consequences can be minimized by:

- Eating of healthy diet- reducing salty diet and fat intake
- Regular physical activity -30 minutes a day most of the day in a week
- Avoidance of smoking and tobacco
- Moderation of alcohol- not more than one standard drink a day
- Stress management- meditation, from social support.(WHO, 2015c)

2.1.8.1. Physical activity

WHO defines physical activity is defined as any movement of the body produced by skeletal muscles that requires energy expenditure. It includes activities undertaken during playing, working, doing house chores, travelling and recreational activities.

There are two types;

a. Moderate Physical Activity

Moderate Physical Activity requires a moderate amount of effort and noticeably accelerates the heart rate. Examples -brisk walking, dancing, gardening, housuework and domestic chores, general building task, carrying/moving moderate loads

b. Vigorous Physical Activity

Vigorous Physical Activity requires a large amount of effort and cause rapid breathing and substantial increase in heart rate. examples -running, walking up a hill, fast cycling, aerobic, competitive sports and games e.g. football, basketball, carrying/moving heavy loads

Regular and adequate levels of physical activity reduce the risk of hypertension and other non-communicable diseases and depression. It helps improve muscular and cardiorespiratory fitness, and weight control. Regular aerobic physical activity for at least 30 minutes a day for most of the day has been recommended for prevention of hypertension. (Krousel-Wood et al., 2004)

The relationship between blood pressure and physical activity has been proved in many studies. A meta-analysis of 27 randomized controlled trials by Whelton et al. proved that there is significant reduction in SBP of the respondents who assigned to take regular aerobic exercise. The study identified a 4.04 mmHg reduction in systolic blood pressure of 1108 normotensive respondents when compared to the control group to determine the effect of aerobic exercise on blood pressure (SP Whelton et al., 2002).

The risk of hypertension in physically active individuals is greatly reduced by 30 % to 50% compared to less active and less fit persons. Some environmental factors such as use of passive transportations, sedentary job nature, lack of sport and recreational facilities, high density traffic and fear of outside crime and violence impose people to become less active in more urbanized world. (WHO, 2017b) .

2.1.8.2. Healthy Diet

Hypertension can be prevented by modification of dietary pattern by eating a diet rich in fruits and vegetables, and low fat and dairy products together with restriction of sodium content. A healthy diet protects against malnutrition in all its forms, as well as non-communicable diseases (NCDs), including hypertension, diabetes, heart disease, stroke and cancer. People are now consuming more foods high

in energy, fats, free sugars or salt/sodium, and many do not eat enough fruit, vegetables and dietary fibre such as whole grains. A shift in dietary patterns and change in lifestyle of people driven by the rapid urbanization, increased production of processed food.

Higher salt intake has a dose-dependent association with incidence of strokes and total cardiovascular events. Most people consume too much sodium through salt. Countries in Eastern Europe and Asia are rated as the highest salt consuming countries. The average salt consumption is 9 grams in many countries which is above the WHO recommended level of 5 g.(Powles et al., 2013) A meta-analysis of dietary survey in 2010 shows that a Thai and Myanmar adult consumes 13.5 g salt per day and 11.5 g salt per day respectively. (Powles et al., 2013)WHO recommend salt restriction by avoiding extra added salt or soy sauce to the food on the table and during the food preparation, reducing the eating of salty snacks and to choose low sodium content food.(WHO, 2015a)

The meta-analysis of 17 studies strongly supports other evidence for reduction in salt intake reduce in blood pressure of 4.96/2.73 mm Hg in hypertensives and 3.6/1.6 mm Hg in normotensives that could avert more than a million deaths from stroke and almost three million deaths from cardiovascular disease worldwide (He et al., 2013).

Reduction in sodium consumption by about 30% has greatly reduced the cardiovascular disease in in Finland in those less than 65 years and the stroke rates have fallen by more than 70% in Japan.(Dobe, 2013).

The Dietary Approaches to Stop Hypertension (DASH) trial demonstrated that dietary approaches are effective for prevention and control of hypertension. Substantial decrease of blood pressure was detected in both hypertensive and normotensive individuals taking DASH diet that emphasizes fruits, vegetables, and low- amounts of total and saturated fat and cholesterol, only small amounts of red meat, sweets, and sugar compared with a typical diet in the United States. Low sodium DASH diet lowered a mean systolic blood pressure of 7.1 mm Hg in

participants without hypertension, and 11.5 mm Hg in participants with hypertension compared with the high sodium control diet.(Frank M. Sacks et al., 2001).

2.1.8.3.Avoidance of Tobacco

There are now 1.3 billion cigarette smoker worldwide , majority of them are from developing countries. It is the major risk factor for cardiovascular diseases killing more than seven million people every year. It is responsible for 10% of all death from cardiovascular diseases. (WHO, 2014a)

Smoking stimulate sympathetic nervous overactivity, which increases myocardial oxygen consumption through a rise in blood pressure, heart rate, and myocardial contractility.(Norman M Kaplan, Clinical Professor of Internal Medicine University of Texas Southwestern Medical Centre). Cigarette smoking causes transient increase in blood pressure which is seen especially with the first cigarette of the day. Elevation of SBP is noted in the study of patients with mild essential hypertension(Groppelli A et al., 1992). Chronic sympathetic activation which plays an important role in arterial compliance, contributes to the well-established association between arterial stiffening and hypertension.(Adel E. Berbari and Mancia, 2012).

2.1.8.4. Moderation of Alcohol Drinking

More than three million people in the world are dying every year due to harmful use of alcohol. There is a causal relationship between harmful use of alcohol and a range of mental and behavioural disorders, other non-communicable conditions as well as injuries.(WHO, 2014b)

One standard drink of alcohol equals to a glass of wine, a bottle of beer, cider or cooler and a shot of hard liquor. Moderation of alcohol means limiting alcohol consumption to have not more than one standard drink per day for women and two drinks per day for men. Blood pressure increase is not seen when alcohol is consumed less than two drinks per day (<30 grams of ethanol a day). Larger amounts of alcohol ingestion have A dose-related BP effect is seen in both normotensive and

hypertensive and individuals with large amount of alcohol consumption (Krousel-Wood et al., 2004). The harmful use of alcohol is strongly discouraged in hypertensive individuals. (JNC VII). In one prospective cohort study of 28848 women and 13455 men, the result shows that light to moderate consumption of alcohol decrease risk of hypertension in women and increase in men. The threshold above which alcohol become deleterious for hypertension risk emerged at more than or equal 4 drinks per day in women versus a moderate level of more than equal 1 drink per day in men. (D.Sesso et al., 2008)

2.1.8.5. Stress Management and hypertension

Stress is a concern of a strong emotional tension. It is involuntary physiological response or flight or fight reaction to a threat. Chronic activation of fight or flight response increase hypertension. Stress management refers a strategy of reducing stress and its effect. Stress management includes;

Relaxation: Breathing exercise, meditation.

Detecting the source of the problem: The most population of the world not understand of the happening for feeling tension or stressed. Identifying this case is necessary to prevent occurrence over once more.

Addressing the problem by making a change or accepting the problem is out of one's restrict without stressing concern it anymore (Greenberg, 2006)

Persons who display often, large increases in blood pressure (BP) during stress are at risk of increasing blood pressure which is proved by CARDIA study. The BP interact to 3 psychological issue in a test of 4100 normotensive males and females whom were studied during 13 years of follow-up. The person who grown up a large reaction to psychological tension were shown to be at threat for hypertension as they come up to midlife. (Karen A. Matthews et al., 2004)

The hypothesis that stress raises hypertension prevalence is supported by the observation that the average blood pressures of African Americans living in high-stress areas where unemployment, crime, and crowded conditions are ongoing

features of the environment are higher than those residing in low stress neighborhoods. (Stress and Hypertension 1990)

2.2. Hypertension Situation

Among the total world population of seven billion, over one billion people have hypertension according to WHO 2015 data. of these, two-thirds are in developing countries. More than 1 in 5 adults worldwide have raised blood pressure.

Prevalence is high in low income and middle income countries and lowest in the Region of the Americas (18%). In contrast, low-income countries have the highest prevalence of raised blood pressure. The average blood pressure levels in Africa region are much higher than global averages. More than 30% of adults in many countries of WHO Africa region are estimated to have high blood pressure and this proportion is increasing.

One in three adults in the SEA region has hypertension (WHO, 2013c) In Myanmar, prevalence of Raised blood pressure (2008) is 24.9% in male and female in 24.2% in female according to 2015 country profile, WHO. In Thailand, NCDs are estimated to account for 71% of total deaths among total population of 66785000. Prevalence of Raised blood pressure (2008) is 24.2% in male and female 20.3 in female according to 2015 NCDs country profile, WHO.

The prevalence of hypertension among Myanmar migrant workers is unknown. Samutsakhon province has a registered population of 545,454 according to provincial health report, 2016(NSO, 2016).The estimated population of Myanmar migrant in Samutsakhon is 300,000 according to The 2014 Statistical Journal of Foreign Workers in Thailand who Hold Work Permits, Department of Employment, Ministry of Labor.(Department of Employment, 2014).The estimated population is based on the number of workers who have work permit. A study done in Thasongyang, Thailand revealed an ethnic group of Myanmar, Karen, has hypertension in more than 27% of population and are hypertensive. (Myo Nyein Aung et al., 2012)

2.3. Migration

A United Nations report “Trends in total migrant stock” reported that international migration in the world becomes doubled from 75 million to 191 million between 1960 and 2005. Annually migration is running 3% according to IOM. Irregular immigrations occur around 15- 30 million internationally according to ILO. There were an estimated 244 million migrated internationally in 2015,.(3.3% of the world’s population)(IOM, 2017)

Along with migration, there has been a concern about spread of infectious diseases. Not only spread of communicable disease, but also the poor health status of the migrants is the uprising issue. Irregular migrants and asylum seekers encounter difficult access to health care services in many countries.(WHO, 2008a)

2.4. Background of Myanmar Migrant Workers in Thailand

Seventy percent or 1.4 million of Burma's overseas population are living in Thailand according to the 2014 Burma Census. Thailand’s largest migrant population are Burmese.(Census, 2015). Thailand has all immigrant population of 3000000 which represents approximate seven per cent of the country’s population. Largest migrant population are Burmese 86% and other countries composed of Cambodia 10% and Laos 4%. Thailand migration report stated that the estimated of registered and unregistered Myanmar migrant workers will be around 2.3 million. The majority of approximate 76 % of registered migrant workers are Myanmar according to Thailand’s’ Ministry of labor (IOM, 2013). Myanmar migrants are largely occupied in the fisheries sector, seafood processing, storage, transportation and trade and the construction sector.(IOM, 2014).

Most of the Burmese migrants migrate due to family poverty, unemployment, low earning and lack of qualification for employment and experiences such as forced labor. Migrants move from every states and regions of Myanmar, the greater number of them are from five states and regions bordering Thailand namely, Mon State, Shan State, Thanintharyi Region, Kayin State and Kayah State. The Bamar were the major ethnic sort in the middle of the migrants, representing 43.5 per cent of the total

number, adhere to by the Shan (18.3%), the Mon (15.1%), the Karen (12.5%) and others.(IOM, 2014).

Samutsakhon is the first in Thailand for seafood processing and wholesaling. There are about 5000 factories in the province. Samutsakhon province has a registered population of 545,454 according to provincial health report (NSO, 2016). The estimated population of Myanmar migrant in Samutsakhon is 300,000 according to Ministry of Labor.(Department of Employment, 2014)The estimated population is based on the number of workers who have work permit. Total of 1,186,805 migrants from Myanmar had been registered in Thailand in 2012. Other large Burmese communities reside in Mae Sot, Ranong and Bangkok, Tak, Chonburi, Phuket, Songkla, SuratThani, Pathum Thani, Samutprakan (Ndegwa, 2016).

Previous study among myanmar migrant workers in Samutsakhon province revealed prevalence of cigarette smoking is quite high 35.2% (59.2%in male and 8% in females)which is higher than smoking prevalence in Myanmar. The prevalence is associated with Mon ethnicity,male gender and attitude towards smoking behaviour among migrant worker population. More than half of the migrants tried to quit somking.(Zaw et al., 2009)

Another study in 2005 showed the widespread use of cigarette and alcohol, and moderate high physical activity among between Myanmar migrant workers in Samut Sakhon Province . Among them, 25.4 % were currently drinking alcohol. More than half of the drinkers started drinking since the age of 18 tto 20 years. A considerable 60% proportion of the youth population do not take part in vigorous or less vigorous physical activity.Only a few participants described that they had job stress (Howteerakul et al., 2005)

A study that determine upon alcohol consumption pattern with drinking consequences among 347 male adult Myanmar migrant workers in Ratchaburi Province, Thailand reported that 73.8% of the respondents were current drinkers and more than half of the Myanmar migrants workers abusively consumed alcohol(Soe et al., 2012).

2.5. Migrants and Health Care

Utility of health service among undocumented migrants are poor. They work under limited social protection and out of pocket payment for health services is the option for uninsured migrant (Migration, 2009).

