

ASSESSMENT OF ALCOHOL CONSUMPTION AMONG ADULTS IN URBAN AND RURAL  
AREAS OF PHA-AN TOWNSHIP MYANMAR



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บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)

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By	Mr. Saw Morgan Soe Win
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ซอว์ มอแกน โซ วิน : การประเมินการดื่มสุราในกลุ่มผู้ใหญ่ในเมืองและชนบทของเมืองพะอาน ประเทศเมียนมาร์. (ASSESSMENT OF ALCOHOL CONSUMPTION AMONG ADULTS IN URBAN AND RURAL AREAS OF PHA-AN TOWNSHIP MYANMAR) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ดร.จิตจรดา อารีย์สันติชัย, 4 หน้า.

การวิจัยครั้งนี้ เป็นการวิจัยเชิงพรรณนา มีวัตถุประสงค์เพื่อศึกษาการบริโภคเครื่องดื่มแอลกอฮอล์ในวัยผู้ใหญ่ และปัจจัยที่มีความสัมพันธ์กับปริมาณการดื่มแอลกอฮอล์ ในเขตเมืองและนอกเขต ของเมืองพาอาน เมืองหลวงของรัฐกะเหรี่ยง ภาคตะวันออกเฉียงใต้ ประเทศพม่า เก็บรวบรวมข้อมูลโดยการสัมภาษณ์ ตามแนวคำถามในแบบสัมภาษณ์แบบมีโครงสร้าง กลุ่มตัวอย่างในการศึกษาครั้งนี้ จำนวน 378 คน โดย ศึกษาในพื้นที่ชุมชนเมือง 4 ชุมชน กลุ่มตัวอย่างจำนวน 264 คน และ หมู่บ้าน 2 หมู่บ้าน จำนวน 114 คน ระยะเวลาการศึกษาระหว่างวันที่ 6 – 21 มีนาคม 2557 วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และ Chi-square เพื่อหาความสัมพันธ์ระหว่างปัจจัยส่วนบุคคล สังคม กับปริมาณการบริโภคเครื่องดื่มแอลกอฮอล์

จากผลการศึกษามีกลุ่มตัวอย่างบริโภคเครื่องดื่มแอลกอฮอล์ ร้อยละ 56.9 ด้านปริมาณการดื่มพบว่า ผู้ที่บริโภคเครื่องดื่มแอลกอฮอล์ มีพฤติกรรมการดื่มอย่างหนัก (มากกว่า 5 ดื่มมาตรฐานในระยะเวลาสั้น) ร้อยละ 31.1 และร้อยละ 11.6 มีพฤติกรรมการดื่มอยู่ในระดับปกติ ด้านเพศและอายุผลการศึกษาบ่งชี้ผู้ชายมีการบริโภคเครื่องดื่มแอลกอฮอล์มากกว่าเพศหญิง คือ ร้อยละ พบกลุ่มผู้ที่บริโภคเครื่องดื่มแอลกอฮอล์ในช่วงอายุ 25-44 ปีมากที่สุดคือร้อยละ 54.4 ช่วงเวลาที่เริ่มต้นบริโภคเครื่องดื่มแอลกอฮอล์คือช่วงอายุ โดยการบริโภคเครื่องดื่มแอลกอฮอล์ เริ่มต้นจาก น้ำตาลเมา และพบว่าปัจจัยเชิงสังคมและสภาพแวดล้อมของกลุ่มตัวอย่างมีความสัมพันธ์กับปริมาณการดื่มแอลกอฮอล์

ในการศึกษาครั้งต่อไปควรมีการศึกษาปัจจัยที่มีความสัมพันธ์กับพฤติกรรมการบริโภคแอลกอฮอล์ในระดับที่เป็นอันตรายสุขภาพ ซึ่งจะเป็นประโยชน์ต่อแนวทางการแก้ไขปัญหา และการให้ความรู้ ความเข้าใจที่ก่อให้เกิดความตระหนักต่อพฤติกรรมเสี่ยงทางสุขภาพจากการบริโภคเครื่องดื่มแอลกอฮอล์

สาขาวิชา สาธารณสุขศาสตร์

ลายมือชื่อนิติต .....

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KEYWORDS: ADULT / URBAN AND RURAL / ALCOHOL DRINKING / BINGE DRINKING / FIRST TIME DRINKING

SAW MORGAN SOE WIN: ASSESSMENT OF ALCOHOL CONSUMPTION AMONG ADULTS IN URBAN AND RURAL AREAS OF PHA-AN TOWNSHIP MYANMAR. ADVISOR: CHITLADA AREESANTICHAJ, Ph.D., 4 pp.

Alcohol drinking is the most common risk behavior in modern world and it can create the burden of diseases for our health care system. This cross sectional study was carried out to assess the alcohol consumption among the adults in urban and rural areas of Pha-An Township, Myanmar which is a capital city of Karen State.

Method: The data collection was done by face to face interview by using structured questionnaire to both urban (264 participants) and rural (114 participants). The data collection was conducted in four wards from urban areas and two villages from rural areas. Data were analyzed by using Chi-square test. Results: The results indicated that 56.9% (215 participants) has alcohol drinking and among the drinkers, 67 participants ( 31.1% of alcohol drinkers ) has the binge drinking practice and it is most common in the age group of 25-44 years and more common in male than female. Half of the alcohol drinkers are low risk drinkers and 11.6% was hazardous drinkers. The overall alcohol drinking is also highest in that age group of 25-44 years and higher in male than in female. Almost half of the participants started alcohol drinking between 1 and 19 years and most common type of alcohol for their first time drinking was palm tree juice (54.4%). Several socio-demographic characteristics and couple of environmental contexts are associated with alcohol drinking.

Conclusion: It was concluded that alcohol drinking was most common in male than female and age group of 25 to 44 years is the group with highest number of alcohol drinkers. Binge drinkers contributed 17.7% of total participants.

Recommendation: It is strongly recommended to carry out more research to study more detail about binge drinking and also more detail about alcohol. Awareness for the hazards of alcohol drinking and binge drinking should be promoted.

Field of Study: Public Health

Student's Signature .....

Academic Year: 2013

Advisor's Signature .....

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# CHAPTER I

## INTRODUCTION

### 1.1 Background

Alcohol can be defined as ethyl alcohol and can be produced by fermentation or distilling of grains, seeds and fruits. There are so many varieties of alcohol around the world and nowadays the alcohol becomes an essential symbol in the modern celebrations and parties. However, the hazards and consequences of alcohol could not be ignored.

In 2005, worldwide consumption was equal to 6.13 L of pure alcohol consumed by single person over 15 years old. Since 1990, the worldwide recorded adult per capita (APC) consumption has remained stable at around 4.3 to 4.7 L of pure alcohol in all World Health Organization (WHO) regions. The alcohol use in European region raised again to around 9.5 L after the a decrease at early 1990s while in the region of the Americas stabilized at 6.7 L. By the end of 20th century, total APC was increased in the Western Pacific region but not the recorded consumption. Round about 30% of total APC for worldwide adult consumption is unrecorded. Among them, 28.6% of the unrecorded APC is contributed to homemade, illegally produced or outside of the control of government. In the developed world like Europe, the alcohol consumption was highest when we compared with the developing countries. However, high income is not always directly related to high alcohol drinking and related its risk.(WHO, 2011)

In every year, the deaths of 2.5 million people are the results of the harmful use of alcohol.(WHO, 2005) Harmful use of alcohol has been recognized as a major risk factors for morbidity and mortality.(UN, 2006) The harmful alcohol use plays as

the third largest contributor for GBD ( global burden of disease ) which result in 3.8% of all deaths and 4.6% of all DALYs ( disability adjusted life years lost ) (Rehm et al., 2009).

In our South East Asia region, the alcohol consumption is increasing gradually and total Adult Per Capita consumption is 2.20. The unrecorded APC is 1.52 and this is the 69% of total APC for South East Asia region.(WHO, 2011)

In Myanmar, total population is over 48 million, population over 15+ years is 73% and Population in urban areas is 31%. World Bank ranks Myanmar as a Low income country. Total APC for Myanmar is 0.9 ( recorded is 0.5 and unrecorded is 0.4 ). Therefore, 80% of total APC of Myanmar is contributed by unrecorded APC. For the drinkers only, total APC is 7.22 ( male is 7.43 and female is 4.44 ). The percentage of heavy episodic drinker of male is 18.7 and for female is 3.3.(WHO, 2011)

There are several alcohol policies in Myanmar to control alcohol consumption such as Taxation, national laws for selling and buying the alcohol beverages. The policy also contain to restrict the selling of alcoholic beverage ( time, location, specific event and intoxicated person ), regulate the legally binding on alcohol advertising, product placement, sponsorship and sale promotion and the maximum legal blood consumption ( BAC ) for driving the vehicle is set as 0.7.(UN, 2006) But in the reality, implementation and following the rules and regulations of alcohol policy is very poor in Myanmar.

The Pha-An township is a capital city of Karen State and is situated beside the Asia Highway. Therefore, it is one of the important areas in the trading between Thailand and Myanmar and it is also a central point and entrance city to Karen state.

After cease firing agreement between the Myanmar government and Karen National Union, a lot of international non-governmental organizations started to establish in Pha-An Township to implement the repatriation programs and development programs. The economy of the Karen state is growing very quickly and the areas around the Pha-An Township became crowded and developed. As alcohol is a legal and easily available substance, it can be said to be increased for those kind of situation. Generally, the alcohol consumption is highest in the adult and start to increase from the age group of 18 to 24 which is the highest age group for alcohol consumption and it started to reduce from age group of 55 to 64 years (CBS, 2003).

According to the data from WHO, the alcohol consumption of Myanmar is low. But the reporting system, data collection and documentation are very poor in Myanmar and the alcohol related data are not available. If a study about alcohol could be conducted in Myanmar, the data acquired from the study will be an alcohol related baseline data for Myanmar.

Therefore this study aimed to assess the pattern of alcohol consumption among the adult people from both rural and urban area of Pha-An Township, Karen state, Myanmar and to get the information about the alcohol consumption of that area.

## **1.2 Research Question**

What is the situation of alcohol consumption among the adults from Pha-An Township, Myanmar?

### 1.3 Research Objective

- To assess the alcohol consumption among the adults from Pha-An Township, Myanmar.

### 1.4 Operational Definition

**Alcohol** – means any beverage drink that contains ethyl alcohol or ethanol.

**Alcohol consumption**- means consumption of alcoholic beverage which consists of quantity, frequency and type of alcohol consumption.

**Amount of alcohol**- will be measured by the standard drink which contains 10 grams per one standard drink.

**Frequency**- means the number of days the respondents drink alcohol measured in terms of weekly and monthly.

**Types**- mean kinds of either homemade beverages i. e; palm tree juice, fermented rice wine or spirit or industrial products i. e; spirit, rum and wine.

**Pattern**- means the drinking practice of the respondent and it will be determined by number of standard drinks of alcohol they drink per day or week, the frequency of drinking in terms of number of days of drinking per week or month and duration of drinking on one occasion.

**Current drinker**- means the respondents who drink alcohol in one month before the interview.

**Binge drinker**- means the respondents who drink more than 5 or more drink for men and 4 or more drink for women on one occasion in the last one month.

**Heavy or high risk drinker-** means the respondents who drink more than 4 drinks for men and 3 drinks for women on a single day and 14 drinks for men and 7 drinks for women a week.



## 1.5 Conceptual Framework

### Independent Variables

#### Socio-demographic Characteristics

Age

Gender

Marital Status

Ethnicity

Residence

Religion

Education

Occupation

Income

#### Environmental context

Alcohol drinkers in the family members

Social Influence from friends

### Dependent Variables

#### Alcohol consumption

Amount

Type

Frequency

Figure 1 Conceptual Framework

## CHAPTER II

### LITERATURE REVIEW

The literature reviews related to assessment of alcohol consumption among the adult people at Pha-An Township, Karen state, Myanmar, include following nine main headings.

2.1 Types of the alcohol

2.2 Alcohol consumption

2.3 Drinking patterns

2.4 Standard drink

2.5 Metabolism and effects of alcohol on the body

2.6 Theories

2.7 Screening Tests

2.7.1 CAGE

2.7.2 CRAFFT

2.7.3 MAST

2.7.4 AUDIT

2.7.5 AUDIT C

2.8 Instruments -Timeline follow back ( TLFB )

2.9 Article reviews



## 2.1 Types of the alcohols

There are three main types of alcoholic beverages such as

( i ) Spirit

( ii ) Wine

( iii ) Beer

Each kind of alcoholic beverage has different pure alcohol percentage such as spirit contains 40.0 %, wine contains 12.0 % and beer contains 5.0 % approximately. The percentage of pure alcohol varies from different brands.(WHO, 2004)

In many countries around the world, there are so many alcoholic beverages locally produced by fermentation of the seeds, grain, fruit, vegetable or palm trees or distilling. Although the availability about the prices of local alcoholic beverages are limited, home or locally produced alcoholic beverages are likely to be cheaper than the alcoholic beverages produced by the factories. For example in Nigeria, the local alcoholic beverage, burukuta is more popular in rural and poor urban area because it is more cost effective than the commercially produced alcoholic beverages. In the United Republic of Tanzania, the alcoholic beverages market and local drinking habit is dominated by domestically produced homemade or informal sector drinks. (WHO, 2004)

Generally, these local alcoholic beverages are poorly tested and monitored for the safety, quality and strength. The health consequences after drinking those alcoholic beverages could be seen in many countries as examples. In 2000, November in Kenya, 140 death cases, many blinded and hospitalization of hundred

cases after drinking kumi kumi, a locally produced, brewed and poisonous liquor. It consists of methanol and other harmful substances like acid from car battery and formalin. In some locally produced alcoholic beverages, the percentage of alcohol content is extremely high. In Zimbabwe for example, kachasu, home distilled local alcoholic beverage contain 10% to 70% alcohol content.(WHO, 2004)

In Myanmar, there are several varieties of locally produced alcoholic beverages. There are two main categories of local alcohol beverages namely,

1. Undistilled or fermented alcoholic beverages

There are several locally produced alcoholic beverages all around the country. Some beverages are fermented from the grains, fruits and vegetables mainly Kaung Yay, Sat Pi, Sat Koo and wine. They are different from each other in terms of color, smell, taste, strength and quality. Those beverages are more common in rural area than urban area.

2. Distilled alcoholic beverages

In some areas mainly in urban area and some rural area of Myanmar, the people produced the alcoholic beverages by distilling to use by themselves and sell as well like San Ah Yet and Kaut Nyin Ah Yet. But those beverages are not legally approved and safety, quality and strength are not testified.

3. Other (Palm Tree Juice )

In Myanmar, the palm trees grow in tropical zones and can be seen in a lot of regions across the country. The palm tree juice is used as a local alcoholic beverage without processing like fermentation or distilling. It has sour taste and smell and

easily available in rural area and is very cheap and cost effective for the drinkers. The strength of palm tree juice and alcohol percentage was never tested.

Despite there were no documents available about the consequences of drinking the locally produced beverages, there were some health related problems or events in the past.

Although there are many alcoholic products available, the main categories are mentioned above and types of alcohol is very important to assess the consumption of alcohol.

## **2.2 Alcohol consumption**

Generally the drinking pattern is the indicator for the annual alcohol consumption. It is usually defined as total consumption of all alcoholic beverages during twelve months and estimated from both alcohol sale data and general population survey. Then it is recalculated into L of hundred % alcohol per capita ( APC ). Annual alcohol consumption is also recognized as a good predictor alcohol related problems for each level. The analyses of the relative risk approved that for a number of health problems. The relative risk rise significantly over the threshold of 20 g of daily alcohol for females and 40 g for males ( 9 L for female and 16 L / year ).(Jacek Moskalewicz, 2010)

There are three major measuring approaches for the alcohol consumption,

- Quantity frequency measures
- Graduated frequency measures
- Short term recall measures

All three measuring approaches mentioned above were tested in project named of Standardized Measurement of Alcohol related Troubles ( SMART ): beverage specific quantity-frequency method ( BSQF ), generic quantity frequency method ( QF ), graduated frequency method ( GF ) and last occasion method ( LO ). According to the recommendation of the SMART study, the BSQF approach is the most appropriate approach because it gives the highest estimation of the annual consumption, offers the reliable predictions of drinking problems and is considerably easy to conduct the respondents.(Jacek Moskalewicz, 2010)

The literature reviewed in the SMART project recommended that the beverage specific quantity frequency ( BSQF ) works well in international comparative surveys which contain asking about frequency of drinking of certain types of alcohol in a certain period and then about the quantity on one occasion or one day.(Jacek Moskalewicz, 2010)

Therefore, calculation of the alcohol consumption is an important measurement for assessment of alcohol consumption and indication for the international comparison.

### **2.3 Drinking Patterns**

Among the determinants of alcohol dependence and hazards of alcohol drinking, drinking pattern is one of the most important factors. It was proved the moderate drinking of alcohol is good for health and heavy drinking of alcohol has several negative effects on the health. Not only the amount of alcohol drink, but also the pattern of alcohol drinking can determine the effect of alcohol on health. There are four patterns of alcohol drinking and these are as follow.

1. Abstainer
2. Moderate or low risk drinking
3. Heavy or high risk drinking
4. Binge drinking

Abstainer means the alcohol drinker who stopped drinking at-least one year.

Moderate or low risk drinking is the drinking less than four drinks for men and three drinks for women on a single day and fourteen drinks for men and seven drinks for women a week.

Heavy or high risk drinking means the consuming more than once a week or higher weekly amount than the amount listed above.

Binge drinking is usually defined as a pattern of heavy drinking in a short duration which brings the blood alcohol concentration to 0.08 g% or more. The quantity and duration are defined differently by different institutions. National Institutes on Alcohol and Alcoholism defined the binge drinking as consuming 5 or more drinks for men and 4 or more drinks for women in two hours. In contrast, binge drinking is defined in UK as consumption of eight drinks or more in men and six drinks or more in women.(NIAAA, ND-a)

The consequences and severity of health related problems can be determined by the drinking patterns and assessment of alcohol drinking will not be completed without patterns of alcohol drinking.

## 2.4 Standard drink

To measure the amount of alcohol drink, it needs to standardize the amount of alcohol and it was defined as a standard drink. There are many demarcation of standard drinks by different countries and in United State of America, it is defined as a drink containing fourteen gram of pure alcohol i.e; six ounces ( 177 ml ) of fluid or 1.2 teaspoons. In Australia, New Zealand and Thailand, standard drink is defined as a drink containing 10 grams of pure ethanol. For each ml of ethanol, there are 0.79 grams of pure ethanol. The amount of pure alcohol containing in certain quantity is different between the type and brand of the beverages. Here below are approximate amount of pure alcohol in different type of alcohol.(NIAAA, ND-b)

**Table ( 1 ) Standard Drinks of alcohol**

Type of alcohol and approximate amount of pure alcohol	Quantity = Standard drink
Beer or cooler ( 5 % )	355 ml = 1.4 SD ( 14 g pure ethanol ) 473 ml = 1.9 SD ( 19 g pure ethanol ) 650 ml = 2.5 SD ( 25 g pure ethanol ) 1182 ml = 4.6 SD ( 46 g pure ethanol )
Malt liquor ( 7 % )	355ml =1.9 SD ( 19 g pure ethanol ) 473ml = 2.6 SD ( 26 g pure ethanol ) 650 ml = 3.6 SD ( 36 g pure ethanol ) 1182 ml= 6.5 SD ( 6 g pure ethanol )
Table wine ( 12 % )	a 750 ml bottle ( 25 ozs ) = 7.1 SD ( 71

	pure ethanol )
Spirit ( Hard Liquor ) ( 40 % )	<p>a mixed drink = 1 SD or more *</p> <p>473 ml = 14.9 SD ( 149 g pure ethanol )</p> <p>739 ml = 23.3 SD ( 233 g pure ethanol )</p> <p>1.75 L = 53.3 SD ( 533 g pure ethanol )</p> <p>*Note depend on the type of liquor and mixer, one mixed drink may contain one to three standard drinks.</p> <p>SD = standard drink</p>

In this study, the standard drink of Australia, New Zealand and Thailand will be used that mean one standard drink will be equivalent to 10 grams pure ethanol.

## 2.5 Metabolism and effects of alcohol in the body

After swallowing, alcohol is absorbed in the small intestine and carried to the liver by the small veins and large portal vein where the alcohol is metabolized and degraded into several compounds. The blood alcohol concentration is influenced by the rate of alcohol drinking, drinking with or without food and genetic factors. The rate of excretion of alcohol is also determined by the years of alcohol drinking, diet, age, smoking and type of alcohol (Zakhari, 2006).

After drinking, the alcohol is metabolized in the body by various mechanisms. The important enzymes involved in the metabolism are aldehyde dehydrogenase (ALDH), alcohol dehydrogenase (ADH), cytochrome P450, and

catalase. Individual genetic variation in these enzymes have been found to influence alcohol consumption, alcohol related tissue damage and alcohol dependence. The alcohol metabolism causes oxygen deficits in the liver, interaction between alcohol metabolism by products and other cell components resulting in the formation of harmful compounds, formation of highly reactive oxygen containing molecules that can damage other cell components ( tissue damage, impairment of other metabolic processes, cancer and medication interaction (Zakhari, 2006).

The moderate drinking of alcohol may have the protective effects of developing ischaemic heart disease and it is usually defined as no more than two per days for men and one drink per day for women who are not pregnant or trying to conceive. But it is sure that the heavy amount of alcohol drinking will results in a lot of deprivation into the lives of drinkers (Zakhari, 2006).

The effects of alcohol on the body is mainly determined by blood alcohol concentration ( BAC ). The blood alcohol concentration ( BAC ) is the concentration of alcohol in a person's blood and it can be measured as a weight in a fixed unit of volume. It is usually used as a measurement of the degree of alcohol-intoxicated in the person's body that depends on weight, quantity of alcohol and amount of alcohol that was absorbed (Zakhari, 2006).

The blood alcohol concentration ( BAC ) is the main determinant for the effects of alcohol. The absorption, distribution, metabolisms and excretion of the body determine the blood alcohol concentration. (WHO, 2004)



Table ( 2 ) The measurement of BAC and effects of alcohol on central nervous system in the person's body

BAC (g/100ml of blood)	Effects on the person's body
0.01-0.05	Normal Behavior
0.03-0.12	Euphoria, sociability, talkative
0.08	Legally drunk ( binge level )
0.09-0.25	Emotional instability, impairment of perception, reduced visual acuity, impaired balance and drowsiness
0.18-0.30	Disorientation, mental confusion, vision problems, increased pain tolerance, muscular in coordination
0.25-0.40	Almost total loss muscular function, markedly decreased, response to stimuli, vomiting, decreased consciousness
0.35-0.50	Completely unconsciousness, absent reflexes, impairment of circulation, low body's temperature, chance of dying
0.45+	Possibility death

The brain includes multiple systems that interacts each other through the trillion of neurones and chemical neurotransmitters to support all the functions of our bodies. The communication between the neurotransmitters can be delayed by the alcohol resulting in extremely drowsy, mood and behavioural changes ( depression, memory loss, agitation and seizures ). Chronic alcohol drinking can shrinks the brain cell sizes and make bigger the inner cavity and can cause the motor

coordination, temperature regulation, sleep disturbances, mood changes and cognitive functions like learning and memory.(NIAAA, 2012)

Long- term alcohol drinking can make weak the muscles of the heart causing cardiomyopathy and disturbs the peacemaker system and results in cardiac arrhythmias. Both binge drinking and long-term heavy alcohol drinking can cause strokes and high blood pressure or hypertension.(NIAAA, 2012)

Generally, liver diseases attack the heavy alcohol drinker for over many years. But heavy drinking for just a few days can cause fatty liver called steatosis and alcoholic hepatitis. Another liver disease related with heavy alcohol drinking is cirrhosis.(NIAAA, 2012)

The enzymes from metabolizing the alcohol are harmful substances for the pancreas and can lead to the inflammation of the pancreas resulting, the pancreatitis.(NIAAA, 2012)

Excessive drinking of alcohol suppresses the several kinds of cells from the human immune system that might cause the chronic heavy alcohol drinker have more chance to developed diseases like respiratory tract infection and tuberculosis and other infectious diseases.(NIAAA, 2012)

The chronic alcohol drinking can increase the risk of developing some cancers like

- Mouth
- Esophagus

- Pharynx
- Larynx
- Liver
- Breast:(NIAAA, 2012)

It can be concluded that alcohol has so many health consequences and it can create a big burden of diseases in public health and therefore alcohol is one of the most important public health problems in modern world.

## 2.6 Theories

Alcohol is commonly and legally used psychoactive substance and available in almost all the countries. There are several theories in drug and alcohol abuse. Some say that the cause of alcoholic problem is incurable, progressive and primary disease but some say that it is not a disease but it is a behavior disorder that includes different kinds of problem. Among the different theories, some theories are described below.