In Thailand, Ministry of Public Health provide compulsory migrant health insurance scheme for registered migrants and optional health insurance scheme for irregular migrants with enrollment fee 2800 baht and 30 baht per hospital visit. (IOM, 2014) Improvements of migrant involvements in education, healthcare access and social security fund were reported in Thailand according to Thailand Migration Report 2014 (IOM, 2014) In some areas of Thailand, health facilities are provided with relevant language facilitators in order to have better accessibility for migrants. However, migrants who registered for the scheme often practice self-medication or not seeking medical care until they encounter very severe health problems as a result of reluctance to access government medical facilities. (Srithamrongsawat, 2009). Barriers encountered by unregistered migrants include fear of discrimination, lack of knowledge about provided healthcare, language barriers and fear of being arrested. (IOM, 2014)

2.6. Related Research

A community based cross-sectional study in Bahir Dar City of Ethiopia showed that level of knowledge and practice toward hypertension were associated with education, marital status, occupation and health information concerning for hypertension. The level of knowledge and practice were poor in majority of the respondents. More than half of the participants do not recognize the severity of hypertension and could not answer normal blood pressure level. One third of the population reported regular physical exercise of less than half hour a day. (Kasa and Shifa, 2017).

A study carried out on in patients of Samarkand medical institute, Uzbekistan showed that the knowledge and blood pressure control is significantly associated. Despite the participants considered regular checking of blood pressure as important,

only 44% had checked their blood pressure. Majority of the respondents had little knowledge about the duration of treatment and asymptomatic nature of hypertension(MALIK et al., 2014).

Previous study done in 298 Karen ethnic group residing at Thasongyang, Thailand showed that those with primary education and currently smoking people have more awareness than those who do not have primary education and non-smoker. More than 27% of the population had hypertension where 12% were in pre-hypertensive stage. Awareness of hypertension is more likely to be seen in people who have primary education or more(OR 6.5, CI 1.9–22.24) and those who are not currently smoke(OR 0.53, CI 0.29–0.97)(Myo Nyein Aung et al., 2012).

In the study of Martin D et al., the mean score of hypertension knowledge is high (83.1%) in urban African-American community. Personal history of hypertension and higher level of education is significantly associated with knowledge of hypertension. ($P = .009$ and $P = .002$) There were difference between sub-groups with variable, level of high blood pressure knowledge associated with level of education and/or a personal history. (Martins D et al., 2011).

Another study was conducted on a church-based population of African Americans to investigate the relationship between diet- and blood pressure-related knowledge and hypertension prevalence, and attitudes. The Study 55.9% of participants had hypertension. The mean knowledge score was 76.1 (+/- 10.6). There was no statistically significant difference in mean knowledge score by hypertension status ($P = .665$). Attitudes were not significantly related to knowledge and hypertension prevalence, despite apparent trends. However, logistic regression analyses revealed that age, occupation, and church site were significantly correlated with the knowledge(Carter-Edwards et al., 2002).

A study done in the Seychelles Islands (Indian Ocean) revealed that only small proportion from a sample population of 1067 adults (aged 25 to 64 years) engaged in positive attitude and practice of healthy lifestyle although they have good knowledge score. The prevalence of hypertension was 36% in men and 25% in

women aged 25 to 64 years. The whole sample population represented a good knowledge about hypertension regarding determinants and long term effects. Despite good knowledge, practice of healthy lifestyle and attitude were poor with little difference in normotensive and hypertensive individuals.(both aware and unaware)(Line Aubert et al., 1998).

A study was done to assess knowledge and perception about hypertension among neo and settled migrants in India. It was done in 453 migrants aged 20 years and above. This study showed that knowledge about hypertension was moderate and comprehensive knowledge was lacking in these migrant populations despite the higher prevalence of hypertension. Around 62% of respondents had heard of blood pressure. Women had comparatively more awareness than men. Seriousness and complications of hypertension is perceived in less than half of the respondents' population. Little is known about preventive and control measures describing that lessening tension and anger followed by reducing salt intake/dietary changes, and a very small proportion knew exercise would help. Only 10% considered the importance of lifestyle changes along with medications (Kusuma et al., 2013).

A study by Demaio et al., in the general population of Mongolia address the knowledge, attitude and practice of Mongolia population regarding hypertension in 3450 participants from households across Mongolia. lower levels of knowledge and risk perception regarding hypertension are associated with young age, less education and rural population. Nearly twenty percent of the participants had never heard of the term hypertension and it was associated with male gender. Urban population, old age and more educated participants associated with higher level of risk awareness. Employed groups showed higher perceived effectiveness of the prevention. Participants perceived exercise and medication as the only interventions to be moderately effective. (Demaio et al., 2013)

Poor attitude and practice score despite good knowledge towards hypertension are noted in a study done in general population of Gandhingar, India. General knowledge for hypertension is good regarding risk factor and complication. But specific knowledge scores were less which is associated with unemployment, men,

less education and younger age. Attitude score and practice score are poor in the sample population of Gandhingar although they obtained high knowledge. In last one year, only 20 % of the population checked their blood pressure. (Pragnesh Parmar et al., 2014)

Another study assessing knowledge, attitude and practice score of hypertension and diabetes study among general population in Guntur showed majority of participants had good knowledge about hypertension regarding risk factors, symptoms, complications and benefits of prevention. 70% of the participants knew normal BP level. 44% of the participants rated regular exercise can make them healthier. But attitude and practice score were poor despite good knowledge. Practice score is poor regarding exerciser, regular medical check-ups and blood, and urine examination(Mounica, 2015).

A study done in 500 general adult population of Ambala showed that the attitude and practice towards hypertension are poor despite good knowledge. The knowledge is good regarding causes, symptoms and complications. The majority of the population received information from family physician (28%), newspaper (30%) and television (32%) and followed by friends and relatives (10 %). Less than half of the respondents had positive attitude towards exercise. The blood pressure was checked only in 20.6% of the respondents (Sandeep Kumar et al., 2016).

To determine knowledge, attitude and practice on 200 hypertensive patients in Bharatpur, Chitwan, Nepal, Knowledge and Attitude were statistically associated with sex and level of education. Regarding to knowledge, nearly 90% of the patients identified being overweight, excess salt and alcohol as risk factors 85% of the patients measure blood pressure frequently and practice of physical exercise and diet and alcohol moderation was seen in more than half of the population. Male and university level education were statistically associated with higher level of knowledge and attitude score. The overall score for knowledge, attitude and practice score were median for the population(Shakti Shrestha et al., 2016).

A study on 6142 Canadian hypertensive populations in Canada showed men, younger patients, and those with lower socioeconomic status were least likely to report adherence to preventive lifestyle behaviors for blood pressure control. Age > 65 years and women tend to practice dietary changes to eat more fruit and vegetables, restrict salt and saturated fat and cessation of smoking. Those with fewer years of education were less adherent to preventive lifestyle behaviours.(Marianne E. Gee et al., 2012)



CHAPTER III METHODOLOGY

3.1. Study Design

The study design of this research is a cross-sectional study.

3.2. Study Area

The study area is Mahachai Sub-district, Samutsakhon Province, which is in the central province of Thailand.

3.3. Study Population

The study population is Myanmar migrants (age >20 years) who are residing in in Samutsakhon Province, Thailand.

3.4. Duration of the study

The study will be conducted from April 2018 to May 2018.

3.5. Sample Size

The sample size for this study is calculated by using the *Cochran* formula. The estimated knowledge level of Myanmar Migrant $p=0.5(50\%)$ is used since the knowledge of hypertension of the study population is unknown. The sample size in this study will be 422 after taking into account of 5% missing rate.

$$\begin{aligned}
 n &= \frac{z^2 p (1 - p)}{(d)^2} \\
 &= \frac{(1.96)^2 0.5 (1 - 0.5)}{(0.05)^2} \\
 &= 384 + 38 (10\% \text{ missing rate}) \\
 &= 422
 \end{aligned}$$

Where,

n = required minimum sample size.

p =unknown population (Estimated 50%)

d = desired level of precision or error allowance=0.05

z = reliability coefficient, standard value for 95% confidence interval is 1.96

3.6. Sampling Technique

The researcher selected the Samutsakhon province purposively since Samutsakhon province is the place where large populations of Myanmar migrants occupy due to abundant industries and being area of large amount of seafood processing factories. Then Mahachai sub district is purposively selected where a migrant youth association doing voluntary social work and they are already familiar with household of Myanmar migrants. The researcher used that link to reach the samples with the help of voluntary youths. Randomization is not possible due to high mobility of the migrant population. Convenient sampling method was used to collect the required samples.

a. Inclusion criteria of study sample

- Both male and female age more than 20 years.
- Myanmar migrants who are residing in Samutsakhon province, Thailand for more than one months.
- Myanmar migrants who can communicate well with Myanmar language.

b. Exclusion criteria of study sample

- Respondents who are not giving consent to participate in the research.
- Respondents who were severely ill or have mental disorder with medical evidence at the time of conduction of survey.

3.7. Measurement Tools

Researcher used the interviewer administered semi-structured questionnaires.

Structured questionnaire has four parts;

1. Socio Demographic Characteristic
2. Knowledge of hypertension
3. Attitude towards hypertension

4. Practice of preventive behaviour towards hypertension

3.7.1. Socio Demographic Characteristic

This section include the questions aimed to find out the socio-demographic characteristics of the respondents such as age, gender, ethnicity, marital status, education, occupation, income level, registration status, personal history of hypertension, family history of hypertension and history of diabetes. There are 16 questions in this section.

3.7.2. Knowledge of hypertension

This section included the knowledge about hypertension which included source of knowledge about hypertension and normal value for blood pressure. There are total 17 questions from four main stems of knowledge about general knowledge for normal values for blood pressure, symptoms of hypertension, treatment and diagnosis, risk factor and specific knowledge about preventive measures. Another question about source of information for hypertension is also include in the knowledge section which will not be included in the scoring. The answers will be categorized into true, false and don't know. The score is "1" for correct answer and '0' for incorrect and "don't know" answers. After conducting the interview, the correct answers about the knowledge of hypertension will be given to the participant by the interviewer.

The scores vary from 0 to 17 and all the individual answer will be summed up for total score. Bloom's cut off point 60-80% will be used for classification of scores into 3 level as follows.

Good Knowledge (0-59%) - 0-9 score

Moderate Knowledge (60-80%) – 10-13 score

Poor Knowledge (80-100%) - 14-17 score

3.7.3. Attitude on Hypertension

This section aimed to find out the attitude about hypertension in the sample population which include susceptibility, severity, and benefits of prevention towards hypertension. There are 13 questions in this section. The answers were categorized as 'strongly agree', 'agree', 'Unsure', 'Disagree' and 'Strongly Disagree'. The score will be calculated as below. The negative questions will be rated oppositely.

Positive statement (Strongly agree-5, Agree-4, Unsure-3, Disagree-2, Strongly Disagree- 1) Negative statement (Strongly agree -1, Agree-2, Unsure-3, Disagree-4, Strongly Disagree -5). The score varies from 0 to 65 and all the individual answer will be summed up for total score.

Positive attitude-score more than mean +SD

Neutral attitude- the mean score \pm SD

Negative attitude- score below mean-SD

(SD-standard Deviation)

3.7.4. Practice on hypertension prevention

The question in this section aimed to find out the practice of hypertension prevention behaviour during the past six month among the sample population. There are total of 13 questions. The answer will be categorized into "Regularly", "Sometimes" and "Never".

The negative questions will be rated oppositely.

Positive practice (Always-3, Sometimes-2, Never-1)

Negative practice (Always-1, Sometimes-2, Never-3)

The score varies from 0 to 36 and all the individual answer will be summed up for total score

Good practice -score more than (mean +SD)

Median- mean score \pm SD

Poor practice - score below (mean-SD)

3.8. Validity and Reliability Test

The KAP questionnaire was developed from a range of sources including:

- already established clinical assessment tools for hypertension self-care practice(Hae-Ra Han et al., 2014), Hypertension knowledge level scale(Erkoc et al., 2012)

- KAP survey construction guides; (sybille Gumucio et al., 2011)
- KAP surveys on hypertension and other NCDs
- WHO STEP Surveillance Manual(WHO)
- Existing KAP surveys on other health topics (WHO, 2008b)

The content validity of the questionnaire was tested by reviewing the previous literatures and consulting with three experts; Dr. Nanta Aumkul, Dr. Ratana Somrongthong (Assoc. Prof, Ph. D, M. A) and Prof. Aung Cho Myint (Prof of Medicine, University of Medicine (1), Yangon). The validity of the instrument is tested using the Item Objective Congruence index (IOC). IOC is 0.9 after revising some questionnaire according to experts' opinion. Translation and back translation were done by another expert from Myanmar.

Before data collection, a pilot test was conducted with 30 Myanmar migrants (10% of sample population) in Samutprakarn where the characteristics of respondents is similar to that in Samutsakhon. Regarding reliability, the internal consistency of the rating scales was tested using the Cronbach's alpha coefficient for practice and attitude sections and the result of alpha value is 0.86. Kuder-Richerson test was used for analysis of knowledge questions and the result was 0.7.

3.9. Data Collection

The data collection was conducted from April to March. The researcher hired three research assistants who are volunteers from the Ce-Lone-In-Ar library at Mahachai sub district. They are Myanmar people who are familiar with the Myanmar migrant community as they had been providing many social work within the Myanmar migrant community. The research assistants have previous experience in data collection during the last year research of the Myanmar students from the universities. In order to ensure the quality of data collection, the principal researcher gave training to the research assistants three days before the data collection. The duration of training is three hours per one section. The principal researcher explained the nature of the research, the research objectives, methodology, details about questionnaires and ethical concern. The documents such as consent form, research objectives, hypothesis and questions, papers for ethic approval, and questionnaires were given to the research assistants to be clear about the research. They were also

trained how to conduct interview and how to build trust with the interviewee. The researcher clarified the points and questions which the assistants want to know more or confuse. Training included role play section to assess the understanding and performance of the each of the research assistants. When one research assistant made interviewer, another research assistant had to act as an interviewee. To be familiar with the questionnaire and to minimize the interviewer's bias, every researcher had to do role-play as an interviewer at least two times. Finally, the field testing was done with three Myanmar migrant by using the questionnaire in order to assess the research assistants' performance. After being trained, data were collected by the principal researcher and 3 research assistants through interviewer administered face to face interview. Approach to the community was mainly through the link of the three research assistance by going directly to the community during off-days of the week when the Myanmar migrant workers are free and by interviewing at the workplace at lunch and free time during weekdays and at the library by advertising with poster with contact number. Data collection was carried out at the household level, at the workplace at lunch time and at the library of Myanmar migrant association according to the available time of the participant. The interviewer administered interview was done at the place where there is privacy for the participant with strict confidentiality. The interviewer explained the selected participant about consent, anonymity, freedom to participation, right to withdraw, confidentiality, access to final report and no use the data for other purposes including the right to refuse to participate in the research. The participants who choose to participate needed to sign the consent form to participate in the research. The participants were informed that the written consent form which includes participant's sign will be kept confidentially and separately from the questionnaires, and it cannot be traced back the answer. During the data collection, the principal researcher encouraged research assistances not to intervene or influences the interviewees' answers and try to get correct and accurate data as much as possible. Data completeness was monitored on the daily basis. After the interview, the questionnaire was put in envelope and close in front of the respondent. The participants were provided with the correct information about knowledge and attitudes and preventive behaviour.

3.10. Data analysis

The collected data was numerically coded and entered to SPSS version 22 to do the analysis with appropriate tests with p value 0.05 considered as significant level.

3.10.1. Univariate Analysis

For Socio demographic background, level of knowledge, attitude and Practice of preventive behaviour, frequency, percentage, mean and standard deviation were calculated.

3.10.2. Bivariate Analysis

For bivariate analysis (hypothesis testing), Pearson's Chi square test will be used to find the possible association between;

- a. Socio-demographic characteristics and practice of preventive behaviour of hypertension
- b. knowledge level and practice of preventive behaviours of hypertension
- c. attitude level and practice of preventive behaviours of hypertension

For socio-demographic characteristics variable, each of the independent variable is coded into categorical variables for bivariate analysis using Chi-square test. For those with frequency less than 5 in more than 20% of cells, Fisher's exact test was used to find the associations. Every independent categorical variable (age, gender, ethnicity, marital status, education, occupation, registration status, level of knowledge and attitude level) and dependent variable (practice of preventive behaviour towards hypertension) were analyzed by separate bivariate analysis.

Table 3. 3 Variables, Measurement Scale and Descriptive Statistics

Variables	Measurement Scale	Descriptive Statistics
I. Socio-Demographic Characteristic		
Age	Continuous Scale	Number, Percentage , Mean, SD
Gender	Nominal Scale	Number, Percentage
Ethnicity	Nominal Scale	Number, Percentage
Marital Status	Nominal Scale	Number, Percentage
Education	Ordinal Scale	Number, Percentage
Occupation	Nominal Scale	Number, Percentage
Income	Ordinal Scale	Percentage
Registration Status	Nominal Scale	Number, Percentage
BMI	Ordinal Scale	Number, Percentage
History of HTN	Nominal Scale	Number, Percentage
History of DM	Nominal Scale	Number, Percentage
II. Knowledge of HTN	Ordinal Scale	Frequency, Percentage
III. Attitude towards HTN	Ordinal Scale	Frequency, Percentage, Mean, SD
IV. Practice of Preventive behaviour towards HTN	Ordinal Scale	Frequency, Percentage ,Mean, SD

Table 3. 4Variables, Measurement Scale and Inferential Statistics

Independent Variables	Dependent Variable	Bivariate Analysis
Sociodemographic Characteristics Age, Gender, Ethnicity, Marital status, Education, Occupation, Income, Registration status, Health Insurance Personal history Family history of HTN, Presence of DM	Knowledge, attitude and Practice of Preventive Behaviour towards Hypertension	Chi-square or Fisher Exact Test. (Frequency more than < 20% of 0 cell)
Receiving Hypertension Information	Knowledge, attitude and Practice of Preventive Behaviour towards Hypertension	Chi-square or Fisher Exact Test. (Frequency more than < 20% of 0 cell)
Knowledge of hypertension	Attitude and Practice of preventive behaviour	Chi-square or Fisher Exact Test. (Frequency more than < 20% of 0 cell)
Attitude towards hypertension	Practice of Preventive behaviour	Chi-square or Fisher Exact Test. (Frequency more than < 20% of 0 cell)

3.11. Ethical consideration

Approval from the Ethical Committee of Chulalongkorn University was obtained before conducting the research (COA. NO 093/2018). The research ethic is served during and after data collection. During conducting the research, clear verbal explanation about the purpose and procedure of the research was done prior to data collection. Then written consent was obtained from the voluntary participants describing the respondent's right to withdraw at any time, autonomy and self-determination. The findings from the research were kept with strict confidentiality. The questionnaires were kept by principle researcher in a locked drawer. Any questionnaires could not be traced back to any participants. Names or other identifications were included in the report or summaries of this study. All questionnaires and data will be destroyed after the thesis has finished.

3.14. Expected benefits and and application

The result of this study will help

1. Better understanding of the problem regarding basic knowledge, attitude and practice regarding hypertension among migrant community
2. Government and non-government sectors can use findings from this study to develop strategies for prevention and control of hypertensions in Samutsakhon province.
3. Planning knowledge factors that are relevant to health promoting behaviour in prevention of hypertension.
4. Facilitating the favorable environment for adoption of preventive health behaviour regarding NCDs among migrant population.
5. Other investigators can base on the result of this study to study other aspect of hypertension.

CHAPTER IV

RESULTS

4.1 Background Information of the Study Area

This study aimed to describe the socio-demographic characteristics, knowledge, attitude and practice of preventive behaviour regarding hypertension among Myanmar migrant workers in Samutsakhon province, Thailand. The study population consisted of 422 migrants from Mahachai sub district, Samutsakhon province, Thailand.

First section of the result part focuses on describing all the socio-demographic characteristics, knowledge, attitude and practice of preventive behaviour towards hypertension. Then, the second section concentrates on the bivariate analysis between independent variables and dependent variables. Dependent variable is practice of preventive behaviour towards hypertension. Independent variables are age, gender, marital status, education, occupation, income, type of income and sufficiency, health insurance and medical history of his/herself for hypertension and DM plus family history of hypertension, level of knowledge and level of attitude. The analysis is also made to find the association between the knowledge, attitude and sociodemographic characteristics of the participants.

4.2 Socio-demographic Characteristics

Table 4.1 shows the socio-demographic characteristics of the Myanmar migrant population living in the Samutsakhon province, Thailand. The mean age of the respondent is 30 years. By categorizing into four age groups, 18-24, 25-34, 35-44 and 44 and above years. Around half of the respondents were included in 25-34 years' age group. Male and female were almost equally distributed in the study population. Fifty-two percent of the respondents were male, and about 48 % were females. Majority of the respondents are Burma ethnic (74%) followed by Mon, Karen as a small proportion. 75% of the participants are married where 19 % were single. For level of Education, most of the respondents have attained secondary education level. Only 3 % had never gone to school. Some of the respondents (18.5 %) had high school level education.

For occupation as shown in Table 4.1, most of the respondent were employed in factories (53 %) and construction sites (39%). Fourteen people were from agricultural sectors (2.1%) and one answered he is employed in an NGO. Regarding income, 97% of the respondents answered that they have own income. 91 % of the participants received their income as daily wage. 84% rated their income as sufficient where 12% said not sufficient.

96% are registered Myanmar migrant and 88% have their health insurance. Among the 422 participant, most of them (95%) do not know their own blood pressure where remaining 5% can present their blood pressure with correct number. Seven percent of the study population has medical history of hypertension diagnosed by health worker and 41.9% of them took treatment regularly. 27 % of the study population had hypertension in their family and 6.4% had DM.

Table 4. 1 Frequency and Distribution of Socio-demographic Characteristics

Sociodemographic Characteristics	Number (n=422)	Percentage(%)
Age in Years		
18-24	112	26.5
25-34	206	48.8
35-44	95	22.5

45 and above	9	2.1
Mean Age 29.5 , SD 6.9		
Gender		
Male	219	51.9
Female	203	48.1
Ethnicity		
Burma	312	73.9
Shan	7	1.7
Mon	58	13.7
Karen	39	9.2
Others	6	1.4
Marital Status		
Single	82	19.4
Married	317	75.1
Widow	6	1.4
Divorced/separate	17	4.0
Education		
Never went to school	13	3.1
Primary or monastery	58	13.7
Secondary	268	63.5
High education	78	18.5
University level	5	1.2
Occupation		
Unemployed	14	3.3
Construction worker	163	38.6
Agriculture worker	9	2.1
Factory worker	224	53.1
General worker	11	2.6
Other	1	0.2
Income		
Have	410	97.2
Don't have	12	2.8
Type of income		
Daily wage	383	93.4
Salary	21	5.1
Other	6	1.5
Income status		
Sufficient	353	83.6

Not sufficient, no debt	49	11.6
Not sufficient, in debt	8	1.9
Registration Status		
Registered	404	95.7
Unregistered	18	4.3
Health Insurance		
Insured	373	88.4
Not insured	49	11.6
Knows own blood pressure		
No	401	95.0
Yes	21	5.0
Hypertension history		
Yes	31	7.3
No	391	92.7
Took regular Treatment for hypertension		
Yes	13	41.9
No	18	58.1
Family history of hypertension		
Yes	113	26.8
No	224	53.1
Do not know	85	20.1
History of DM		
DM (+)	27	6.4
DM(-)	395	93.6

4.3. Knowledge of Hypertension

Three fifth of the participant answered correctly about the non- communicable nature of the hypertension and normal blood pressure. Majority of the study population thinks that hypertension always give symptoms (91%). Nearly half of the participants knows 140/90 mmHg or higher can be diagnosed as hypertension. Seventy-four percent of the population thought that hypertension can be treated by medication only. More than half of the participants know the lifelong nature of hypertensive medication.

In the statement about risk factors, around 60 % of the population can differentiate that being diabetic, overweighted and physical inactivity are at risk of getting hypertension but only 37% knows that family history of hypertension is also a risk factor.

More than half of the participants gave correct answer about the physical activity as being a preventive behaviour. Around sixty percent of the population can point out the correct answer about salty and high fatty food (63%), eating vegetables and fruits (61%) and smoking (64%). One third of the population does not know that reducing alcohol and coping with stress can prevent hypertension.

Table 4. 2Frequency and distribution of knowledge of hypertension

Statement(n = 422)	Number (%)	
	Correct	Incorrect
Hypertension is a non-communicable disease.	257(61)	165(39)
Normal blood pressure of a person is 120/ 80 mmHg.	252(60)	170(40)
Sign and symptoms		
Persons with high BP always feel symptoms.*	39(9)	383(91)
Nose bleeding and headache can be a sign of very high blood pressure.	155(36)	267(63)
Diagnosis and Treatment		
A person is diagnosed as hypertension if their systolic blood pressure is 140 or higher or their diastolic is 90 or higher on two separate occasions.	206(49)	216(51)
Hypertension can be treated by medications only.*	111(26)	311(74)
Hypertensive patients need to take medications for life long.	191(45)	231(55)
Following persons are at risk of Hypertension		
Diabetic patient	258(61)	164(39)
Overweight persons	270(64)	152(36)
Those with family history of hypertension	158(37)	264(63)
Those who took regular physical exercise*	243(58)	179(42)
Hypertension can be prevented by		
Physically inactivity*	218(52)	204(48)
Eating salty food and high fatty food*	267(63)	155(37)

Large consumption of vegetables and fruits	256(61)	166(40)
Reducing the amount of alcohol drinking	303(72)	119(29)
Cessation of smoking	268(64)	154(36)
Reducing stress by meditation	291(69)	131(31)

Knowledge Level Scores

This section describes the sum of score for each question given by the respondents. The total score ranges from 0 to 17. Bloom's criteria were used as cut off point for different knowledge levels. The score was classified as poor knowledge (0-9 scores), moderate level of knowledge (10-13 scores) and good knowledge (14-17 scores). Among the 422 respondents, majority (58%) had poor level of knowledge, 36% had moderate knowledge and only 6% has good knowledge. Table 4.3 show three levels of knowledge among the respondents.