### 1. Social cognitive theory

In late 20<sup>th</sup> century, Albert Bandura developed social cognitive theory which explains how people acquire and maintain behavioral pattern. According to social cognitive theory, environment, people and behavior are constantly influencing each other. Environment can be classified into social and physical environments and social environment include family, friends and colleagues, physical environment means room, temperature and foods. Environment and situation have effects on the human behavior. Some intervention programs were carried out based on the social cognitive

theory and one study concluded that the community level appears to have success in changing the environment and expectancies to alcohol by reducing teen access to alcohol, changing norms and reducing alcohol use among high school students.(Glanz, 2002)

## **2.Role of affect dysregulation in addiction**

The individuals diagnosed with mood disorders or anxiety disorders are two times more likely to suffer from drug use disorders compared with general individuals.(NIDA, 2008)There is a relationship between substance used disorders and three biologically based dimensions of affective temperament and behavior: negative affect ( NA ), positive affect ( PA ) and effortful control ( EC ). Negative affect ( NA ) refers that the individuals with the higher levels of negative affect are at higher risk of substance abuse or behaviors as a coping mechanism.

Positive affect ( PA ) has relation with addiction in both high and low forms. High positive affect in response to use substance is more likely to seek out substances for hedonic reason which means the person initiates the substance using or behavior to get the pleasurable effects and take it compulsively not to get withdrawal symptoms. Low positive affect may prompt initial using due to the lack of responsiveness to natural rewards.

Effortful control ( EC ) is the ability of individuals to control impulses and emotions. High negative affect, low effortful control and both high and low positive affect play a role in conferring risk and maintaining substance use behavior (Cheetham et al., 2010).

According to the social theories mentioned above, the alcohol consumption, pattern and alcoholism are related to environment, social and behavioral factors and they are important for prevention and reducing the alcohol consumption and related health consequences.

## 2.7 Screening Tests

Measuring instruments for alcohol dependence and abuse were mainly created in psychiatric, epidemiologic and public health research. Among them, the followings are commonly and internationally used measuring instruments for alcohol dependency.

### 2.7.1 CAGE

The CAGE questionnaire was created by Dr. John Ewing, University of North Carolina and it is an assessment instruments for identifying the alcoholics. It is usually used in Primary Health Care to assess the alcoholics. It consists of four simple questions.

“Have you ever”

1. Felt the need to cut down your drinking
2. Felt annoyed by the criticism of your drinking
3. Had guilty feeling about your drinking
4. Taken morning eye opener.

The scoring scheme is 0 for no answer and 1 for yes answer, a score of two or more indicates alcohol or drug problem (Ewing, 1984).

### 2.7.2 CRAFFT

CRAFFT questionnaire is a short, self administered instrument for adolescent and under 21 years. It consists of series of six questions to screen alcohol and other drug used disorder at a same time. The questionnaires contain two parts.

Part A composed of three questions to assess the alcohol drinking and other substance using in the past 12 month.(Dhalla S, 2011)

1. Drank any alcohol more than a few sips
2. Smoke any marijuana or hashish
3. Used anything else to get high

Part B

1. C – Have you ever ridden in a Car driven by someone including yourself who was high or had been using alcohol or drug?
2. R – Do you ever used alcohol or drug to relax, feel better about yourself?
3. A – Do you ever used alcohol or drugs while you are by yourself, alone?
4. F – Do you ever forget things you did while using alcohol or drugs?
5. F – Do your family or friends ever tell you that you should cut down on your drinking or drug use?
6. T – Have you gotten into trouble while you were using alcohol or drugs?

Scoring and interpretation

Part A: If Yes to any question in Part A, ask all CRAFFT. If no, ask CAR question and then stop.

Part B: Score 1 point for each Yes answer

CRAFFT score	Degree of problem related to alcohol or other substance abuse	Suggested action
0-1	No Problem reported	None at this time
2+	Potential or significant problem	Assessment required

### 2.7.3 MAST

The Michigan Alcohol Screening Test ( MAST ) is one of the oldest and accurate alcohol screening tests. It's accuracy to identify the alcohol dependency is eighty eight percent. It was developed in 1971 and it composed of twenty two questions and therefore the drawbacks are consuming the time to answer and inconvenient for respondents and administrators in time limited situation and emergency departments. It is not only for alcohol drinking assessment but also can be used to assess the drug problems.(Buddy, 2012)

1. Do you feel you are a normal drinker?
2. Have you ever awoken the morning after some drinking the night before and found that you could not remember a part of the evening?
3. Does any near relative or close friend every worry or complain about your drinking?

4. Can you stop drinking without difficulty after one or two drinks?
5. Do you ever feel guilty about your drinking?
6. Have you ever attended a meeting of alcoholics anonymous?
7. Have you ever gotten into physical fights when drinking?
8. Has drinking ever created problems between you and a near relative or close friend?
9. Has any family member or close friend gone to anyone for help about your drinking?
10. Have you ever lost your friends because of your drinking?
11. Have you ever gotten into troubles because of drinking?
12. Have you ever lost a job because of drinking?
13. Have you ever neglected your obligation, your family, or your work for two or more days in a row because you were drinking?
14. Do you drink before noon fairly often?
15. Have you ever been told you have liver troubles such as cirrhosis?
16. After heavy drinking have you ever had delirium tremens, severe shaking, visual or auditory hallucination?
17. Have you ever gone to anyone to help about your drinking?
18. Have you ever been hospitalized because of drinking?



19. Has your drinking ever resulted in your being hospitalized in a psychiatric ward?
20. Have you ever gone to any doctor, social worker, clergyman or mental health clinic for help with any emotional problem in which drinking was part of the problem?
21. Have you been arrested more than once for driving under the influence of alcohol?
22. Have you ever been arrested, even for a few hours because of other behavior while drinking?

Score 1 for each Yes answer. 0-2 no apparent problem, 3-5 early or middle drinker and if a respondent gets total score of 6 or more, he or she is supposed to be assumed as harmful alcohol drinker and recommended to go for further evaluations.

#### **2.7.4 AUDIT**

The AUDIT is a set of questionnaire which contain ten questions created by the WHO to determine whether a person's alcohol consumption may be harmful or not. This test can be used internationally and was validated in a study conducted in six countries. Q 1 to 3 are for alcohol consumption, Q 4 – 6 are for alcohol dependence and 7 – 10 are for alcohol related problems.

A score of 8 or more in male ( 7 in female ) shows a strong likelihood of hazardous or harmful alcohol consumption. More than 20 score is suggestive of alcohol dependence.(Thomas F. Babor, 2011)

There are ten questionnaires in AUDIT

1. How often do you have a drink containing alcohol?
2. How many drinks containing alcohol do you have a typical day when you are drinking?
3. How often do you have six or more drinks on one occasion
4. How often during the last year have you found that you were not able to stop drinking once you had started?
5. How often during the last year have you failed to do what was normally expected from you because of drinking?
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
7. How often during the last year have you had a feeling of guilt or remorse after drinking?
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
9. Have you or someone else been injured as a result of your drinking?
10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?

### 2.7.5 AUDIT C

The AUDIT C a 3 items alcohol screen that can help identify person of hazardous drinkers or have alcohol use disorder (including alcohol dependence or abuse). Actually, the AUDIT C is a modified version of AUDIT mentioned above.

1. How often do you have drinking containing alcohol?
2. How many standard drinks containing alcohol do you have on a typical day?
3. How often do you have six or more drinks on one occasion?

The AUDIT C is scored 0-12. There are five answers for each question. a is zero point, b is 1 point, c is 2 point, d is 3 point and e is 4 point. In men, a score of four or more is considered positive, optimal for identifying harmful drinking or active alcohol use disorders. In women, a score of three or more is considered positive (Bush et al., 1998).

In this study, AUDIT will be used for assessment of alcohol consumption, alcohol dependency and alcohol related problems. Among the alcohol screening tests mentioned above, some questionnaire like CAGE and AUDIT- C to short and some questionnaire like MAST is too long and take long time to interview and not suitable for the target group of this study. In comparison with those screening tests, AUDIT is a worldwide used screening test and validated by WHO. There are several studies conducted to test the reliability of AUDIT test too. In one study done in Stockholm University, Sweden, it is mentioned that the overall reliability of total AUDIT score was 0.84 and when stratified by gender, age and consumer status, the

total score reliability was 0.80. The researcher concluded that the reliability of the AUDIT is high (Selin, 2003).

## **2.8 Instrument ( Timeline follow back - TLFB )**

The timeline follow back is a method used to assess the drinking behavior of a respondent. This is a sort of calendar which can be filled by interviewers, self-administered by respondents or computers. The respondents will be asked to estimate retrospectively about their alcohol drinking seven days or more before the interview. The main objective of Timeline follow back is to assess the quantity and frequency of alcohol drinking. It requires ten to thirty minutes and it could provide a variety of variables and different estimation of individual drinking level (Sobell and Sobell, 1992).

The timeline follow back is a very useful instrument to assess the drinking behavior including the quantity, frequency and patterns of alcohol drinking. It is commonly used instrument in a lot of alcohol study and other substance abuse study. Therefore, timeline follow back will be used as an instrument in this study.

## **2.9 Article reviews**

A cross sectional study, “Alcohol drinking among college students” studied at a Belgium University explored the drinking behavior, social involvement, college environmental factors and positive drinking consequences. The results shows that only small number (6%) never drink alcohol and first age of drinking was 15.7%. They drink 7 times a month in average and each student had 1.7 drinks per days. The alcohol consumption is higher for the students living in campus, dormitory and with higher number of room-mates. The other environmental and social factors

(participation of student folklore, parties and normative expectations) are associated with alcohol consumption (Lorant et al., 2013).

Another study conducted in 10 diverse regions of China by using the standardized questionnaires related to socio-demographic, physical and behavioral characteristics showed that 76% of men and 36% of women drink alcohol during the past one year, 33% of men and 2% of women drink alcohol during the last week. Mean drinking amount is 28.6 SD per week and was higher in those with low education. Most weekly drinkers drink spirit and beer consumption is the highest among the young drinkers, 37 % of male drinker reported weekly heavy drinking episodes with high prevalence in younger men. Drinking alcohol has positive correlation with regular smoking, blood pressure and heart rate (Millwood et al., 2013).

A quantitative, analytic and cross sectional study with the title of “Alcohol consumption in young people between 18 and 24 years according to socio-demographic characteristics” mentioned the lifetime prevalence of alcohol consumption was 79.17%, the one year prevalence was 72.91% and the one month prevalence was 57.08% of total sample size of 240 young people. The percentage of episodic abuse ( binge drinking ) was 25.55% .(Villace et al., 2013).

The study related with drinking patterns conducted in Korea tested the association between socio-demographic and health related factors and patterns of alcohol use. The result of that study showed that large proportion of men (21.2 %) and women (3.4 %) are engaged in high risk drinking and 15.5% of men and 8.2 % of women are fitted in the category of moderate risk drinking pattern. In both sex,

moderate and high risk drinker are associated with younger age, higher income, being employed, smoking, overweight or obese and good self rated health (Ryu et al., 2013).

The survey carried out across the seven universities in England, Wales and Northern Ireland showed that the majority (65% of females and 76 % of males) of students are heavy episodic drinkers at least one time in the last two weeks and 20% of females and 29% of male are problem drinkers. Factors associated with alcohol consumption are male gender, insufficient income, living away from home, first or second years of study, having no intimate partner and lower academic achievement (El Ansari et al., 2013).

In 2009, a research about patterns of alcohol consumption was conducted in diverse nine rural populations in the Asian regions. The results revealed that alcohol consumption is rarely seen in four areas in Bangladesh and one area in Indonesia. In two areas from Vietnam and one area in Thailand, alcohol consumption is common in male. The mean number of drinks per day in last week and prevalence of high risk drinker is highest in one area from Vietnam, Filabavi and another area from Vietnam, Chililab, alcohol consumption is associated with incomplete primary education (Bich et al., 2009).

In India, a study of prevalence and patterns of alcohol consumption was conducted by using AUDIT and result showed that overall prevalence was 9.4%, prevalence for male is 16.8% and for female is 1.3%. Mean age of initiation the alcohol consumption is 25.3+/- 9.0 years. Alcohol drinking had association with middle age, male gender, illiteracy low education level and smoking. The percentage

of risky drinker is 29.2 % and that of dependence is 33.7% and 56.2% had experience of harmful effects (Kumar et al., 2013).

A study related about the drinking patterns and their impact in adolescents revealed that higher percentage of males were associated with alcohol related aggression. In male, both drinking pattern of drinking to excess and drinking but not to excess significantly increase the alcohol related aggression. Smoking, drug abuse, truancy, limited parental monitoring, frequent evening spent outside of the home and peer influence are associated with alcohol related aggression (Siciliano et al., 2013).