Table 4. 3Frequency and distribution of knowledge level regarding hypertension

Knowledge Level	Number	Percentage
Poor Knowledge(0-9 score)	243	58.0
Moderate (10-13 score)	154	36.0
Good Knowledge(14-17 score)	25	6.0

4.4. Source of Information

Table 4.4 Shows that more than half of the participants (54%) received information about hypertension. Analysis is made for those who received the information. The percentage exceeds 100% because of the multiple response statements. The source of information is mostly from television and radio (75%) followed by health workers (70%), family and friends (41%).

Table 4. 4Frequency and distribution of Source of hypertension information

Source of Information	Number	Percentage(%)
Receive any information	229	54%
Didn't receive	193	46%
TV/Radio		
Yes	171	75
No	58	25
Newspaper and Magazine		
Yes	48	21
No	181	79
Billboard /Poster/ Brochure		
Yes	27	12
No	202	88
Health Worker		
Yes	159	70
No	70	30
Family, friends, colleagues		
Yes	93.0	41
No	136	59
Religious leader		
Yes	1	0.4
No	228	99.6
Others		
Yes	8	3.5
No	221	96.5

4.5. Attitude towards Hypertension

Table 4.5 shows the scores for the attitude statement for total 13 questions. Forty-seven percent of the participant answered uncertain about the individual risk of getting hypertension. More than half of the respondent are uncertain about the genetic risk. More than forty percent are unsure about the stroke and heart attack as complication of hypertension. Nearly half of them agreed that prevention is important. Majority of them agreed on the preventive behaviour towards hypertension.



Table 4. 5Frequency and distribution of attitude regarding hypertension

Attitude Questions	Number(%)				
	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. I think I can get hypertension.	66 (15.6)	126 (29.9)	201 (47.6)	20 (4.7)	9 (2.1)
2. I think that if parents are hypertensive, children will have high risk of having disease.	30 (7.1)	131 (31)	233 (55.2)	22 (5.2)	6 (1.4)
3. If I eat a lot of salty snack and processed meat, I am susceptible to hypertension.	91 (21.6)	179 (42.4)	144 (34.1)	6 (1.4)	2 (0.5)
4. I think that hypertension is a chronic disease and it has to be treated and controlled throughout the entire life.	62 (14.7)	227 (53.8)	96 (22.7)	32 (7.6)	5 (1.2)
5. I think hypertension can lead to fatal serious complications.	68 (16.1)	186 (44.1)	155 (36.7)	12 (2.8)	1 (0.2)
6. I think untreated hypertension does not cause stroke.*	26 (6.2)	76 (18)	182 (43.1)	112 (26.5)	26 (6.2)
7. I think untreated hypertension can give rise to heart attack..	66 (15.6)	155 (36.7)	177 (41.9)	18 (4.3)	6 (1.4)
8. In my opinion, prevention of hypertension is not much important.*	14 (3.3)	91 (21.6)	41 (9.7)	201 (47.6)	75 (17.8)
9. I believe that less eating of deep fried food and salty food can help us prevent hypertension.	94 (22.3)	264 (62.6)	38 (9)	23 (5.5)	3 (0.7)
10. Exercise regularly has important benefit in prevention of hypertension.	101 (23.9)	270 (64)	39 (9.2)	12 (2.8)	0
11. Hypertension can be prevented by stoppage of smoking.	47 (11.1)	240 (56.9)	97 (23)	32 (7.6)	6 (1.4)
12. I believe limiting amount of alcohol drinking can prevent hypertension.	46 (10.9)	242 (57.3)	105 (24.9)	24 (5.7)	5 (1.2)
13. In my opinion, reducing stress by meditation is not effective way for preventing hypertension.*	32 (7.6)	167 (39.6)	58 (13.7)	130 (30.8)	35 (8.30)

Total Attitude Scores

Table 4.6 Shows the the attitude level of the respondents which is categorized into poor(mean-SD), fair (Mean \pm SD) and good attitude(Mean+SD). The mean score

of the 422 respondents is 46.63 and standard deviation 2.98. The poor attitude score range from 1-40 score, fair attitude from 41 to 53 and good attitude from 54 to 65. The majority of the respondents (82.7%) has fair attitude towards hypertension. One out of ten participant has good attitude and 6.9% presented with poor attitude levels.

Table 4. 6 Frequency and distribution of attitude level regarding hypertension

Attitude Level	Number	Percentage(%)
Poor attitude (score< Mean - SD)	29	6.9
Fair attitude (Mean \pm SD)	349	82.7
Good attitude (score > Mean +SD)	44	10.4

Mean 46.63 SD 2.98

4.6. Practice of Preventive behaviour regarding hypertension

Table 4.7. Shows the detail of the frequency and percentage distribution of the respondents practice regarding prevention of hypertension. Regarding physical activity, 58.3 % of the respondent sometimes do moderate physical activity and 41.9 % never do vigorous physical activity. 50.5% choose fresh food over processed food. 65.4% sometimes eat salty food. Forty-four percent said they ate various types of fruit and vegetables regularly. 14.7% are daily smoker and 7.1% drink more than one standard drink daily. More than half of them (59.2%) practice meditation sometimes. 65.2% of the respondents never checked their blood pressure within last six months.

Table 4. 7Frequency and percentage distribution of practice of Preventive behaviour regarding hypertension

Statement	Number(Percentage)		
	Regularly	Some-times	Never
I take part in moderate physical activity (e.g. 30 min of brisk walking, Gardening most of the day in a typical week).	81(19.2)	246(58.3)	95(22.5)
I take part in vigorous physical activity (e.g. 10 minutes of fast cycling, Carrying heavy loads most of the day in typical week).	74(17.5)	171(40.5)	177(41.9)
I choose fresh food rather than processed foods (e.g. canned or frozen goods)when available.	142(33.6)	213(50.5)	67(15.9)
I eat high salt foods.(Salty snack, salted Dried Fish,)*	64(15.2)	276(65.4)	82(19.4)
I eat less food that contain high fat.(Red meat, Butter).	86(20.4)	267(63.3)	69(16.4)
I add extra salt or soy sauce to the meal right before eating it.*	53(12.6)	174(41.2)	195(46.2)
I choose boiled, baked or steamed instead of deep fried food.	29(6.9)	286(67.8)	107(25.4)
I eat various types of fruits and vegetables in a day.	187(44.3)	222(52.6)	12(2.8)
I smoke at least 1 cigarette per day.*	62(14.7)	84(19.9)	276(65.4)
I drink more than one standard alcohol daily. *(2 glass or less for men 1 glass or less for women).	30(7.1)	136(32.2)	256(60.7)
I try to stay away from anything or anybody that causes any kind of stress.	163(38.6)	207(49.1)	52(12.3)
I practice meditation .	23(5.5)	250(59.2)	149(35.3)
I check my blood pressure within last six month.	29(6.9)	118(28)	275(65.2)

Level of practice scores regarding preventive behaviour towards hypertension

Table 4.8 shows the practice level of the respondents regarding preventive behaviour towards hypertension. Mean practice score was 26.98 and SD was 3.74. The level of practice was categorized into poor (score less than mean-SD), moderate (Mean \pm SD) and good (score more than Mean +SD). Poor practice score range from 1 to 22 score, moderate practice level is from 23 to 31 and good practice from 32 to 39. Most of the respondents has moderate practice level (83.2%).

Table 4. 8Frequency and distribution of practice levels regarding hypertension

Practice Level	Number	Percentage(%)
Poor Practice (score< Mean -SD)	30	7.1
Moderate Practice (Mean \pm SD)	351	83.2
Good practice(Score>Mean +SD)	41	9.7

Mean 26.97 SD 3.7

4.7. Relationship between sociodemographic characteristics and Knowledge of hypertension

Table 4.9 Shows the association between the sociodemographic characteristics and knowledge of the respondents. Knowledge is significantly associated with age, gender, marital status, education, occupation, knowing of own blood pressure, Hypertension history, family history of hypertension and having DM.

Table 4. 9Relationship between sociodemographic characteristics and Knowledge of hypertension

Sociodemographic Characteristics	Knowledge level			Chi-square	P-value
	Poor Number(%)	Moderate Number(%)	Good Number(%)		
Age in Years(n=422)				33.029	0.000*
18-24	76(67.9)	36(32.1)	0(0)		
25-34	128(62.1)	61(29.6)	17(8.3)		
35-44	35(36.8)	52(54.7)	8(8.4)		
\geq 45	4(44.4)	5(55.6)	0(0)		
Gender				24.547	0.000*
Male	101(46.1)	101(46.1)	17(7.8)		
Female	142(70)	53(26.1)	8(3.9)		

Ethnicity					
Burma	186(59.6)	104(33.3)	22(7.1)	7.779	0.399
Shan	4(57.1)	3(42.9)	0(0)	Fisher- exact	
Mon	28(48.3)	27(46.6)	3(5.2)		
Karen	21(53.8)	18(46.2)	0(0)		
Others	4(66.7)	2(33.3)	0(0)		
Marital Status				13.332	0.025*
Single	42(51.2)	37(45.1)	3(3.7)	Fisher- exact	
Married	193(60.9)	102(32.2)	22(6.9)		
Widow	3(50)	3(50)	0(0)		
Divorced/ Separated	5(29.4)	12(70.6)	0(0)		
Education				28.22	0.000*
Never went to school	9(69.2)	3(23.1)	1(7.7)	Fisher- exact	
Primary or monastery education	30(51.7)	26(44.8)	2(3.4)		
Secondary or middle school	172(64.2)	85(31.7)	11(4.1)		
High School	32(41)	35(44.9)	11(14.1)		
University	0(0)	5(100)	0(0)		
Occupation				70.445	0.000*
Unemployed	9(64.3)	5(35.7)	0(0)	Fisher-exact	
Construction worker	131(80.4)	28(17.2)	4(2.5)		
Agricultural worker	2(22.2)	7(77.8)	0(0)		
Factory worker	96(42.9)	108(48.2)	20(8.9)		
General worker	5(45.5)	6(54.5)	0(0)		
Others	0(0)	0(0)	1(100)		
Income				1.018	0.536
Have income	234(57.1)	151(36.8)	25(6.1)	Fisher-exact	
No income	9(75)	3(25)	0(0)		
Type of Income				4.396	0.297
Daily Wage	223(58.2)	137(35.8)	23(6)	Fisher-exact	

Salary	9(42.9)	10(47.6)	2(9.5)		
Other	2(33.3)	4(66.7)	0(0)		
Income Sufficiency				0.792	0.362
Sufficient	213(60.3)	127(36)	13(3.7)	Fisher-exact	
Insufficient, no debt	20(40.8)	20(40.8)	9(18.4)		
insufficient, in debt	1(12.5)	4(50)	3(37.5)		
Registration Status					
Registered	233(57.7)	148(36.6)	23(5.7)	0.919	0.632
Unregistered	10(55.6)	6(33.3)	2(11.1)		
Health Insurance					
Insured	214(57.4)	138(37)	21(5.6)	0.718	0.698
Not insured	29(59.2)	16(32.7)	4(8.2)		
Knows his/her own blood pressure				31.908	0.000*
Can present the correct number	2(9.5)	13(61.9)	6(28.6)		
Don't know	241(60.1)	141(35.2)	19(4.7)		
Hypertension history				14.836	0.001*
HTN(+)	8(25.8)	21(67.7)	2(5.9)		
HTN(-)	235(60.1)	133(34)	23(6.5)		
Took regular treatment for hypertension				1.458	0.603
Yes	3(23.1)	10(76.9)	0(0)		
No	5(27.8)	11(61.1)	2(11.1)		
Family history of HTN				51.449	0.000*
Yes	23(27.1)	48(56.5)	14(16.5)		
No	153(68.3)	64(28.6)	7(3.1)		
Don't know	67(59.3)	42(37.2)	4(3.5)		
Diabetes Mellitus history				11.351	0.003*
DM(+)	8(29.6)	18(66.7)	1(3.7)		
DM(-)	235(59.5)	136(34.4)	24(6.1)		

4.8. Relationship between sociodemographic characteristics and Attitude regarding hypertension

Table 4.10. Shows the association between the sociodemographic characteristics and attitude level of the respondents regarding hypertension. Respondents attitude is found to be significantly associated with age, occupation and income.

Table 4. 10. Relationship between sociodemographic characteristics and Attitude regarding hypertension

Sociodemographic Characteristics	Attitude level Number(%)			Chi-square	P-value
	Poor	Moderate	Good		
Age in Years(n=422)				21.041	0.002*
18-24	9 (8)	94(83.9)	9(8)		
25-34	18 (8.7)	175(85)	13(6.3)		
35-44	2 (2.1)	73(76.8)	20(21.1)		
≥45	0 (0)	7 (77.8)	2(22.2)		
Gender				4.709	0.095
Male	11(5)	180(82.2)	28(12.8)		
Female	8(8.9)	169(83.3)	16(7.9)		
Ethnicity				8.103	0.325
Burma	24(7.7)	254(81.4)	34(10.9)		Fisher-exact
Shan	1(14.3)	4(57.1)	2(28.6)		
Mon	2(3.4)	51(87.9)	5(8.6)		
Karen	1(2.6)	35(89.7)	3(7.7)		
Others	1(16.7)	5(83.3)	0(0)		
Marital Status				10.649	0.066
Single	3(3.7)	70(85.4)	9(11)		Fisher-exact
Married	26(8.2)	262(82.6)	29(9.1)		
Widow	0(0)	3(50)	3(50)		
Divorced/Separated	0(0)	14(82.4)	3(17.6)		
Education				4.674	0.733
Never went to school	1(7.7)	10(76.9)	2(15.4)		Fisher-exact
Primary or monastery	4(6.9)	48(82.8)	6(10.3)		

Secondary or middle school	22(8.2)	220(82.1)	26(9.7)		
High School level	2(2.6)	66(84.6)	10(12.8)		
University level	0(0)	5(100)	0(0)		
Occupation				16.888	0.050
Unemployed	1(7.1)	9(64.3)	4(28.6)	Fisher-exact	
Constructions worker	17(10.4)	137(84)	9(5.5)		
Agricultural worker	0(0)	8(88.9)	1(11.1)		
Factory worker	11(4.9)	185(82.6)	28(12.5)		
General worker	0(0)	9(81.8)	2(18.2)		
Others	0(0)	1(100)	0(12.5)		
Income				6.159	0.31
Have income	28(6.8)	342(83.4)	40(9.8)	Fisher-exact	
No income	1(8.3)	7(58.3)	4(33.3)		
Type of Income				1.585	0.777
Daily Wage	26(6.8)	320(83.6)	37(9.7)	Fisher-exact	
Salary	2(9.5)	16(76.2)	3(14.3)		
Other	0(0)	6(100)	0(0)		
Income Sufficiency				2.635	0.539
Sufficient	24(6.8)	296(83.9)	33(93)	Fisher-exact	
Insufficient, no debt	4(8.2)	40(81.6)	5(10.2)		
insufficient, in debt	0(0)	6(75)	2(25)		
Registration Status				0.171	1.000
Registered	28(6.9)	334(82.7)	42(10.4)	Fisher-exact	
Unregistered	1(5.6)	15(83.3)	2(11.1)		
Health Insurance				0.145	0.930
Insured	25(6.7)	309(82.8)	39(10.5)		
Not insured	4(8.2)	40(81.6)	5(10.2)		
Knows his/her own blood				1.064	0.597
Do not know	29(7.2)	330(82.3)	42(10.5)	Fisher-exact	
Can present the correct number	0(0)	19(90.5)	2(9.5)		

Hypertension history				4.794	0.087
HTN(+)	5(16.1)	22(71)	4(12.9)	Fisher-exact	
HTN(-)	24(6.1)	327(83.6)	40(10.2)		
Took regular treatment for hypertension				0.009	0.924
Yes	3(23.1)	8(61.5)	2(15.4)		
No	2(11.1)	14(77.8)	2(11.1)		
Family history of HTN				6.638	0.156
Yes	2(2.4)	71(83.5)	12(14.1)		
No	17(7.6)	182(81.3)	25(11.2)		
Don't know	10(8.8)	96(85)	7(6.2)		
Diabetes Mellitus history				5.144	0.066
DM(+)	0(0)	21(77.8)	6(22.2)	Fisher-exact	
DM(-)	29(7.3)	328(83)	38(9.6)		

4.9. Relationship between sociodemographic characteristics and practice of hypertension prevention

Table 4.11 describe the association between the socio-demographic characteristics and practice of preventive behaviour towards hypertension. Independent variables are age, gender, ethnicity, marital status, education, occupation, income, type of income, income sufficiency, registration status, health insurance status, medical history of hypertension and DM and family history of hypertension. Dependent variable is practice of preventive behaviour towards hypertension. Chi-square and fisher exact test were used to analyze the association between the two categorical variables. Variable which had the frequency of less than 5 in more than 20% of the cell were calculated with fisher exact test.

In the table, practice of preventive behaviour towards hypertension is significantly associated with age(P-0.044), ethnicity (P_ 0.000), education (P-0.045), Occupation (P_0.000), medical history of hypertension(P-0.001) and family history of hypertension(P_0.000). There were no association with other sociodemographic variables.

Table 4. 11 Relationship between sociodemographic characteristics and practice of hypertension prevention

Sociodemographic Characteristics	Practice level Number(%)			Chi-square	P-value
	Poor	Moderate	Good		
Age in yrs.(n=422)				12.911	0.044*
18-24	5 (4.5)	100(89.3)	7(6.3)		
25-34	11 (5.3)	174(84.5)	21(10.2)		
35-44	12 (12.6)	71(74.7)	12(12.6)		
≥45	2 (22.2)	6(66.7)	1(11.1)		
Gender				0.954	0.621
Male	18 (8.2)	179(81.7)	22(10)		
Female	2(5.9)	172(84.7)	19(9.4)		
Ethnicity				36.802	0.000*
Burma	10(3.2)	269(86.2)	33(10.6)	*Fisher-exact	
Shan	3(42.9)	4(57.1)	0(0)		
Mon	13(22.4)	41(70.7)	4(6.9)		
Karen	3(7.7)	34(87.2)	2(5.1)		
Others	1(16.7)	3(50)	2(33.3)		
Marital Status				8.449	0.146
Single	5(6.1)	71(86.6)	6(7.3)	*Fisher-exact	
Married	21(6.6)	264(83.3)	32(10.1)		
Widow	0(0)	6(100)	0(0)		
Divorced/ Separated	4(23.5)	10(58.8)	3(17.6)		
Education				14.44	0.045*
Never went to school	3(23.1)	9(69.2)	1(7.7)	*Fisher-exact	
Primary or monastery education	10(17.1)	44(75.9)	4(6.9)		
Secondary or middle school	14(5.2)	227(84.7)	27(10.1)		
High School level	3(3.8)	66(84.6)	9(11.5)		
University level	0(0)	5(100)	0(0)		

Occupation				41.785	0.000*
Unemployed	3(21.4)	10(71.4)	1(7.1)	*Fisher-exact	
Construction worker	7(4.3)	154(94.5)	2(1.2)		
Agricultural worker	0(0)	8(88.9)	1(11.1)		
Factory worker	19(8.5)	170(75.9)	35(15.6)		
General worker	1(9.1)	9(81.8)	1(9.1)		
Others	0(0)	0(0)	1(100)		
Income				4.314	0.077
Have income	27(6.6)	343(83.7)	40(9.8)	*Fisher-exact	
No income	3(25)	8(66.7)	1(8.3)		
Type of Income				2.348	0.623
Daily Wage	26(6.8)	321(83.8)	36(9.4)	*Fisher-exact	
Salary	1(4.8)	16(76.2)	4(19)		
Other	0(0)	6(100)	0(0)		
Income Sufficiency				6.517	0.122
Sufficient	26(7.4)	297(84.1)	30(8.5)	*Fisher-exact	
Insufficient, no debt	1(2)	40(81.6)	8(16.3)		
insufficient, in debt	0(0)	6(75)	2(25)		
Registration Status				4.414	0.072
Registered	27(6.7)	339(83.9)	38(9.4)	*Fisher-exact	
Unregistered	3(16.7)	12(66.7)	3(16.7)		
Health Insurance				3.096	0.196
Insured	24(6.4)	314(84.2)	36(9.4)	*Fisher-exact	
Not insured	6(12.2)	37(75.5)	6(12.2)		
Knows his/her own blood pressure				4.34	0.092
Can present the correct number	29(7.2)	336(83.8)	36(9)	*Fisher-exact	
Do not know	1(4.8)	15(71.4)	5(23.8)		
Hypertension history				12.360	0.001*
HTN(+)	8(25.8)	21(67.7)	2(6.5)	Fisher exact	
HTN(-)	22(5.6)	330(84.4)	39(10)		

Took regular treatment for hypertension				2.558	0.348
Yes	5(38.5)	8(61.5)	0(0)	Fisher exact	
No	3(16.7)	13(72.2)	2(11.1)		
Family history of HTN				20.125	0.000*
Yes	4(4.7)	65(76.5)	16(18.8)	Fisher exact	
No	11(4.9)	199(88.8)	14(6.3)		
Don't know	15(13.3)	87(77)	11(9.7)		
Diabetes Mellitus history				0.923	0.713
DM(+)	2(7.4)	24(88.9)	1(3.7)	Fisher exact	
DM(-)	28(7.1)	327(82.8)	40(10.1)		

4.10. Relationship between receiving hypertension information and Knowledge of Hypertension

Table 4.12 describe that knowledge of hypertension is not associated with receiving information about hypertension (P value 0.325).

Table 4. 12. Relationship between receiving hypertension information and knowledge of hypertension

Received HTN information	Knowledge level			Chi-square	P-value
	Poor	Moderate	Good		
	Number(%)	Number(%)	Number(%)		
Yes	125(54.6)	88(38.4)	16(7)	2.250	0.325
No	118(61.1)	66(34.2)	9(4.7)		

4.11. Relationship between receiving hypertension information and Attitude regarding Hypertension

Table 4.13 describe that attitude regarding hypertension is not associated with receiving information about hypertension (P value 0.119).

Table 4. 13. Relationship between receiving hypertension information and attitude of preventive behaviour

Received HTN information	Attitude level			Chi-square	P-value
	Poor Number(%)	Moderate Number(%)	Good Number(%)		
Yes	14(6.1)	197(86)	18(7.9)	4.251	0.119
No	15(7.8)	152(78.8)	26(13.5)		

4.12. Relationship between receiving hypertension information and practice of preventive behaviour

Table 4.14 describe that practice of preventive behaviour regarding hypertension is significantly associated with receiving information about hypertension (P value 0.021). Good practice level is seen in people who received hypertension information.

Table 4. 14 Relationship between receiving hypertension information and practice of preventive behaviour

Received HTN information	Practice level			Chi-square	P-value
	Poor Number(%)	Moderate Number(%)	Good Number(%)		
Yes	9(3.9)	196(85.6)	24(10.5)	7.770	0.021*
No	21(10.9)	155(80.3)	17(8.8)		

4.13. Relationship between source of hypertension information and practice of preventive behaviour

Practice of preventive behaviour is significantly associated with source of information from newspaper and magazine, Billboard/poster and healthcare worker and others.

Table 4. 15 Relationship between source of hypertension information and practice of preventive behaviour

Source of information	Practice Level			ChiSquare	P value
	Poor	Moderate	Good		
TV/Radio					
Yes	4(2.3)	150(86.2)	20(11.5)	5.648	0.059
No	5(7.9)	46(83.6)	4(7.3)		
Newspaper/Magazine					
Yes	1(2.1)	34(70.8)	13(27.1)	18.045	0
No	8(4.4)	162(89.5)	11(6.1)		
Billboard/Poster					
Yes	2(7.4)	17(63)	8(29.6)	11.545	0.002
No	7(3.5)	179(88.6)	16(7.9)		
Health worker					
Yes	1(0.6)	142(88.8)	17(10.6)	15.39	0.000
No	8(11.4)	54(77.1)	7(10.1)		
Family, friends and colleagues					
Yes	5(5.4)	74(79.6)	14(15.1)	4.622	0.099
No	4(2.9)	122(89.7)	10(7.4)		
Religious Leader					
Yes	0(0)	1(100)	0(0)	2.292	1
No	9(3.9)	195(85.5)	24(10.5)		
Other					
Yes	2(25)	4(50)	2(25)	9.152	0.007
No	7(3.2)	192(86.9)	22(10)		

4.14. Relationship between Knowledge and attitude of hypertension

Table 4.16 revealed that there is significant association between the level of hypertension attitude and knowledge (P value 0.000). Poor attitude is associated with poor knowledge level (96.6%) Respondents with good attitude has good knowledge level (6.8%).

Table 4. 16 Relationship between Knowledge and attitude of hypertension

Knowledge Level	Attitude level			Chi-square	P-value
	Poor Number(%)	Moderate Number(%)	Good Number(%)		
Poor	28(96.6)	202(57.9)	13(29.5)	35.081	0.000*
Moderate	1(3.4)	125(35.8)	28(63.6)		
Good	0(0)	22(6.3)	3(6.8)		

4.15. Relationship between knowledge and practice of preventive behaviour regarding hypertension

Table 4.17 revealed that there is significant association between the level of hypertension knowledge and practice regarding hypertension prevention (P value 0.000). Poor knowledge is associated with poor practice level (7.8%) Respondents with good knowledge has good practice level (32%).

Table 4. 17 .Relationship between knowledge and practice of preventive behaviour regarding hypertension

Knowledge Level (n = 422)	Practice level			Chi-square	P-value
	Poor Number(%)	Moderate Number(%)	Good Number(%)		
Poor	19(7.8)	214(88.1)	10(4.1)	25.64 Fisher-exact	0.000*
Moderate	11(7.1)	120(77.9)	23(14.9)		
Good	0(0)	17(68)	8(32)		

4.16. Relationship between attitude and practice of preventive behaviour regarding hypertension

Table 4.18 revealed that there is significant association between the level of hypertension attitude and practice regarding hypertension prevention (P value 0.046). Poor attitude is associated with poor practice level (10.3%) Respondents with good attitude has good practice level (22.7%).