A research conducted to determine the association of alcoholism and family history mentioned that drinking initiation, uncontrolled drinking and problem drinking are related with family history. Alcohol problem under the age of 25, frequency of spontaneous or compulsive seeking behavior for alcohol and frequency of psychological dependence and guilty related to alcohol are also associated with family history (Lee et al., 2013).

A cohort study conducted in Great Britain showed that parental social status, childhood intelligence, educational qualification, occupational level, personality traits and psychological distress were independently and significantly associated with adult excessive alcohol consumption. Men were significantly higher at risk than women to be binge drinker (22 % in men and 9.8 % in women). The researchers of this article concluded that both social and psychological factors significantly associate with adult excessive alcohol consumption (Helen and Adrian, 2013).

An article related about drinking pattern, drinking contexts and alcohol related aggression among late adolescent and adult mentioned that there are associations between frequency and volume of drinking and heavy episodic drinking and fight after drinking. And it also mentioned that there is significant association between drinking location and heavy episodic drinking and alcohol related aggression (Wells et al., 2005).

A house hold survey related with patterns of alcohol drinking among adult conducted in Brazil showed overall alcohol consumption was significantly related with male gender, single marital status, non- migrant, college level education and upper social class. But not significantly related with ethnicity. High risk drinking is strongly associated with education and social class (Almeida-Filho et al., 2004).

A study from USA indicated that 8% of men and 39% of women were lifetime abstainers, 40% of men and 25% of women were former drinker, 31% of men and 27% of women were moderate drinkers, 21% of men and 8% of women were heavy drinkers (Andrews-Chavez et al., 2014).

A cross sectional survey with the title of “Drinking risk level and alcohol consumption situation among senior high school students in a rural area of Thailand” showed that 64.9% are life time drinkers, 58.8% consumed last year and 35% consumed in the last month. Among the drinker in the last year, most of them are low risk drinkers, followed by hazardous drinkers, suspected dependence and harmful drinkers. The most preferred beverage was beer, followed by spirit and white spirit. Moreover, 29.6% consumed local beverage. Boys were significantly at higher



risk of alcohol consumption and two main causes of leading drinking were social drinking and peer influence (Donnapa Hongthong, 2012).

A cross sectional study conducted in grade 11 senior high school students in Phayao province, Thailand revealed that over two thirds ( 66.9 % )of the students consumed alcohol in their life time, 58.7% in the previous year and 17.4% in the previous month. Seven factors gender, age, GPA, allowance, first age of drinking, peer drinking and alcohol knowledge were identified as significantly associated factors with alcohol drinking and four factors to be predictive of alcohol among high school students such as peer drinking, alcohol knowledge, GPA and allowance (Hongthong and Areesantichai, 2013).

A quasi-experimental research was conducted to compare between two high drinking prevalence communities in Lopburi Province, Thailand and AUDIT was used as a measuring instrument in that study. The name of intervention was “Tailored Goal Oriented Community Brief Intervention Model”. The intervals of follow up are 1, 3 and 6 monthly. The results show the intervention community with TGCBM had a decrease in AUDIT score when compared within its community and with a controlled community (Areesantichai et al., 2010).

## CHAPTER III

### RESEARCH METHODOLOGY

This research methodology chapter mentioned the methodologies which are suitable and appropriate to use for this specific study to fulfill the objectives and to be able to answer the research question.

#### 3.1 Research Design

The research design was cross sectional study.

#### 3.2 Study Area

This study was conducted in Pha-An Township, Karen State, Myanmar.

#### 3.3 Research Objective

The research objective was to assess the alcohol consumption among the adults in Pha-An Township, Myanmar.

#### 3.4 Study Population

The study was conducted among the adult people of both males and females with age range of 19 years to 65 years from both urban and rural area of Pha-An Township, Myanmar.

Inclusion criteria

- Any people of age from 19 years to 65 years
- Voluntary participants
- People who stayed at least 6 months at the study area before the interview

- People who speak Burmese

#### Exclusion criteria

- People with mental illness who can't understand the questions of interviewer and answer properly.
- Physically ill patients with poor health and under the uncomfortable condition for interviewing time and answering the questions.

### 3.5 Sampling Technique

The purposive sampling method was used for sampling to choose the study Township. Pha-An township is located in south east region of Myanmar and located beside the Asia highway and after cease firing agreement between Myanmar government and local armed troops, a lot of international non-government organizations based at Pha-An township for repatriation project and development projects for Karen state. Therefore economy and development of Pha-An township started to grow very rapidly in recent years. Because of those situations, it can be assumed that the alcohol consumption of that area might increase and there was no study about the alcohol before.

In Myanmar, total population is more than 48,379,000 and there are seven divisions and seven states. Karen state is one of the states and located in south east of Myanmar. Total population of Karen state is 1,357,110 and my study area is Pha-An Township and it has 430,180 of total population. Among them, urban population is 56,530 and adult population is 23,423 and it contributes 70 % of total adult population in study area.

In Township level, the cluster sampling method was used to choose the wards of the town. There are eight wards in Pha-An's urban area and among them Ward 1, Ward 4, Ward 8 and Ward 3 will be selected for sampling.

There are 92 villages tracts and 490 villages in Pha-An township. Among them, only two villages could be selected by purposive sampling method. They were Donyin and Nonglon and they have population 16,500 and 8,181 respectively. Those two villages were close to the town Pha-An and feasible to reach in short time probably half an hour drive. Those villages were large villages, relatively close to study town and also develop together with the development of Pha-An. The adult population of those villages are 4,202 for Donyin and 4,637 for Nonglon. The total number is 8,839 and contributes 30 % of total adult population is the study area.

In the Wards or villages level, the mapping of the wards or villages was carried out and chose the household purposively to cover the area as wide as possible and only one sample will be chose in one household.

### 3.6 Sample Size

Krejcie Morgan formula was used to calculate the sample size.

$$\begin{aligned}
 S &= X^2 NP (1-P) / d^2 (N-1) + X^2 P (1-P) \\
 &= 3.841 (32,262) (0.5) (1-P) / (0.05)^2 (32,262-1) + 0.5 (1-0.5) \\
 &= 378
 \end{aligned}$$

S = sample size

$X^2$  = Table value of chi square for one degree of freedom at the desired level of confidence, which is 3.841 for the 95% confidence level

N = the given population size of adult people ( 32,262 )

P = the population proportion ( assumed to be 0.05 because this would provide the maximum sample size )

d = the degree of accuracy expressed as a proportion ( 0.05 )

Therefore sample size in this research will be 378 from total adult population 32,262.



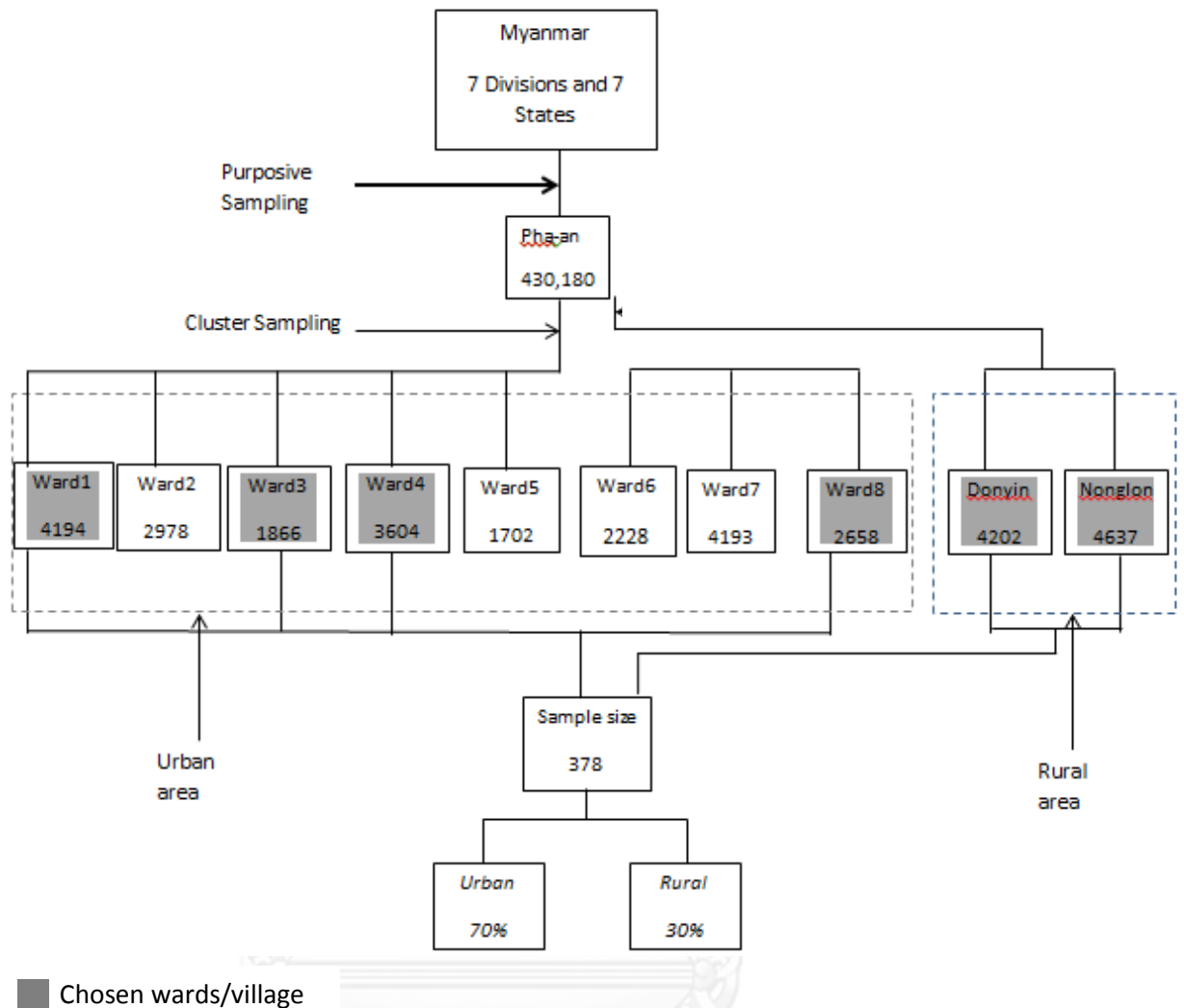


Figure 2. Sampling

### 3.7 Data collection

For the data collection process, ten interviewers were hired to be assigned in four wards from urban areas and two villages from rural areas. Before the data collection process, they were provided the short training about the study and questionnaires. They could also practice before starting the data collection process. The estimated duration of training was one day. Before the data collection process, the mapping of each ward or village to be carried and sample household was be chosen purposively to cover the areas of sample ward or village as wide as possible.

The interviews were conducted by face to face interview. The maximum number of interview for each interviewer per day was five interviews in order to control the quality of answers. The interviewers were also be supposed to do mapping of the respondents in specific wards or village. Age group were divided in three groups 19-24,25-44 and 45-65 and equal numbers from age group were collected. For gender different, equal number of each gender from every age group was collected for interview.

Before starting the interview, the respondent was informed that they can stop the interview at any stage of interview process, answers from the interview were kept as confidential and the result of study would not be reported as individual answer and would be mentioned as overall result. The interview process and data collection process was carried out under the supervision of researcher.

### **3.8 Instruments**

The structured questionnaires was used to collect the data which will include the following parts

1. Socio-demographic
2. Assessment of alcohol drinking
3. Alcohol use disorders identification test ( AUDIT )
4. Timeline Follow Back (TLFB )

For the personal information in the questionnaires, the code number for each answer paper was used to keep the confidentiality of the respondents.

### **Part I - Socio-demographic**

The part I contained the questions for the socio-demographic characteristics like age, gender, residence, marital status, religion, ethnicity, education, occupation, income and the number of alcohol drinkers in the family member.

### **Part II – Alcohol drinking**

The part II contained the questions to assess the alcohol drinking of respondents i.e., amount, type and frequency of alcohol consumption.

### **Part III – Alcohol Use Disorder Identification Test ( AUDIT )**

The AUDIT questionnaire was used to assess the alcohol related disorders of the respondents. It contained 10 questions to assess the alcohol consumption, dependence and alcohol use disorders. The AUDIT is a standard questionnaire commonly used in many previous study.

The AUDIT is a screening test created and validated by WHO in several countries and translated to many languages and tested for the validity and reliability. Some research showed that even the translated versions have high reliability and validity (Gache et al., 2005) .