Table 4. 18 Relationship between attitude and practice of preventive behaviour regarding hypertension

Attitude Level	Practice level			Chi-square	P-value
	Poor Number(%)	Moderate Number(%)	Good Number(%)		
Poor	3(10.3)	25(86.2)	1(3.4)	8.966 Fisher-exact	0.046*
Moderate	25(7.2)	294(84.2)	30(8.6)		
Good	2(4.5)	32(72.7)	10(22.7)		



CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATION

This chapter describes discussion about the result and finding of the study, conclusion, limitation and strength of the research. This study is cross-sectional, descriptive analytical study based on finding from the 422 participants (Male 219 and female 203 respondents). The study objective is to assess the sociodemographic characteristics, level of knowledge, attitude and preventive practice regarding hypertension among the Myanmar migrant population in Maharchai sub-district, Samutsakhon Province. It also aimed to acknowledge the association between the practice of preventive behaviour and socio-demographic factors, knowledge and attitude towards hypertension among the study population. The data was collected using the interviewers administered structured questionnaire.

Discussion

Sociodemographic Characteristics

The study population included 422 Myanmar migrants who were in age range from 18 to 52 years, and categorized into 4 groups as 18-24, 25-34, and 34-44 and 45 above. Mean age of the study population is 30 years and 206 (49%) of the respondents were between 25 and 34 years of age which is consistent with the 2017 UN migration report which stated that majority of international migrants are working age group. (age between 20 to 64). Most of the international migrants are largely presented in 15-34 years of age. (IOM 2014).

Age is significantly associated with practice of hypertension prevention with p value 0.044. Younger age group were least to practice preventive life style behaviour which is consistent with the previous studies done in Canadian population ($p < 0.05$) (Marianne E. Gee et al., 2012)

Young age is significantly associated with low level of knowledge of hypertension with p value 0.000 which is consistent with the previous studies done in general African- American community.(Carter-Edwards et al., 2002). Similar findings were also seen in general population of Mongolia.(P value < 0.05)(Demaio et al., 2013) and India (Pragnesh Parmar et al., 2014). Most of the respondents are young age group (76% are between 18-34 years of age) this may explain their low attention to the hypertension.

Among 422 participants, 52 percent of the respondents were male, and about 48 percent were female. Majority of the respondents are Burma ethnic followed by Mon, Karen, Shan and others. This finding is consistent with another study done in Myanmar migrant population in Mae Sok, Tak province.(Aung, 2013). Migration report also stated that Bamar ethnic were the major ethnic sort in the middle of the migrants.(IOM, 2014).

Knowledge is significantly associated with gender at P value 0.000. Male has the better knowledge score than female. The similar finding was seen in the study among hypertensive patients in Nepal(p value <0.001).(Shakti Shrestha et al., 2016).A cross sectional study in Pakistan also showed that male has better knowledge than female(P 0.03).(Aysha Almas, 2012).

In this study, there is significant association between the ethnicity and practice score for hypertension preventive behaviour (P 0.000). Previous study for Diabetes prevention practice among Myanmar Migrants has similar result where Rakhine ethnic group has association with ethnicity P value 0.044.

Majority of the participants are married, attained secondary educational level and worked mainly at factories and construction sites. These features are consistent with the previous studies done among Myanmar migrants in Bang Khun Thian district (Win, 2014) and Mae Sok (Aung, 2013).

Participants with high level of education is found to have good practice level than the less educated ones which is significant at at p value 0.045. This finding is also consistent with previous studies done in Ethiopia. (Kasa and Shifa, 2017). Similar findings of association between education and preventive life-style behaviour was seen in a canadian population.(Marianne E. Gee et al., 2012)

Practice level is also different with different occupation in this study with p value 0.000. Previous studies also revealed that practice of hypertension is significantly associated with occupations. (Kasa and Shifa, 2017)

Education and occupation is significantly associated with knowledge of hypertension with both at p value 0.000 which is consistent with the previous studies done in Ethiopia.(Kasa and Shifa, 2017).Previous study done in Karen ethnic group living in Thailand showed that people with primary education has better knowledge than those with no educational attainment.(Myo Nyein Aung et al., 2012).A study done in America among African-American community also support that higher education is significantly associated with knowledge of hypertension.(p value 0.002)(Martins D et al., 2011)Another study done in general population of Mongolia support the fact with p value <0.05.(Demaio et al., 2013).Less specific knowledge is associated with less education among general population of India (p<0.05).(Pragnesh Parmar et al., 2014)University level education was significantly associated with higher level of knowledge score in Nepalese hypertensive patients at P value <0.001.(Shakti Shrestha et al., 2016)

Marital status has also significant relationship with knowledge of hypertension (p value 0.025) which is supported by the study done in Ethiopia (Kasa and Shifa, 2017)

Among the 422 participants, 96% are registered Myanmar migrant. Unregistered population(4%) is much lower than the previous studies done in conducted in Hua Fai(69.4%) Phuket(64.6%) and Phangnga(61%)(Aung, 2013). Sharp decrease in number of unregistered migrants can be explained by open registration policy in 2001 and opportunity for renewed registration. 88% of the migrants reported that they have health insurance. This is because most of the workers in the Samutsakhon province are mostly documented registered workers. Samutsakhon is the central province and number of registered migrants is supposed to be highest in Samutsakhon province.(Migration, 2009)

Seven percent of the study population has medical history of hypertension and 6.4% had DM. 41.9% of them took treatment regularly for hypertension. Among the 422 participant 401 (95%) do not know their own blood pressure where remaining 5% can present their blood pressure with correct number. 27 % of the study

population had hypertension in their family. The prevalence of hypertension in Myanmar was 22% in previous studies which can be explained by that this study only focus on preventive behaviour and do not measure the blood pressure so hidden undiagnosed population and unresponsive ones might have hypertension and may be under presented.

Family history of hypertension has association with practice of hypertension prevention behaviour (P 0.000) and knowledge of hypertension. (P 0.000). To the authors knowledge, there is still no detailed analysis of the association between family history of hypertension with practice of prevention. In this study, there is association between these two variables. Studying family history of hypertension and other risk factors in healthy individuals provides a unique opportunity to explore factors leading to elevated blood pressure, long before a diagnosis of hypertension is made. Positive family history therefore can be considered as an opportunity for involving direct family members in health education, as well as for early interventions and improved control of hypertension.

Personal history of hypertension is significantly associated with knowledge of hypertension with P value 0.001. The same result is seen in the hypertension study among African American community (p value 0.009). In that study, the participants exhibited a high, 83% but variable, level of high blood pressure knowledge having a significant association with a personal history of hypertension.(Martins D et al., 2011). In some studies, hypertension status is not associated with knowledge level.(Carter-Edwards et al., 2002, Kusuma et al., 2013)Individuals with a history of hypertension /diabetes /cardiovascular disease were no more likely to be adherent to a healthy lifestyle than people without these conditions.(Everett, 2009).

More than half of the respondents said they received information about hypertension. The source of information is mostly from television and radio (75%) followed by health workers (70%), family and friends (41%). The similar findings for source of information is seen in a study done in a general population of India. The major source of knowledge for the general population was television (32 %) and newspaper (30 %) followed by family physician and friends and relatives.(Pragnesh Parmar et al., 2014)

Practice of preventive behaviour regarding hypertension is significantly associated with receiving information about hypertension. (P value 0.021). Good practice level is seen in people who received hypertension information. These result is also consistent with the previous hypertension study in general population of Ethiopia. (Kasa and Shifa, 2017) Practice of preventive behaviour is significantly associated with source of information from newspaper and magazine(P value- 0.000), Billboard/poster(0.002) and healthcare worker(0.000) and others(0.007).(Kasa and Shifa, 2017)

Poor practice score range from 1 to 22 score, moderate practice level is from 23 to 31 and good practice from 32 to 39. Most of the respondents has moderate practice level (83.2%). Regarding physical activity, 58.3 % of the respondent sometimes do moderate physical activity and 41.9% never do vigorous physical activity. This can be explained by that most of the participants are engaged in the construction and factories and their work nature is not sedentary. This finding is supported by the previous study done in Samutsakhon province.(Howteerakul et al., 2005).50.5% choose fresh food over processed food. 65.4% sometimes eat salty food. Forty-four percent said they ate various types of fruit and vegetables regularly. This is because Asian population is high in sodium consumption. Among the 422 participants, 35% are smokers and 39% drink alcohol. Among them, 14.7% are daily smoker and 7.1% drink more than one standard drink daily. These smoking and alcohol drinking rate are consistent with the previous finding done among Myanmar migrant workers in Samutsakhon province..(Zaw et al., 2009, Howteerakul et al., 2005) More than half of them (59.2%) practice meditation sometimes. 65.2% of the respondents never checked their blood pressure within last six months.

Among the 422 respondents, majority (58%) had poor level of knowledge, 36% had moderate knowledge and only 6% has good knowledge. Poor knowledge can be explained by their low educational attainment and lack of proper health education program regarding hypertension. Three fifth of the participant answered correctly on the non- communicable nature of the hypertension and normal blood pressure. Majority of the study population thinks that hypertension always give symptoms. Nearly half of the participants knows 140/90 mmHg or higher can be diagnosed as hypertension. Seventy-four percent of the population thought that

hypertension can be treated by medication only. More than half of the participants know the lifelong nature of hypertensive medication.

In the statement about risk factors, around 60 % of the population can differentiate that being diabetic, overweighted and physical inactivity are at risk of getting hypertension but only 37% knows that family history of hypertension is also a risk factor.

More than half of the participants gave correct answer about the physical activity as being a preventive behaviour. Around sixty percent of the population can point out the correct answer about salty and high fatty food (63%), eating vegetables and fruits (61%) and smoking (64%). One third of the population does not know that reducing alcohol and coping with stress can prevent hypertension.

The majority of the respondents (82.7%) has fair attitude towards hypertension. One out of ten participant has good attitude and 6.9% presented with poor attitude levels. Forty-seven percent of the participant answered uncertain about the individual risk of getting hypertension. More than half of the respondent are uncertain about the genetic risk. More than forty percent are unsure about the stroke and heart attack as complication of hypertension. Nearly half of them agreed that prevention is important. Majority of them agreed on the preventive behaviour towards hypertension. Respondents attitude is found to be significantly associated with age ($P = 0.002$) and occupation ($P = 0.05$). Employed group showed higher perceived effectiveness in the study among Mongolia general population.(Demaio et al., 2013) The older age group perceived the risk to be higher than younger age groups ($p < 0.05$)(Demaio et al., 2013).

Association between Knowledge, attitude and Practice

This study revealed that there is significant association between the level of hypertension knowledge and practice regarding hypertension prevention (P value 0.000). Poor knowledge is associated with poor practice level (7.8%) Respondents with good knowledge has good practice level (32%). There is significant association between the level of hypertension attitude and knowledge (P value 0.000). Poor attitude is associated with poor knowledge level (96.6%) Respondents with good attitude has good knowledge level (6.8%). There is significant association between the level of hypertension attitude and practice regarding hypertension prevention (P

value 0.046). Poor attitude is associated with poor practice level (10.3%) Respondents with good attitude has good practice level (22.7%). These findings are consistent with a the study done in Malaysia where there were significant association between attitude and knowledge, practice and knowledge and practice and attitude (Ranimah Yahya, 2012). Alfred Adler in theory of individual psychology emphasized that a person's attitude toward the environment had a significant influence on his or her behaviour.(Pickens, 2005)

Conclusion

Hypertension has become more than 20% prevalence in Myanmar and Thailand. Thailand has significant population of migrants and Myanmar is the largest population. Infectious diseases research among migrants are more abundant than NCDs data. Increasing trend of hypertension prevalence in all over the world needs awareness and prevention in the community. This study revealed the general socio-demographic characteristics of the Myanmar migrants and assess the knowledge, attitude and practice levels among the general population.

Among the 422 participants (male 219, female 203), they are in working age and mean age is 30 years. Major ethnic is Burma followed by Shan, Karen and others. Majority of the participants are married, attained secondary educational level and worked mainly at factories and construction sites. 96% are registered migrants. 88% of the migrants have health insurance. Seven percent of the study population has medical history of hypertension and 6.4% had DM. 54% received information about hypertension.

In this study, age(P-0.044) ethnicity (P_ 0.000), education (P-0.045), Occupation (P_0.000), medical history of hypertension(P-0.001) and family history of hypertension(P_0.000), knowledge of hypertension and attitude are significant associated with practice of preventive behaviours regarding hypertension.

Regarding knowledge, poor level of knowledge is observed in 58% of the study population. Knowledge is significantly associated with age, gender, marital status, education and occupation, personal history and family history of hypertension and diabetes status and attitude towards hypertension.

Regarding attitude, the majority of the respondents (82.7%) has fair attitude towards hypertension. One out of ten participant has good attitude and 6.9% presented with poor attitude levels. Attitude of hypertension is associated with age and occupation of the participants.

Limitation of the studies

High mobility and limited available time of the respondents are a big challenge for the interviewers. The interview will be carried out during the most convenient time of the participant depending on the off day of the migrant workers. The main limitation of this study is lack of adequate similar studies, which made comparison difficult for the reference. In addition, the data was self-report from the participants; there may be the denial of poor practices from the respondents, which affects the result of the study. Since the researcher use convenient sampling method, the finding might not be representative enough for Myanmar migrants who are living in Thailand. Recall bias or information bias can be present. In conducting perception questionnaires, the respondents may give the answers which are socially acceptable which do not reflect the actual practice over time. Actual prevalence of hypertension may be more than the obtained results due to asymptomatic individuals who have not been diagnosed yet.

Public Health Implications

Epidemiological and KAP data on hypertension is important as crucial steps in the design of sound prevention and control programs of hypertension as it is emerging as a major public health problem in many countries. According to the author's knowledge, no other study has comprehensively assessed patient hypertension knowledge, attitudes and practice on the hypertension preventive behaviours among Myanmar migrant's population in Thailand. The author hopes that this study's results could be acted on by the Department of Health and other authorities.

Better understanding of the problem regarding basic knowledge, attitude and practice regarding hypertension among migrant community can help the development of community-based educational efforts in the Province. Government and non-government sectors can use findings from this study to develop strategies for

prevention and control of hypertensions in Samutsakhon province. Appropriate information, education and communication strategies should also be designed and implemented to avoid unhealthy lifestyles and promote healthy practices.

Planning knowledge factors that are relevant to health promoting behaviour and facilitating the favorable environment for adoption of preventive health behaviour regarding hypertension among migrant population. Knowledge regarding the normal blood pressure, symptomless nature of hypertension and their risk factor should be given to the community.

Positive relationship between knowledge, attitude and practice will encourage basic health staff or health workers to take this challenge to educate, motivate community and provide full support to healthy lifestyle habits. Maintenance of current positive attitude and practice is also important for prevention of hypertension.

Further development of relevant public policies, including development of more facilities and opportunities for the public to engage in leisure physical exercise, improved food labeling and other incentives to promote a healthy diet, regulatory measures to promote a smoke-free society, and the policy for adults to have annual BP checks.

Recommendation for further research

Although the practice and attitude were fair, knowledge of hypertension is poor across the population which reflect the need for health educating program. Intervention program based on the result of this study can also be encouraged. The prevalence may be more than the reported value as this study is not actually measuring the blood pressure. Prevalence of hypertension should be assessed in the future studies and specific barriers for preventive behaviour should be identify.

3.16. Budget estimation

List Cost	Unit	Price (in Thai Baht)(per/unit)	Total Budget
1. Questionnaire (Photocopy) + Consent sheet	460	12 THB	5,520 THB
2. Correct answer (Photocopy)	460	1 THB	460 THB
3. Food and snack	460	50 THB	23,000 THB
4. Transportation and lodging related to project		4,000 THB	4,000 THB
5. Stationary items		2,000 THB	2,000 THB
6. Printing and binding of the thesis paper		5,000 THB	5,000 THB
7. Hiring Volunteer cost	3	2,500 THB	7,500 THB
8. Miscellaneous		2,000 THB	2,000 THB
Total			49,480 THB

REFERENCES

- ADEL E. BERBARI & MANCIA, G. 2012. *Special Issues in Hypertension*.
- AHA. 2014. *About high blood pressure 1* [Online]. AHA. Available: http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/About-High-Blood-Pressure_UCM_002050_Article.jsp [Accessed].
- AUNG, Y. W. 2013. Knowledge, attitude, barriers and preventive behaviours of tuberculosis among myanmar migrants in Hua fai village, Mae sok, Tak province, Thailand.
- AYSHA ALMAS, S. S. G., SAIMA LALANI, SAMANI ZAHRA AZIZ, AAMIR HAMEED KHAN 2012. Good knowledge about hypertension is linked to better control of hypertension; a multicentre cross sectional study in Karachi, Pakistan. *BMC Research Notes*, 5, 579-86.
- CARTER-EDWARDS, L., SA JACKSON, MJ RUNALDUE & SVETKEY., L. 2002. Diet- and blood pressure-related knowledge, attitudes, and hypertension prevalence among African Americans: the KDBP Study. Knowledge of Diet and Blood Pressure. *Ethn Dis*, 12, 72-82.
- CENSUS, T. U. R.-. 2015. The 2014 Myanmar Population and Housing Census. . Department of Population, Ministry of Immigration and Population.
- D.SESSO, H., COOK, N. R., JULIE E. BURING, MANSON, J. E. & GAZIANO, J. M. 2008. Alcohol Consumption and the Risk of Hypertension in Women and Men. *AHA*, 51, 1080-1087.
- DEMAIO, A. R., OTGONTUYA, D., MAXIMILIAN DE COURTEN, IB C BYGBJERG, PALAM ENKHTUYA, MEYROWITSCH, D. W. & OYUNBILEG, J. 2013. Hypertension and

hypertension-related disease in Mongolia; findings of a national knowledge, attitudes and practices study. *BMC Public Health* 2013.

DEPARTMENT OF EMPLOYMENT, M. O. L. 2014. The 2014 Statistical Journal of Foreign Workers in Thailand who Hold Work Permits, .

DOBE, M. 2013. Hypertension:Prevention Paradox. *Indian Journal of Public Health*, 57, 1-3.

DREISBACH, A. W. 2014. *Epidemiology of Hypertension* [Online]. Medscape. Available: <https://emedicine.medscape.com/article/1928048-overview#a4> [Accessed].

ERKOC, S. B., ISIKLI, B., METINTAS, S. & KALYONCU, C. 2012. Hypertension Knowledge-Level Scale (HK-LS): a study on development, validity and reliability. *Int J Environ Res Public Health*, 9, 1018-29.

ESCESH 2013. ESC/ESH Guideline. *Eur Heart J*, 34.

ESKRIDGE, M. S. 2010. Hypertension and chronic kidney diseases: The role of lifestyle modification and medication management. . *Nephrology nursing journal*,, 37 56-57.

EVERETT, D. E. K. A. G. M. M. C. C. J. 2009. Adherence to Healthy Lifestyle Habits in US Adults, 1988-2006. *The American Journal of Medicine*

FRANK M. SACKS, LAURA P. SVETKEY, WILLIAM M. VOLLMER, LAWRENCE J. APPEL, GEORGE A. BRAY, DAVID HARSHA, EVA OBARZANEK, PAUL R. CONLIN, EDGAR R.

MILLER, M. D., DENISE G. SIMONS-MORTON, NJERI KARANJA, PAO-HWA LIN, MIKEL AICKIN, MARLENE M. MOST-WINDHAUSER, THOMAS J. MOORE, MICHAEL A. PROSCHAN & AND JEFFREY A. CUTLER 2001. Effects on Blood Pressure of Reduced Dietary Sodium and the Dietary Approaches to Stop Hypertension (DASH) Diet. *N Engl J Med*, 344, 3-10.

GREENBERG, J. S. 2006. *Comprehensive Stress Management*, McGraw-Hill Humanities/Social Sciences.

GROPPELLI A, GIORGI DM, OMBONI S, PARATI G & G, M. 1992. Persistent blood pressure increase induced by heavy smoking. *Journal of Hypertension*, 10, 459.

- HAE-RA HAN, HWAYUN LEE¹, COMMODORE-MENSAH, Y. & KIM², M. 2014. Development and Validation of the Hypertension Self-Care Profile: A Practical Tool to Measure Hypertension Self-Care. *J Cardiovasc Nurs*, 29.
- HE, F. J., LI, J. & MACGREGOR, G. A. 2013. Effect of longer term modest salt reduction on blood pressure: Cochrane systematic review and meta-analysis of randomised trials. *BMJ*, 346.
- HOWTEERAKUL, NOPPORN SUWANNAPONG & THAN, M. 2005. Cigarette, alcohol use and physical activity among Myanmar youth workers, Samut Sakhon Province, Thailand. *The Southeast Asian journal of tropical medicine and public health* 36, 790-6.
- IOM 2014. Thailand Migration Report 2014. In: HUGUET, J. W. (ed.). Thailand.
- IOM 2017. *World Migration Report 2018*, IOM.
- JITTHAI, N., S. YONGPANICHKUL AND M. BIJAISORADAT 2010. "Migration and HIV/AIDS in Thailand: triangulation of biological, behavioural and programmatic response data in selected provinces".
- JNCVII 2004. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure NIH.
- KAREN A. MATTHEWS, CHARLES R. KATHOLI, HEATHER MCCREATH, MARY A. WHOOLEY, DAVID R. WILLIAMS, SHA ZHU & MARKOVITZ, J. H. 2004. Blood Pressure Reactivity to Psychological Stress Predicts Hypertension in the CARDIA Study. *AHA*, 110, 74-78.
- KASA, A. S. & SHIFA, A. K. 2017. Prevalence and Assessment of Knowledge and Practice Towards Hypertension among Bahir Dar City Communities, 2016: A Community Based Cross-sectional Study *Journal of hypertension*, 6.
- KROUSEL-WOOD, M. A., MUNTNER, P., HE, J. & WHELTON, P. K. 2004. Primary prevention of essential hypertension. *Medical Clinics of North America*, 88, 223-238.
- KUSUMA, Y. S., GUPTA, S. K. & PANDAV, C. S. 2013. Knowledge and perceptions about Hypertension among Neo and settled Migrants in Delhi, India. *Elsevier*.

- LINE AUBERT, PASCAL BOVET, JEAN-PIERRE GERVASONI, ANNE RWEBOGORA, BERNARD WAEBER & PACCAUD, F. 1998. Knowledge, Attitudes, and Practices on Hypertension in a Country in Epidemiological Transition. *American Heart Association*, .
- MALIK, A., YOSHIDA, Y., ERKIN, T., SALIM, D. & HAMAJIMA, N. 2014. HYPERTENSION-RELATED KNOWLEDGE, PRACTICE AND DRUG ADHERENCE AMONG INPATIENTS OF A HOSPITAL IN SAMARKAND, UZBEKISTAN. *Nagoya J. Med. Sci*, 76, 255-263.
- MARIANNE E. GEE, ASAKO BIENEK, NORMAN R.C.CAMPBELL, CHRISTINA M. BANCEJ, CYNTHIA ROBITAILLE, JANUSZ KACZOROWSKI, MICHEL JOFFRES, SULAN DAI, FEMIDA GWADRY-SRIDAR & NOLAN, R. P. 2012. Prevalence of, and Barriers to, Preventive Lifestyle Behaviors in Hypertension (from a National Survey of Canadians With Hypertension). *The American Journal of Cardiology*, 109,, 570–575
- MARTINS D , GOR D , TEKLEHAIMANOT S & K, N. 2011. High blood pressure knowledge in an urban African-American community. . *U.S. Gov't, P.H.S.*, 11, 90-96.
- MIGRATION, I. O. F. 2009. Financing healthcare for migrants: a case study from Thailand. Bangkok.
- MINISTRY OF PUBLIC HEALTH, T. 2011. Annual Report on Financing Analysis of the Compulsory Migrant Health Insurance Fund. Bangkok.
- MOUNICA, B. 2015. Study Of Knowledge, Attitude And Practice Of General Population Of Guntur Towards Silent Killer Diseases : Hypertension And Diabetes. *Value in Health*, 18, A398.
- MYO NYEIN AUNG, THAWORN LORGA, JANTHILA SRIKRAJANG, NONGLUK PROMTINGKRAN, SUCHART KREUANGCHAI, WILAWAN TONPANYA, PHATCHANAN VIVARAKANON, PUANGPET JAIIN, NARA PRAIPAKSIN & PAYAPROM, A. 2012. Assessing awareness and knowledge of hypertension in an at-risk population in the Karen ethnic rural community, Thasongyang, Thailand. *Int J Gen Med*, 5, 553–561.
- NDEGWA, D. 2016. *Migrants from Myanmar and Risk faced abroad*, IOM
- NIH 2002. *Primary prevention of hypertension*, U.S, National Institute of Health.
- NISSINEN A, BERRIOS X & P., P. 2001. Community-based noncommunicable disease interventions: lessons from developed countries for developing ones. *Bull World Health Organ*, 79, 963–70.