A study tested for the reliability and validity of Alcohol Use Disorders Identification Test ( AUDIT ) showed that the reliability measured by intraclass correlation coefficients in item level are ranged between 0.39 and 0.98. The total score intraclass correlation coefficient was 0.95. For the cut off values of 8 points and 5 point, 87.5% and 88.9%, of the AUDIT positive and 98.9% and 95.1% respectively of the AUDIT negative were identically identified at retest with kappa=



0.86 and kappa = 0.81. At the cut off value of 5 points, the researchers determined good combination of sensitivity and specificity for the following diagnosis, alcohol dependence ( sensitivity 0.97 and specificity 0.88 ) AUD ( 0.97 and 0.92 )and AUD and/or at risk consumption ( 0.97 and 0.91 ) (Dybek et al., 2006).

#### **Part IV –Timeline Follow Back ( TLFB )**

In this last part of the questionnaire, the instrument Timeline Follow Back will be put to assess the recent drinking behavior for last two weeks. TLFB will help to explore the detail information of alcohol consumption.

The reliability of Timeline follow back was tested in an article published in Journal of study on alcohol and drug and the result showed that the reliability coefficient ranged from 0.73 to 1.00 for 30 days TLFB and from 0.77 to 1.00 for 90 days TLFB. There were no significant differences and degradation of the magnitude of the reliability coefficient with increasingly distant assessment periods.(Kate B. Carey, 2004)

#### **3.9 Reliability and validity**

The content validity was reviewed by three experts in the field of alcohol abuse and dependence and index of Item Objective Congruence was 0.87.

After developing the study instruments and questionnaires, it was translated into Burmese and be translated back to English. The reliability of the instrument was then be tested via a pilot test in thirty adults from Myanmar. The Cronbach's alpha coefficient for the instrument was 0.818. The feedback and responses from the pilot

test were then be used to make changes and incorporate them into the final instrument.

### **3.10 Data Analysis**

Descriptive statistics such as frequency, percentage, mean and standard deviation were used to describe the socio-demographic characteristics and alcohol consumption of the study population.

For the relationship of the variables, Chi-square was used to test the association between the independent variables and dependent variables.

### **3.11 Ethical consideration**

The thesis proposal was submitted to ethical committee of Chulalongkorn University. After getting the approval from the ethical committee, the thesis was proceeded according to the thesis guideline of Chulalongkorn University. Ethical clearance was approved by ethical committee of Chulalongkorn University by COA No. 036/2014.

## CHAPTER IV

### FINDINGS

This cross-sectional study was carried out at Pha-An Township, Karen state, Myanmar in March, 2014. The main objective of this study was to assess the alcohol consumption among the adults from Pha-An Township, Myanmar. The total number of participants in this study was 378 adult people. The data were collected in both urban and rural areas of Pha-An township, Myanmar ; i.e, four wards from urban areas and two villages from rural areas. The specific numbers of participant from urban and rural areas are 264 and 114 respectively.

#### 4.1 Demographic Characteristics

The participants were grouped into two main groups urban and rural and demographic characteristics are described in numbers and percentages in each variables as shown in table.4.1.1. Seventy percent of the participants are from urban area and thirty percent are from rural area. The participants were divided into three groups by age group 19yr to24yr, 25yr to 44yr and 45yr to 64yr as described in table 4.1.1. The numbers of participants from each age group and gender are more or less the same and each group contributed around 30% to the whole study population.

The major population in this study was Buddhists, 62.7% (237 participants) of total population followed by Christian which was 34.9% (132 participants). The Karen and Burmese are the majority of participant not only in this study but also in the population of the study area. The number and percentage of Karen participants in this study was 66.7% (251 participants) and Burmese was 29%.4 (112 participants) of total studied population and Indian and Chinese were only the minority involved in

this study. Around one third of the total participants were graduated (28.0%) which was lower than the number of participants who passed the high school level (36.2%). Almost half of the participants were married and it contributed 46.6% (176 participants) which was followed by single 42.3% (160 participants). The number and percentage of unemployed in this study was 33.3% (126 participants) and it was the largest portion. The occupations of the rest of respondents were different and the largest population of participants was own business 20.6% (78 participants). Above one third 31.8% (120 participants) have monthly income between 1 and 99 US dollars and 25.4% (96 participants) had monthly income between 100 to 299 US dollars. Only 9.5% (36 participants) of study population has monthly income over 300 US dollars.



**Table 4.1.1 Demographic characteristics n=378**

Variables	Urban		Rural	
	n=264		n=114	
	Male	Female	Male	Female
	n=143	n=121	n=61	n=53
	n (%)	n (%)	n (%)	n (%)
<b>Age ( Years )</b>				
19yr-24yr	49 ( 34.3% )	39 (33.2%)	21(34.4%)	15(28.3% )
25yr-44yr	51 ( 35.7% )	41 (33.9%)	18(29.5%)	26(49.1%)
45yr-65yr	43 ( 30.0% )	41 (33.9%)	22(36.1%)	12 (22.6%)
<b>Religion</b>				
Buddhist	95(66.4%)	60(49.6%)	46(75.4%)	36(67.9%)
Christian	43(30.1%)	57(47.1%)	15(24.6%)	17(32.1%)
Hindu	2(1.4%)	2(1.7%)	0(0%)	0(0%)
Islam	3(2.1%)	2(1.7%)	0(0%)	0(0%)

Table 4.1 Demographic Characteristics (continued)

Variables	Urban		Rural	
	n=264		n=114	
	Male	Female	Male	Female
	n=143	n=121	n=61	n=53
	n (%)	n (%)	n (%)	n (%)
<b>Educational status</b>				
Never been to school	0(0%)	2(1.6%)	(4.9%)	0(0%)
Primary	12(8.4%)	18(14.9%)	11(18.0%)	17(32.1%)
Middle	18(12.6%)	18(14.9%)	19(31.2%)	17(32.1%)
High school	48(33.6%)	50(41.3%)	24(39.3%)	15(28.3%)
Graduate and above	65(45.4%)	33(27.3%)	4(6.6%)	4(7.5%)
<b>Marital Status</b>				
Single	66(46.2%)	46(38.0%)	28(45.9%)	20(37.7%)
Married	61(42.6%)	63(52.1%)	26(42.6%)	26(49.1%)
Divorce	0(0%)	0(0%)	1( 1.6% )	0(0%)
Separate	1( 0.7% )	0(0%)	0(0%)	0(0%)
Widow	15(10.5%)	12(9.9%)	6(9.9%)	7(13.2%)

Table 4.1 Demographic Characteristics (continued)

Variables	Urban		Rural	
	n=264		n=114	
	Male	Female	Male	Female
	n=143	n=121	n=61	n=53
	n (%)	n (%)	n (%)	n (%)
<b>Occupation</b>				
Government employee	22(15.4%)	16(13.2%)	1(1.6% )	1( 1.9% )
Private employee	17(11.9%)	8(6.6%)	6(9.8%)	0(0%)
Business	41(28.7%)	19(15.7%)	9(14.8%)	9(16.9%)
Farmer	0(0%)	0(0%)	25(41.0%)	11(20.8%)
Vendor	9(6.3%)	21(17.4%)	1( 1.6% )	13(24.5%)
Unemployed	41(28.7%)	51(42.1%)	17(27.9%)	17(32.1%)
Other (Taxi drivers, daily workers and etc.,)	13(9.0%)	6(5.0%)	2(3.3%)	2(3.8%)
<b>Monthly Income( US Dollar )</b>				
0	41(28.7%)	51(12.3%)	17(27.9%)	17(32.1%)
1-99	27(18.9%)	27(22.2%)	31(50.8%)	35(66.0%)
100-299	53(37.1%)	36(29.7%)	6(9.8%)	1(1.9% )
≥ 300	22(15.3%)	7(5.8%)	7(11.5%)	0(0%)

#### 4.2 Prevalence of alcohol drinking in Pha-An Township, Myanmar

Among the 378 participants in this study, 56.9% (215 participants) drink alcohol and 43.1% (163 participants) have never drink alcohol in their life time. Alcohol drinking is obviously higher in the males than in the females in both urban and rural population as shown in the table 4.2.1.

**Table 4.2.1 Prevalence of alcohol drinking in gender and different setting (n=378)**

	Urban n=264		Rural n=114		Total
	Male	Female	Male	Female	
	n=143	n=121	n=61	n=53	n=378
	n (%)	n (%)	n (%)	n (%)	n(%)
Alcohol drinking					
Yes	115(80.4%)	37(30.6%)	44(72.1%)	19(35.8%)	215(56.9%)
No	28(19.6%)	84(69.4%)	17(27.9%)	34(64.2%)	163(43.1%)



In comparison between the age groups, group of 25 to 44 years has higher numbers of alcohol drinking in both setting. In each age group and different settings, the numbers of male drinkers is higher than that of female as described.

**Table 4.2.2 Alcohol drinking by current age group n=215**

Age group	Urban		Rural		Total
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	n=215
	n (%)	n (%)	n (%)	n (%)	n (%)
19yr-24yr	35 (30.4%)	5 (13.5%)	16 (36.4%)	4 (21.1%)	60 (27.9%)
25yr-44yr	43 (37.4%)	23(62.2%)	14 (31.8%)	11(57.8%)	91 (42.3%)
45yr-65yr	37 (32.2%)	9 (24.3%)	14(31.8%)	4(21.1%)	64 (29.8%)

There were four types of drinkers studied in this study and the total number of life time drinker was 215. The percentage and number of one year drinker was 76.3% (164 participants) of life time drinkers. The percentage and number of the participants who drank any type of alcohol within last month were 64.7% (139 participants) and one week drinkers attributed 55.8% (120 participants).

**Table 4.2.3 Types of drinkers for all types of alcohol**

Age group	Urban		Rural		Total
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	
	n (%)	n (%)	n (%)	n (%)	
Life time	115 (100%)	37 (100%)	44(100%)	19 (100%)	215(100%)
One year drinker	87 (75.7%)	30 (81.1%)	31(70.5%)	16 (84.2%)	164 (76.3%)
One month drinker	83 (72.2%)	20 (54.1%)	26(59.1%)	10 (52.6)	139(64.7%)
One week drinker	75 (65.2%)	13 (35.1%)	24(54.5%)	8 (42.1%)	120(55.8%)

### 4.3 Types of the alcohol

Six types of alcohol commonly consumed in Myanmar were listed in this study. Types of alcohol consumed by urban and rural population were compared between genders. Drinking the palm tree juice was common in the study areas and it was the highest with 86.0% (186 participants) in life time drinking and one year drinking 56.2% (121 participants) and it was followed by drinking beer in life time drinking 61.3% (132 participants) and one year drinking 46.5% (100 participants). But in one month and one week alcohol drinking, drinking beer is higher than that of palm tree juice.

**Table 4.3.1 Type of alcohol consumed by adult people n=215**

Type of alcohol	Life Time n ( % )	One Year n ( % )	One month n ( % )	One week n ( % )
Palm Tree Juice	186 ( 86.5% )	121 ( 56.2% )	64 ( 29.7% )	34 ( 15.8% )
Beer	132 ( 61.3% )	100 ( 46.5% )	70 ( 32.5% )	58 ( 26.9% )
Homemade alcohol	91 ( 42.3 % )	50 ( 23.2 % )	35 ( 16.2% )	31 ( 14.4% )
Spirit	90 ( 41.8% )	50 ( 23.2% )	38 ( 17.6% )	32 ( 14.8% )
Rum	75 ( 34.8% )	19 ( 8.8% )	5 ( 2.3% )	3 ( 1.3% )
Wine	39 ( 18.1 % )	7 ( 3.2% )	0 ( 0 % )	0 ( 0% )

In life time drinking, palm tree juice drinking was the highest type in both genders and also in both urban and rural population. In urban areas, second highest type was beer and the third highest type was spirit. In rural areas, drinking the homemade alcohol was second and beer drinking was the third one. It can be seen clearly that the numbers of male drinkers are higher than that of females as mention below in 4.3.2.

**Table 4.3.2 Comparison of type of alcohol by adult people between residence and gender life time n=215**

Type of alcohol	Life time			
	Urban		Rural	
	Male n=115 n(%)	Female n=37 n (%)	Male n=44 n (%)	Female n=19 n (%)
Palm tree juice	94(81.7%)	29(78.4%)	44(100%)	19(100%)
Beer	90(78.2%)	11(29.8%)	26(59.1%)	5(26.3%)
Homemade alcohol	43(37.4%)	8(21.6%)	34(77.3%)	6(31.6%)
Spirit	74(64.3%)	2(5.4%)	13(29.5%)	1(5.3%)
Rum	57(49.6%)	2(5.4%)	11(25%)	5(26.3%)
Wine	27(23.4%)	7(18.9%)	4(9.1%)	1(5.3%)

In one year drinking, palm tree juice drinking was higher than other types of alcohol except in male drinker from urban areas in which group, drinking beer is the highest than other types. The second highest of alcohol was beer and the third highest was drinking spirit in urban areas. In rural areas, drinking beer was the second highest and the third highest was drinking the homemade alcohol. The number of male drinkers are always higher than female drinkers in both setting and every types of alcohol.

**Table 4.3.3 Comparison of type of alcohol by adult people between residence and gender one year n=215**

Type of alcohol	One year			
	Urban		Rural	
	Male	Female	Male	Female
	n=115	n=37	n=44	n=19
	n (%)	n (%)	n (%)	n (%)
Palm tree juice	60(52.2%)	20(54.1%)	29(65.9%)	12(63.2%)
Beer	65(56.5%)	10(27.0%)	22(50.0%)	3(15.7%)
Homemade alcohol	20(17.4%)	7(18.9%)	17(38.6%)	6(31.6%)
Spirit	40(34.8%)	2(5.4%)	7(15.9%)	1(5.3%)
Rum	10(8.7%)	1(2.7%)	6(13.6%)	2(10.5%)
Wine	2(1.7%)	4(10.8%)	0(0%)	0(0%)

In one month drinking, the commonest types of alcohol are different between two settings. In urban area, drinking beer is the highest types and the second highest one was spirit. Palm tree juice drinking became third type in one month drinking. In rural area, palm tree juice drinking was still highest and the second highest was drinking the homemade alcohol and drinking beer became the third types of alcohol.

**Table 4.3.4 Comparison of type of alcohol by adult people between residence and gender one month n=215**

Type of alcohol	One month			
	Urban		Rural	
	Male n=115	Female n=37	Male n=44	Female n=19
Palm tree juice	31(26.9%)	7(18.9%)	21(47.7%)	5(26.3%)
Beer	55(47.8%)	7(18.9%)	8(18.1%)	0(0%)
Homemade alcohol	10(8.7%)	7(18.9%)	13(29.5%)	5(26.3%)
Spirit	35(30.4%)	2(5.4%)	1(2.3%)	0(0%)
Rum	0(0%)	1(2.7%)	3(6.8%)	1(5.3%)
Wine	0(0%)	0(0%)	0(0%)	0(0%)

In one week alcohol drinking in urban population, beer drinking was the highest type and spirit is the second and palm juice became the third types. But in rural area palm tree juice drinking was the highest and drinking homemade alcohol was the second type and drinking beer was the third type in one week drinking as described in table 4.3.5.

**Table 4.3.5 Comparison of type of alcohol by adult people between residence and gender one week n=215**

Type of alcohol	One week			
	Urban		Rural	
	Male	Female	Male	Female
	n=115	n=37	n=44	n=19
Palm tree juice	14(12.2%)	1(2.7%)	15(34.1%)	4(21.1%)
Beer	46(40.0%)	4(10.8%)	8(18.2%)	0(0%)
Homemade alcohol	9(7.8%)	7(18.9%)	11(25.0%)	4(21.1%)
Spirit	30(26.1%)	2(5.4%)	0(0%)	0(0%)
Rum	0(0%)	0(0%)	2(4.5%)	1(5.3%)
Wine	0(0%)	0(0%)	0(0%)	0(0%)

#### 4.4 First time alcohol drinking of adult people in urban and rural areas

The minimum age of first time drinking alcohol in this study was 14 years and maximum was 40 years and mean age of first age of drinking was 20.7 years and standard deviation was 4.2 years. In comparison of first time drinking between age groups, almost 50% (95 participants) of total drinking population started their drinking in their teenage and 43.7% (94 participants) started alcohol between their age of 15yr and 19yr. The second highest group is group of 20 to 24 years and it contributed 36.3% (78 participants) and minority only 5.6% (12 participants) started their drinking alcohol after 30 years of their age as mentioned in the table 4.4.1.

**Table 4.4.1 Onset of alcohol drinking by age group n=215**

Age group	Urban		Rural		Total
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	n=215
	n(%)	n(%)	n(%)	n(%)	n(%)
10yr-14yr	0(0%)	1(2.7%)	0(0%)	0(0%)	1(0.5%)
15yr-19yr	56(48.7%)	6(16.2%)	24(54.5%)	8(42.1%)	94(43.7%)
20yr-24yr	41(35.7%)	15(40.5%)	12(27.3%)	10(52.6%)	78(36.3%)
25yr-29yr	12(10.4%)	10(27.1%)	8(18.2%)	0(0%)	30(13.9%)
≥30yr	6(5.2%)	5(13.5%)	0(0%)	1(5.3%)	12(5.6%)

Among the common types of alcohol in this study area, palm tree juice was the top in the list of types of first time alcohol drinking in both urban and rural population as shown in table 4.4.2 and it was also highest in both genders. The



commonest two reasons of first time drinking alcohol is persuasions by close friends and drinking in the time of festivals as mentioned below in table 4.4.3 but it is a little bit different in female from rural areas in those areas the reason first time drinking for woman is festival and second highest is the friends' persuasion.

**Table 4.4.2 Type of first time alcohol drinking n=215**

Type of alcohol	Urban		Rural		Total
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	n=215
	n(%)	n(%)	n(%)	n(%)	n(%)
Palm tree juice	43(37.4%)	21(56.8%)	37(84.1%)	16(84.2%)	117 ( 54.4% )
Spirit	37(32.2%)	7(18.9%)	7(15.9%)	3(15.8%)	54 ( 25.2% )
Beer	33(28.7%)	9(24.3%)	0( 0% )	0( 0% )	42 ( 19.5% )
Wine	2(1.7% )	0( 0% )	0( 0% )	0( 0% )	2 ( 0.9% )

Table 4.4.3 Reason of first time alcohol drinking n=215

Type of alcohol	Urban		Rural		Total
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	n=215
	n (%)	n (%)	n (%)	n (%)	n (%)
Friends	31(14.4%)	15(6.9%)	10(4.6%)	6(2.7%)	62 (28.8%)
Festival	28(13.0%)	2( 0.9% )	17(7.9%)	8(3.7%)	55 (25.6%)
Celebration	25(11.6%)	6( 2.8% )	2( 0.9% )	0(0%)	33 (15.3%)
No precipitating factor	16(7.4%)	3(1.3%)	5(2.3%)	2( 0.9% )	26 (12.1%)
Socialization	9(4.1%)	4(1.8%)	10(4.6%)	1(0.4%)	24 (11.2%)
Family problem	1(0.4%)	4(1.8%)	0(0%)	2( 0.9% )	7 ( 3.3% )
Occupation problem	4(1.8%)	2( 0.9% )	0(0%)	0(0%)	6 ( 2.8% )
Financial problem	1(0.4%)	1(0.4%)	0(0%)	0(0%)	2 ( 0.9% )

#### 4.5 Type of drinkers

Alcohol Use Disorder Identification Test (AUDIT) questionnaires was used to classify the types of the drinkers. According to WHO guideline, the AUDIT score was divided into five groups. Score 0 was abstainers, 1 to 7 was low risk drinkers, 8 to 15 was hazardous drinkers, 16 to 19 was harmful drinkers and score 20 and above was classified as alcoholic dependence. Table 4.5.1 described the types of alcohol drinker classified by using AUDIT. Out of 215 participants who drink alcohol, there

were 111 low risk drinkers and it was higher than the other types of drinker and contributes more than 50% of total drinkers. The second highest group was the group of abstainers which had 57 participants and 7.9% (17 participants) were in the group of alcoholic dependence. Most of the alcoholic dependent participants are male drinkers from urban areas and it had 10 participants.

**Table 4.5.1 Type of drinkers classified by AUDIT score n=215**

Type of alcohol	Urban		Rural		Total
	n ( % )		n ( % )		
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	n=215
	n (%)	n (%)	n (%)	n (%)	n ( % )
Abstainers (Score 0)	32(27.8%)	9(24.3%)	13(29.5%)	3(15.8%)	57( 26.5% )
Low risk drinkers (Score 1-7)	56(48.7%)	22(59.5%)	23(52.3%)	10(52.6%)	111(51.6%)
Hazardous drinkers (Score 8-15)	14(12.2%)	2(5.4%)	5(11.4%)	4(21.1%)	25(11.7 )
Harmful drinkers (Score 16-19)	3(2.6%)	0(0%)	2(4.5%)	0(0%)	5(2.3% )
Dependence	10(8.7%)	4(10.8%)	1(2.3%)	2(10.5%)	17(7.9%)

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(Score  $\geq 20$ )

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#### 4.6 Frequency of alcohol drinking

Time Line Follow back for the last two weeks was used to assess the alcohol consumption of the participants in the last two week. Frequency of alcohol drinking within last two weeks was collected by using Time Line Follow Back. The frequencies of alcohol drinking were grouped into four groups: the respondents who didn't drink any types of alcohol in last two weeks including abstainers, participants who drinks alcohol from 1-5 times in last two weeks, 6-10 times and 11-14 times within last two weeks.

Among those groups, male participants who drink alcohol 1-5 times in last two weeks is highest in the urban setting and it contribute 38.3% (44 participants). in rural populations, the participants who didn't drink any types of alcohol in last two weeks was highest and it had 43.2% (19 participants).

**Table 4.6.1 Comparison of frequency of alcohol drinking between gender and residence n=215**

Frequency of alcohol drinking/ Two weeks	Urban		Rural	
	Male	Female	Male	Female
	n=115	n=37	n=44	n=19
	n (%)	n (%)	n (%)	n (%)
Not reported alcohol drinking in last 2 weeks	42 (36.5%)	24 (64.9%)	19 (43.2%)	12 (63.2%)

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1-5 Times	44 (38.3%)	6 (16.2%)	15 (34.1%)	2 (10.5%)
6-10 Times	21 (18.3%)	4 (10.8%)	6 (13.6%)	3 (15.8%)
11-14 Times	8 (6.9%)	3 (8.1%)	4 (9.1%)	2 (10.5%)

In comparison of frequency of alcohol drinking in each type of drinkers classified by AUDIT, the low risk drinker who drunk 1-5 times in the last weeks was highest and it contributed 31.2% (67 participants) as mentioned in table 4.6.2. Among the alcohol dependent participants, 13 drinkers drank alcohol 10 to 14 times in the last two weeks.

**Table 4.6.2 Frequency of different types of alcohol drinkers classified by AUDIT n=215**

Frequency of alcohol drinking	AUDIT					Total
	Abstainer	Low risk drinkers	Hazardous drinkers	Harmful drinkers	Dependence	
	n=57	n=111	n=25	n=5	n=17	n=215
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Not reported in last 2weeks	56 (26.0%)	39 (18.1%)	2 (9.0%)	0 (0%)	0 (0%)	97 (45.1%)
1-5 Times	0 (0%)	62 (28.8%)	5 (2.3%)	0 (0%)	0 (0%)	67 (31.2%)
6-10 Times	1 (0.5%)	8 (3.7%)	16 (7.4%)	5 (2.3%)	4 (1.9)	34 (15.8%)
11-14 Times	0	2	2	0	13	17

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(0%)	(0.9%)	(0.9%)	(0%)	(6.0%)	(7.9%)
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#### 4.7 Amount of alcohol drinking in the adult population of both urban and rural areas of Pha-An Township, Myanmar

The amount of alcohol consumed in last two weeks was measured by standard drink (SD). One standard drink contains 10 gram of pure alcohol and amount of pure ethanol in different type of alcohol could be calculated by following formula. Example SD for 5% beer 650 ml,  $5/100 \times 0.79 \times 650 / 10 = 2.5$  SD recorded by using Time Line Follow Back (TLFB). The participants were grouped into eight different groups according to the amount of alcohol they consumed in last two weeks as shown in table 4.7.1.

The numbers of male participants are higher than that of female participants in each and every group. Apart from the group of participants who didn't drink any alcohol in last two weeks including abstainers, the groups of participants who drinks more than 30 SD (40 participants) of alcohol is higher than the other groups. The other highest groups were groups of participants who drink 1-5 SD and 6-10 SD and each group contained 20 participants.

Table 4.7.1 Comparison of amount of alcohol drinking in standard drink between gender and residence n=215

Amount of alcohol drinking/ Two weeks	Urban		Rural		Total
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	n=215
	n (%)	n(%)	n(%)	n(%)	n(%)
Not reported	42(36.5%)	24(64.9%)	19(43.2%)	12(63.2%)	97(45.1%)
6-10 SD	15(13.0%)	3(8.1%)	2(4.5%)	0(0%)	20(9.3%)
11-15 SD	6(5.2%)	0(0%)	5(11.4%)	0(0%)	11(5.1%)
16-20 SD	8(7.0%)	1(2.7%)	7(15.9%)	1(5.3%)	17(7.9%)
21-25 SD	4(3.5%)	1(2.7%)	1(2.3%)	0(0%)	6(2.8%)
26-30	2(1.7%)	2(5.4%)	0(0%)	0(0%)	4(1.9%)
Above 30 SD	24(20.9%)	4(10.8%)	7(15.9%)	5(26.2%)	40(18.6%)

#### 4.8 Environmental context

Environmental contexts on alcohol drinking of participants were assessed by exploring the drinkers in family members and close friends. It showed that 62.2% (134 participants) of alcohol drinkers had the drinkers in their family members. The alcohol drinkers who had drinkers in close friend with alcohol drinking was 79.5% (171 participants) as mentioned in table 4.8.1.

Table 4.8.1 Alcohol drinkers in family members and close friends

Environmental Context	Urban		Rural		Total
	Male	Female	Male	Female	
	n=115	n=37	n=44	n=19	n=215
	n (%)	n (%)	n (%)	n (%)	n (%)
<b>Drinkers in family member</b>					
Yes	64 (29.8%)	28 (13.0%)	28 (13.0%)	14 (6.5%)	134 (62.2%)
No	51 (23.7%)	9 (4.2%)	16 (7.4%)	5 (2.3%)	81 (37.8%)
<b>Drinkers in close friends</b>					
Yes	96 (44.7%)	22 (10.2%)	40 (18.6%)	13 (6.0%)	171 (79.5%)
No	19 (8.8%)	15 (7.0%)	4 (1.9%)	6 (2.8%)	44 (20.5%)

#### 4.9 Binge drinking practice in study population

Binge drinking was defined as drinking alcohol more than 5 standard drinks for male and 4 standard drinks for female in an occasion. In this study, binge drinking



practice of the drinkers was studied by using the information from time line follow back (TLFB).

Among the 215 participants who drink alcohol, 31.2% (67 participants) had binge drinking practice. It can be seen obviously that numbers of male binge drinkers is higher than female binge drinker in every group except groups of females from age group of 45-65 years from rural areas in which group number of female binge drinkers was higher than that of male as described below in table 4.9.1.

**Table 4.9.1 Binge drinking practice in age group and gender n=67**

Age Group	Urban		Rural	
	Male n=38 n ( % )	Female n=9 n (%)	Male n=15 n(%)	Female n=5 n(%)
19yr-24y	5 (13.2%)	0 ( 0% )	10 (66.7%)	0 ( 0% )
25yr-44yr	26 (68.4%)	3 (33.3%)	4 (26.7%)	2 (40.0%)
45yr-65yr	7 (18.4%)	6 (66.7%)	1 (6.6%)	3 (60.0%)

The percentage of binge drinkers with 9-10 binge drinking times in week days of last two week was 19.4% of total binge drinkers (13 participants) as mentioned below in table 4.9.2 . More than one third of binge drinkers have binge drinking

practice only 1-2 time in week days of the last two weeks and 30% of binge drinkers had 3-5 times of binge drinking practice in week days of the last two weeks.

Table 4.9.2 Frequency of Binge drinking in binge drinker in week days (n=67)

Frequency of binge drinking in 2 weeks(10 days)	Urban		Rural	
	Male	Female	Male	Female
	n=38 n (%)	n=9 n (%)	n=15 n (%)	n=5 n (%)
Not reported	3 (7.9%)	0 (0%)	3(20.0%)	0 (0%)
1-2 Times	13 (34.2%)	2(22.2%)	9(59.9%)	1(20.0%)
3-5 Times	10(26.3%)	4(44.5%)	1(6.7%)	2(40.0%)
6-8 Times	4(10.5%)	1(11.1%)	1(6.7%)	2(40.0%)
9-10 Times	8(21.1%)	2(22.2%)	1(6.7%)	2(40.0%)

There were four weekend days in the time line follow back. About 30% of binge drinker had binge drinking 1 time in weekend of the last two weeks. The drinkers who had binge drinking in all four weekend day of the last two week were 19.4% (13 participants).

**Table 4.9.3 Frequency of binge drinking in weekend n=67**

Frequency of binge drinking in 2 weeks (4 days)	Urban		Rural	
	Male	Female	Male	Female
	n=38	n=9	n=15	n=5
	n (%)	n (%)	n (%)	n (%)
Not reported	12(31.6%)	0(0%)	6(40.0%)	0(0%)
1 Times	7(18.4%)	3(33.3%)	3(20.0%)	0(0%)
2 Times	11(28.9%)	4(44.5%)	4(26.7%)	0(0%)
3 Times	1(2.6%)	0(0%)	0(0%)	3(60.0%)
4 Times	7(18.5%)	2(22.2%)	2(13.3%)	2(40.0%)

In male binge drinkers, mean SD for the last two weeks was highest in the group of 25-44yr from rural area and mean SD for each time of binge drinking was 10.2 SD. In female binge drinkers from urban area and age from 25-44, mean SD for the last two week was 61 SD and mean SD for each binge drinking was 8.3 SD.

**Table 4.9.4. Amount of total standard drink and frequency of binge drinking in the last two weeks**

Amount and frequency of alcohol in 2weeks	Urban			Rural		
	19-24	25-44	45-65	19-24	25-44	45-65
<b>Male</b>	n=5	n=26	n=7	n=10	n=4	n=1
Mean SD for 2wk+/ (St;deviation)	36.2 (37.3)	45 (40.8)	94.86 (62.6%)	18.5 (7.0)	96 (87.0)	34.6 (0)
Average Binge times in 2 wks	5	5.0	10	1.8	8.0	1
Mean Standard Drink for each binge drinking	7.2	8.4	9.1	5.1	10.2	8
<b>Female</b>	n=0	n=3	n=6	n=0	n=2	n=3
Mean SD for 2wk+/ St;deviation	0	61 (71.3)	51.6 (58.2)	0	43.2 (15.9)	51.5 (25.1)
Average Binge time in 2 wks	0	7.3	6.6	0	8.0	9.6
Mean Standard Drink for each binge drinking	0	8.3	6.9	0	4.7	5.0

#### 4.10 Association between socio-demographic characteristics and alcohol drinking

##### 4.10.1 Association between socio-demographic characteristics and alcohol drinking for the whole population

Participants were grouped into three age groups: 19yr to 24yr, 25yr to 44yr and 45yr to 65yr to examine association between the age group of participant and alcohol consumption. There was association between age group and alcohol drinking with the significant level ( $p$  value  $<0.05$ ). Association between gender and alcohol drinking was also tested and it showed that there was strong association between those two variables and the significant level ( $p$  value  $<0.001$ ).

Educational status was also associated with alcohol drinking and the significant level was ( $p$  value  $<0.05$ ).

There were also strong association between variables of occupation and monthly income and alcohol drinking of participant for both variables with the level of significant ( $p$  value  $<0.001$ ) for both variables. Drinking in family members and close friends also had strong association with alcohol drinking of respondents and the significant level was ( $p$  value  $<0.001$ ).

Table 4.10.1 Association between socio-demographic characteristics and alcohol drinking n=378

Demographic Characteristics	Alcohol drinker n=215 n(%)	Non-alcohol drinker n=163 ( n ( % )	$\chi^2$ - value
<b>Age group</b>			
19yr-24yr	60 ( 27.9% )	64 ( 39.3% )	
25yr-44yr	91 ( 42.3% )	45 (27.6% )	9.653*
45yr-65yr	64 ( 29.8% )	54 (33.1% )	
<b>Gender</b>			
Male	159 (74.0% )	45 (27.6% )	80.161**
Female	56 ( 26.0% )	118 (73.4% )	
<b>Ethnic group</b>			
Burmese	73 (34.0% )	38 (23.3% )	
Karen	136 (63.2% )	116 (71.2% )	2.915
Other	6 (2.8%)	9(5.5%)	
<b>Religion</b>			
Buddhist	147 (68.3%)	90(55.2%)	6.863*
Others(Christian,Muslim and Hindu)	68 (31.7%)	73(44.8%)	

\*p-value <0.5 and \*\* p-value <0.001

Table 4.10.1 Association between socio-demographic characteristics and alcohol drinking (Continued)

Demographic Characteristics	Alcohol drinker n=215 n(%)	Non-alcohol drinker n=163 ( n ( % )	$\chi^2$ -value
<b>Marital Status</b>			
Single	84 (39.1%)	76 (46.6%)	
Married	107 (49.8%)	69 (42.3%)	2.252
Others (divorce, separate and widow)	24(11.1%)	18(11.1%)	
<b>Educational status</b>			
Primary school and lower	41 (19.0%)	22 (13.5%)	
Middle school	40 (18.6%)	32 (19.6%)	16.515*
High school	61 (28.4%)	76 (46.6%)	
Graduate and above	73 (34.0%)	33 (20.3%)	

\**p*-value <0.5 and \*\* *p*-value <0.001

Table 4.10.1 Association between socio-demographic characteristics and alcohol drinking ( continued)

Demographic	Alcohol drinker	Non-alcohol drinker	$\chi^2$ -value
Characteristics	n=215	n=163	
	n (%)	n (%)	
<b>Occupation</b>			
Government employee	26 (12.1%)	14 (8.6%)	
Private employee	24 (11.2%)	7 (4.3%)	
Business	54 (25.1%)	24 (14.7%)	50.963**
Farmer	25 (11.7%)	11 (6.7%)	
Vendor	21 (9.8%)	23 (14.2%)	
Unemployed	44 (20.1%)	82 (50.3%)	
Other	21 (9.8%)	2 (1.2%)	
<b>Income (USD)</b>			
0	44(20.4%)	82(50.3%)	
1-99	77(35.8%)	43(26.4%)	17.283**
100-299	67 (31.2%)	29 (17.8%)	
≥300	27 (12.6%)	9 (5.5%)	
Drinkers in Family	134 (62.3%)	65 (39.9%)	18.740**
Drinkers in Friends	171 (79.5%)	12 (7.4%)	1.934**



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*\*p-value <0.5 and \*\* p-value <0.001*

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#### 4.10.2 Association between the demographic Characteristics and alcohol drinking in urban population

In separate analysis of association between the characteristics and alcohol drinking in urban population, there were associations between age group and alcohol drinking and the significant level was (*p value* <0.05). Gender was also associated with alcohol drinking with the level of significant (*p value*<0.001). Testing of association between religion and alcohol drinking and ethnicity and alcohol drinking showed that there were associations with the level of significant (*p value* <0.001) for both pairs.

In testing the association in urban population, there was association between education status and alcohol drinking and the significant level was (*p value* <0.05). Occupation was also associated with alcohol drinking with the level of significant (*p value* <0.001). Income had a strong association with the alcohol drinking with the level of significant (*p value* <0.001).

There were also strong associations between drinking in family members and alcohol drinking of respondents with the significant level (*p value* <0.001) and drinking in close friends and alcohol drinking of respondents and the significant level was (*p value* <0.001).

Table 4.10.2 Association between demographic characteristics and alcohol drinking in urban population n=264

Urban			
Demographic Characteristics	Alcohol drinker n=152 n ( % )	Non-alcohol drinker n=112 n ( % )	$\chi^2$ -value
<b>Age group</b>			
19yr-24yr	40 (26.3%)	48 (42.9%)	
25yr-44yr	66 (43.4%)	26 (23.2%)	13.121*
45yr-65yr	46 (30.3%)	38 (33.9%)	
<b>Gender</b>			
Male	115 (75.7%)	28 (25.0%)	66.65**
Female	37 (24.3%)	84 (75.0%)	
<b>Religion</b>			
Buddhist	102 (67.1%)	53 (47.3%)	
Others (Christtian, Islam and Hindu)	50 (32.9%)	59 (52.7%)	10.412*

\*p-value <0.05 and \*\*p-value <0.001

Table 4.10.2 Association between demographic characteristics and alcohol drinking in urban population ( continued)

Demographic Characteristics	Urban		$\chi^2$ -value
	Alcohol drinker n=152 n ( % )	Non-alcohol drinker n=112 n ( % )	
<b>Ethnic group</b>			
Burmese	69 (45.4%)	33 (29.5%)	
Karen	77 (50.7%)	70 (62.5%)	6.903*
Others(Chinese and indians)	6(3.9%)	9(8.0%)	
<b>Marital Status</b>			
Single	58 (38.1%)	54 (48.2%)	
Married	79 (52.0%)	45 (40.2%)	3.631
Others (divorced,separate and widow)	15(9.9%)	13(11.6%)	

\*p-value <0.05 and \*\*p-value <0.001

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#### 4.10.2 Association between demographic characteristics and alcohol drinking in urban population ( continued)

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Demographic Characteristics	Urban		$\chi^2$ -value
	Alcohol drinker	Non-alcohol drinker	
	n=152 n ( % )	n=112 n ( % )	
Primary school and lower	21 (13.8%)	11(9.8%)	
Middle school	19 (12.5%)	17 (15.2%)	15.323*
High school	43 (28.3%)	55 (49.1%)	
Graduate and above	69 (45.4%)	29 (25.9%)	
<b>Occupation</b>			
Government employee	26 (17.2%)	12 (10.7%)	
Private employee	18 (11.8%)	7 (6.2%)	
Business	41 (27.0%)	19 (17.0%)	
Farmer	0 (0%)	0 (0%)	35.511**
Vendor	16 (10.5%)	14 (12.5%)	
Unemployed	33 (21.7%)	59 (52.7%)	
Other(Taxi drivers, daily workers and etc.,)	18 (11.8%)	1 (0.9%)	

*\*p-value <0.05 and \*\*p-value <0.001*

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#### 4.10.2 Association between demographic characteristics and alcohol drinking in urban population ( continued)

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Urban			
Demographic Characteristics	Alcohol drinker	Non-alcohol drinker	$\chi^2$ -value
	n ( % )	n ( % )	
Monthly income (USD)			
0	33 (21.7%)	59 (52.7%)	
1-99	35 (23.0%)	19 (17.0%)	
100-299	62 (40.8%)	27 (24.1%)	29.419**
≥300,000	22 (14.5%)	7 (6.2%)	
Drinkers in Family	92 (60.5%)	42 (37.5%)	13.679**
Drinkers in Close friends	118 (77.6%)	12 (10.7%)	1.155**

\**p*-value <0.05 and \*\**p*-value <0.001

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#### 4.10.3 Association between the demographic Characteristics and alcohol drinking in rural population

In the analysis of association between the demographic characteristics and alcohol drinking rural population, the results showed that there was association between gender and alcohol drinking with the level of significant (*p* value <0.05). Occupation was also associated with alcohol drinking and significant level was (*p* value <0.05). Alcohol drinking in family members had association with alcohol drinking of participants and the level of significant was (*p* value <0.05) and alcohol

drinking in close friends was strongly associated with alcohol drinking with the level of significant( $p$  value <0.001).

**Table 4.10.3 Association between the demographic Characteristics and alcohol drinking in rural population**

Demographic Characteristics	Rural		$\chi^2$ -value
	Alcohol drinker n=63 n ( % )	Non-Alcohol drinker n=51 n ( % )	
<b>Age group</b>			
19yr-24yr	20 (31.7%)	16 (31.4%)	
25yr-44yr	25 (39.7%)	19 (37.2%)	0.118
45yr-65yr	18 (28.6%)	16 (31.4%)	
<b>Gender</b>			
Male	44 (38.6%)	17 (33.3%)	15.100*
Female	19 (16.7%)	34 (66.7%)	
<b>Religion</b>			
Buddhist	45 (71.4%)	37 (72.5%)	0.018
Christian	18 (28.6%)	14 (27.5%)	
<b>Ethnic group</b>			
Burmese	4 (6.3%)	5 (9.8%)	
Karen	59 (93.7%)	46 (90.2%)	0.463

Table 4.10.3 Association between the demographic Characteristics and alcohol drinking in rural population

Rural			
Demographic Characteristics	Alcohol drinker n=63 n ( % )	Non-Alcohol drinker n=51 n ( % )	$\chi^2$ -value
<b>Educational status</b>			
Primary school and lower	20(31.7%)	11 (21.7%)	2.609
Middle school	21 (33.3%)	15 (29.4%)	
High school	18 (28.6%)	21 (41.2%)	
Graduate and above	4 (6.3%)	4 (7.8%)	
<b>Occupation</b>			
Business	13 (20.6%)	5 (9.8%)	12.263*
Farmer	25 (39.7%)	11 (21.6%)	
Unemployed	11 (17.5%)	23 (45.0%)	
Other(Gov, private,vendor,taxi drivers, daily workers and etc.,)	14 (22.2%)	12 (23.6%)	

*\*p-value <0.05 and \*\*p-value <0.001*

Table 4.10.3 Association between the demographic Characteristics and alcohol drinking in rural population

Rural			
Demographic	Alcohol drinker	Non-Alcohol drinker	$\chi^2$ -value
Characteristics	n=63 n ( % )	n=51 n ( % )	
Monthly income (USD)			
0	11 (17.5%)	23 (45.1%)	
1-99	42 (66.7%)	24 (47.1%)	
100-299	5 (7.9%)	2 (3.9%)	10.570*
≥300	5 (7.9%)	2 (3.9%)	
Drinkers in Family	42 (66.7%)	23 (45.1%)	5.350*
Drinkers in Friends	53 (84.1%)	0 (0%)	80.183**

\**p*-value <0.05 and \*\**p*-value <0.001

#### 4.10.4 Association between the demographic characteristics and AUDIT score

In analysis to determine the association between the demographic characteristics and AUDIT score, age group is significantly associated with AUDIT score with the level of significant (*p* value <0.05). There were also association between educational status, marital status and AUDIT scores of the drinkers and the significant level was (*p* value <0.05).



Table 4.10.4 Association between the demographic characteristics and AUDIT score n=215

Demographic	Non dependent	Dependent	$\chi^2$ -value
Characteristics	n=198	n=17	
	n (%)	n (%)	
<b>Age group</b>			
19yr-24yr	60(30.3%)	0(0%)	
25yr-44yr	81(40.9%)	10(58.8%)	8.987*
45yr-65yr	57(28.8%)	7(41.2%)	
<b>Gender</b>			
Male	148(74.7%)	11(64.7%)	0.826
Female	50(25.3%)	6(35.3%)	
<b>Ethnic group</b>			
Karen	128(64.7%)	8(47.1%)	2.687
Others(Burmese,Chinese and Inidian)	70(35.3%)	9(52.9%)	
<b>Religion</b>			
Buddhist	136(68.7%)	11(64.7%)	0.031
Others(Christian,Islam and Hindu)	62(31.3%)	6(35.3%)	

\*p-value <0.05 and \*\*p-value <0.001

Table 4.10.4 Association between the demographic characteristics and AUDIT score (continued)

Demographic Characteristics	Non dependence n=198 n (%)	Dependence n=17 n(%)	$\chi^2$ -value
<b>Marital Status</b>			
Single	82(41.4%)	2(11.8%)	9.264*
Married	93(47.0%)	14(82.3%)	
Others (divorced,separate and widow)	24(12.1%)	1(5.9%)	
<b>Educational status</b>			
Primary school and lower	33(16.7%)	8(47.0%)	14.423*
Middle school	37(18.7%)	3(17.7%)	
High school	60(30.3%)	1(5.9%)	
Graduate and above	68(34.%)	5(29.4%)	

\*p-value <0.05 and \*\*p-value <0.001

Table 4.10.4 Association between the demographic characteristics and AUDIT score (continued)

Demographic Characteristics	Non dependence n=198 n(%)	Dependence n=17 n(%)	<i>p-value</i>
Income (USD)			
0	43(21.7%)	1(5.9%)	
1-99	71(35.9%)	6(35.3%)	
100-299	60(30.3%)	7(41.2%)	7.130
≥300	24(12.1%)	3(17.6%)	
Drinkers in Family	124(62.6%)	10(58.8%)	0.273
Drinkers in Friend	156(78.8%)	15(88.2%)	11.303

\**p-value* <0.05 and \*\**p-value* <0.001

## CHAPTER V

### DISCUSSION, CONCLUSION AND RECOMMENDATION

The objective of this study was to assess the alcohol consumption among the adult in urban and rural areas of Pha-An Township, Myanmar. Structured questionnaire including alcohol use disorder identification test (AUDIT) and time line follow back (TLFB) was used for face to face interview with 378 participants.

#### 5.1 Discussion

This study revealed that 56.9% of all participant drinks alcohol in their life time and 77.9% of male participants and 32.1% of female participants had alcohol drinking. This study indicated that number of male drinkers is always higher than female in every subgroups and it is consistent with finding from another study (Ryu et al., 2013). In a study named of “Alcohol consumption in 0.5 million people from 10 diverse regions of China: prevalence, patterns and socio-demographic and health related correlates” mentioned that 76% of men and 36% of women drink alcohol and so male drinking is higher area and female drinking is lower in this areas (Millwood et al., 2013). Another study from India mentioned that the number of male drinkers is higher than that of female. Therefore the results about percentage of male drinkers and female drinkers were more or less the same and so it could be concluded that the finding these studies are consistent. It is basically true that the male more commonly drink alcohol than female and generally could be concluded that it is because of their behavior and peer pressure by the close friends to drink the alcohol.

In this study, the age group of 25-44 years had the higher numbers of alcohol drinking than the other age group while the another study's result showed that 45-64 years group had the higher alcohol consumption (Ryu et al., 2013) and therefore the are different findings in this point of view. In this study, alcohol drinking was associated with monthly income and occupation. Generally the age group of 25yr-44yr is working age group and they have income to spend for alcohol and environmental context like peer persuasion might be one of the cause for alcohol drinking in this age group.

Palm tree juice was the commonest type of alcohol for the first time drinking in this study areas and it contributed over 50% and it was related with the cultures, availability and price. As this study area is located in tropical zone, palm trees grows well and there is also planting by the people. Therefore it was not a strange thing that palm tree juice drinking was the commonest alcohol in this area. In comparison of alcohol drinking in urban and rural areas in last one month and one week, the beer and palm tree juice are the top preferred types of alcohol in this study area and the beer is the top for urban areas and palm tree juice is top for rural areas specifically while one of the another studies mentioned that beer, spirit and white spirit were the most common types of preferred alcohol (Donnapa Hongthong, 2012).

In this study area, palm tree juice is easily available and there is also cultural drinking of palm tree juice when the people are meeting together and gathering especially in rural areas.

In current drinker, the group who drink alcohol 1-5 time in the last two week is the highest percentage (31.2%) in this study. The percentage of drinkers who drank

more than 6 times in the last two week was 23.7% (51 participants). A study's result mentioned that 60% of respondents drank less than 5 times in two weeks and only 5.1% drank more than 6 times in last two week (Neumark et al., 2007). Therefore this study showed that the percentage of frequent drinkers is higher in this study area.

The minimum starting age of alcohol drinking in this study was 14 years and maximum age was 40 years and mean age of first time drinking was 20.7 years with standard deviation 4.2 years while the another study revealed that the mean age of initiation the alcohol drinking was 25.3 year with the standard deviation of 9.0 years (Kumar et al., 2013). So this study population had younger age of initiation of alcohol drinking and it might be due to the behavior of adolescence from that area.

The initiation of starting alcohol drinking is highest in the age group of 15-19 years while a study mentioned that starting alcohol drinking is highest among the other age groups (Hingson et al., 2009). Therefore this finding was not consistent with the finding of that study.

The reasons of first time of alcohol drinking in this study are the persuasion of friends and festivals and combination of those two reasons contribute more than half (54.4%) of the total drinkers. In a study conducted in pharmacy student from Auburn University, the commonest reason for first time drinking was social motives and therefore it could be concluded the findings were consistent (Oliver et al., 2014). Many adolescence started their drinking age of 15yr-19yr and it can also effects the behavior of other adolescence as an environmental context.

A study from India showed the result of 60.7% in AUDIT score 0-7, 24.7% in 8-15, 10.1% in group of score 16-19 and over the 20 score is 4.5% while this study

showed 78.2% of total drinkers scored 0-7, 11.6% scored 8-15, 2.3% scored 16-19 and 7.9% scored above 20 (Kumar et al., 2013). Therefore the trends of groups of drinkers by AUDIT score were basically same except in the group of dependence. In comparison with the results of that study, the percentage of dependence (7.9%) is higher than that of harmful drinkers (2.3%).

The age group and alcohol consumption are significantly associated with the significant level ( $p$  value  $< 0.05$ ) and gender also has association with the alcohol consumption with significant level ( $p$  value  $< 0.001$ ). Male gender, lower education and income levels are associated with alcohol consumption in a study conducted in India (Kumar et al., 2013). There those two studies showed same result of association.

The ethnic group was associated with alcohol drinking with significant level ( $p$  value  $< 0.05$ ) and religion also had an association with alcohol drinking and the level of significant was ( $p$