- NSO 2016. Provincial Statistical Report, SamutSakhon. National Statistic Office.
- PAUL K. WHELTON, ROBERT M. CAREY, S. W., ARONOW, D. E., CASEY JR., KAREN J. COLLINS, CHERYL DENNISON HIMMELFARB, M., S., DEPALMA, SAMUEL GIDDING, KENNETH A. JAMERSON, DANIEL W. JONES, ERIC J. MACLAUGHLIN, PAUL MUNTNER, BRUCE OVBIAGELE, SIDNEY C. SMITH JR., CRYSTAL C. SPENCER, RANDALL S. STAFFORD, SANDRA J. TALER, RANDAL J. THOMAS, KIM A. WILLIAMS SR. & JR., J. D. W. A. J. T. W.
2017. 2017 Guideline for high blood pressure in Adult. *American college of cardiology*.
- PICKENS, J. 2005. Attitudes and Perceptions. *Organizational Behavior in Health Care*.
- POWLES, J., S. F., RENATA MICHA, KHATIBZADEH, S., PEILIN SHI2, M. E., REBECCA E ENGELL, LIM, S. S., GOODARZ DANAEI & MOZAFFARIAN, D. 2013. Global, regional and national sodium intakes in 1990 and 2010: a systematic analysis of 24 h urinary sodium excretion and dietary surveys worldwide
BMJ open, 3.
- PRAGNESH PARMAR, GUNVANTI B. RATHOD, SANGITA RATHOD3, RAHUL GOYAL, AGGARWAL, S. & PARIKH4, A. 2014. knowledge, attitude and practice of general population of Gandhinagar towards hypertension *International Journal of Current Microbiology and Applied Science* 3, 680-685.
- RANIMAH YAHYA, R. M., HARMY MOHAMED YUSOFF 2012. Association between Knowledge, Attitude and Practice on Cardiovascular Disease among Women in Kelantan, Malaysia
International Journal of Collaborative Research on Internal Medicine & Public Health 4.
- SANDEEP KUMAR, ANSHU MITTAL & BISHNOI, A. 2016. Study of Knowledge, Attitude and Practice of General Population of Ambala towards Hypertension
International Journal of Health Sciences & Research (www.ijhsr.org) 6.
- SHAKTI SHRESTHA, BHOJRAJ ADHIKARI, RAMESH SHARMA POUDEL, KAILASH THAPALIYA, TIKARAM KHARAL, MAHANATH BASTAKOTI & BHATTA1, N. K. 2016. Knowledge, Attitude and Practice on Hypertension Among Antihypertensive Medication User. *Journal of Nepal Medical Association*, 55.

- SOE, T. Z., HONGSRANAGON, P. & HAVANOND, P. 2012. Determinants And Consequences Of Alcohol Consumption Among Male Adult Myanmar Migrant Workers In Ratchaburi Province, Thailand *Journal of Health Research*, , 26, S27-S32.
- SP WHELTON , A CHIN , X XIN & ., J. H. 2002. Effect of aerobic exercise on blood pressure: a meta-analysis of randomized, controlled trials. *. Ann Intern Med.*, 136, 493-503.
- SRITHAMRONGSAWAT, S., R. WISESSANG AND S. RATJAROENKHAJORN 2009. Financing Healthcare for Migrants: A Case Study from Thailand,. IOM and WHO.
- SYBILLE GUMUCIO, MELODY MERICA, NIKLAS LUHMANN, GUILLAUME FAUVEL, SIMONA ZOMPI, AXELLE RONSSE, AMÉLIE COURCAUD, MAGALI BOUCHON, CORALIE TREHIN, SOPHIE SCHAPMAN, OLIVIER CHEMINAT, HELENA RANCHAL, SANDRINE SIMON & MÉDECINS DU MONDE 2011. *The KAP survey model*
- VICKI L. BURT, PAUL WHELTON, EDWARD J. ROCCELLA, CLARICE BROWN, JEFFREY A. CUTLER, MILLICENT HIGGINS, MICHAEL J. HORAN & LABARTHE, D. 1995. Prevalence of Hypertension in the US Adult Population Results From the Third National Health and Nutrition Examination Survey, 1988-1991. *AHA*, 25.
- WHO. *Step Surveillance manual* [Online]. [Accessed].
- WHO 2008a. Overcoming migrants' barriers to health. *Bulletin of WHO*.
- WHO 2013a. A global brief on hypertension. *UNIVERSITY*
- WHO 2013b. High Blood Pressure global and regional overview.
- WHO 2013c. SEA REGIONAL HEALTH FORUM. 17.
- WHO 2014a. Global Report on Mortality attributable to tobacco.
- WHO 2014b. Global Status report on Alcohol and Health.
- WHO. 2015a. *Healthy diet* [Online]. [Accessed].
- WHO. 2015b. *Noncommunicable diseases prematurely take 16 million lives annually, WHO urges more action* [Online]. Available: <http://www.who.int/mediacentre/news/releases/2015/noncommunicable-diseases/en/> [Accessed].

WHO 2017a. Noncommunicable diseases fact sheet. *June*

WHO. 2017b. *Physical Activity* [Online]. WHO. Available:

<http://www.who.int/mediacentre/factsheets/fs385/en/> [Accessed].

WHO 2015c. Q&As on hypertension

WHO, A., COMMUNICATION AND SOCIAL CONTROL FOR TB CONTROL. 2008b. *A guide to developing knowledge, attitude and practice surveys*,.

WIN, N. 2014. Knowledge, Attitude and Practice regarding diabetes mellitu samong Myanmar Migrants workers in Bang Khun Thian District, Bangkok, Thailand.

ZAW, S. T., HONGSRANAGON, P. & HAVANOND, P. (eds.) 2009. *PREVALENCE OF CIGARETTE SMOKING AND FACTORS INFLUENCING CIGARETTE SMOKING BEHAVIOUR AMONG ADULT MYANMAR MIGRANT WORKERS IN MAHACHAI SUB-DISTRICT, SAMUT SAKHON PROVINCE, THAILAND*



APPENDIX

Appendix: Questionnaires

**Knowledge, Attitude and Practice of Preventive Behaviour towards
Hypertension Among Myanmar Migrant Population
In Samutsakhon Province, Thailand**

Participant code no.

SECTION 1 SOCIODEMOGRAPHIC CHARACTERISTICS

Please make the mark in the provided blanks for the answer. e.g. [] Please write down the answers in the provided spaces if necessary. E.g.xxxxxx.....

1. How old are you now? (Completed years)

----- Years

2. Gender

[] Male[] Female

3. What is your ethnicity?

[] Burma[] Shan[] Mon[] Karen[] Others(Please Specify)

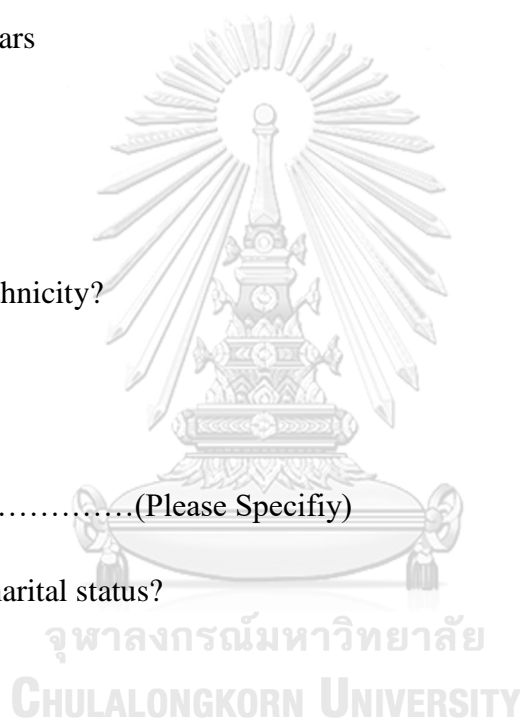
4. What is your marital status?

[] Single[] Married[] Widow[] Divorced /Seperated

5. What is your level of education?

[] Never gone to school[] Primary School or Monastery education[] Secondary Education[] High School Level[] University Level

6. What is your current occupation?

[] Unemployed[] Construction worker[] Agriculture worker

- Factory worker
- General worker
- Others.....(Please specify)

7. Do you have income?

- 1. Yes
- 2. No (Please go to Q.10)

8. What is your type of income?

- Daily Wager
- Salary
- Others.....(Please specify)

9. Is your income enough for your living?

- Sufficient
- Not sufficient but no debt
- Not sufficient and in debt

10. What is your migration status?

- Registered
- Unregistered

11. Do you have health insurance?

- 1. Yes
- 2. No

12. What is your average blood pressure on the most two recent occasion?

- Don't Know
- Yes (1)...../.....mmHg(2)...../.....mmHg

13. Have you ever diagnosed as hypertensive patient or have history of taking anti-hypertensive treatment provided by professional care provider? (Doctor or nurses)

- 1. No (If No, Go to Q.15)
- 2. Yes

14. If Yes, are you taking treatment regularly as prescribed by the health professional?

- 1. No
- 2. Yes

15. Do your immediate family members have hypertension?
(Grandparents/Parents/sibling)

- Don't Know
- No
- Yes

16. Have you ever diagnosed as Diabetes patient or have history of taking anti-Diabetic treatment provided by professional care provider? (Doctor or nurses)

No

Yes

SECTION 2: KNOWLEDGE ON HYPERTENSION

Please make the mark in the provided space for the answer.

(T=True, F= False, DK=Don't Know)

	Statement	T	F	D K
17	Hypertension is a non-communicable disease.			
18	Normal blood pressure of a person is 120/ 80 mmHg.			
	Sign and symptoms			
19.1	Persons with high BP always feel symptoms.*			
19.2	Nose bleeding and headache can be a sign of very high blood pressure.			
	Diagnosis and Treatment			
20.1	A person is diagnosed as hypertension if their systolic blood pressure is 140 or higher or their diastolic is 90 or higher on two separate occasions.			
20.2	Hypertension can be treated by medications only.*			
20.3	Hypertensive patients need to take medications for life long.			
	Following persons are at risk of Hypertension			
21.1	Diabetic patient			
21.2	Overweight persons			
21.3	Those with family history of hypertension			
21.4	Those who took regular physical exercise*			
	Hypertension can be prevented by			
22.1	Physically inactivity*			
22.2	Eating salty food and high fatty food*			
22.3	Large consumption of vegetables and fruits			

	Knowledge of hypertension Statement(Continues..)	T	F	D K
22.4	Reducing the amount of alcohol drinking			
22.5	Cessation of smoking			
22.6	Reducing stress by meditation			

Negative Statement*

23. Have you ever receive any information regarding of hypertension?

No

Yes (If No, please go to the question 25.)

24. Please specify the common sources from which you received the information about hypertension? (More than one answer is possible)

TV/Radio

Newspaper and Magazine

Billboard /Poster/ Brochure

Health Worker

Family, friends, colleagues

Religious leader

Others

(Please Specify)

SECTION III ATTITUDE ON HYPERTENSION

Please make the mark in the provided space for the answer.

(SA= Strongly Agree, A = Agree, UC= Uncertain, D=Disagree, SD= Strongly Disagree)

Attitude Questions	S A	A	U C	D	S D
25. I think I can get hypertension.					
26. I think that if parents are hypertensive, children will have high risk of having disease.					
27. If I eat a lot of salty snack and processed meat, I am susceptible to hypertension.					
28. I think that hypertension is a chronic disease and it has to be treated and controlled throughout the entire life.					
29. I think hypertension can lead to fatal serious complications.					
30. I think untreated hypertension does not cause stroke.*					
31. I think untreated hypertension can give rise to heart attack..					
32. In my opinion, prevention of hypertension is not much important.*					
33. I believe that less eating of deep fried food and salty food can help us prevent hypertension.					
34. Exercise regularly has important benefit in prevention of hypertension.					
35. Hypertension can be prevented by stoppage of smoking.					
36. I believe limiting amount of alcohol drinking can prevent hypertension.					
37. In my opinion, reducing stress by meditation is not effective way for preventing hypertension.*					

Negative Statement*

SECTION IV PRACTICE OF PREVENTIVE BEHAVIOUR TOWARDS HYPERTENSION

The following questions are about practice in preventive behaviour towards hypertension **during the past 6 months**.

Please make the mark in the provided space for the answer under Regularly®, Sometimes (ST) and Never(N).

No	Question	R	S T	N
38	I take part in moderate physical activity (e.g. 30 min of brisk walking, Gardening most of the day in a typical week).			
39	I take part in vigorous physical activity (e.g. 10 mins of fast cycling, Carrying heavy loads most of the day in typical week).			
40	I choose fresh food rather than processed foods (e.g. canned or frozen goods)when available.			
41	I eat high salt foods.(Salty snack, salted Dried Fish,).*			
42	I eat less food that contain high fat.(Red meat, Butter).			
43	I add extra salt or soy sauce to the meal right before eating it.*			
44	I choose boiled, baked or steamed instead of deep fried food.			
45	I eat various types of fruits and vegetables in a day.			
46	I smoke at least 1 cigarette per day.*			
47	I drink more than one standard alcohol daily. *(2 glass or less for men 1 glass or less for women).			
48	I try to stay away from anything or anybody that causes any kind of stress.			
49	I practice meditation .			
50	I check my blood pressure within last six month.			

Negative Statement*

VITA

Curriculum Vitae

Dr. Thet Su San

M.B,B.S (Ygn)

Address: No. (33), 135th street, Maougone Ward, Tamwe Township, Yangon,
Myanmar

E - mail Address : thetsusan.hanczar@gmail.com

Phone Number : +95 970478311

Brief Profile

I am a medical doctor holding MB,BS Degree graduated from University of Medicine (I), Yangon, Myanmar. I am a registered doctor from Myanmar Medical Council.

2013 Jan ~ 2013 Dec: Internship at Yangon Children Hospital, Yangon General Hospital, Yangon Women Hospital and Worker's General Hospital

2014 April~ 2014 September: Voluntary Medical Officer at medical ward, Muslim Free Hospital

2015 June ~ 2017 March : Medical product specialist at Servier Laboratories.

Educational Qualifications

1. Certification in Effective Team Building Training in 2016
2. Bachelor of Medicine and Bachelor of Surgery (M.B., B.S) from University of Medicine (I) in 2014
3. Certificate in Basic Traditional Medicine Course 2014
4. Certification in Trauma Care Skill Training in 2013



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY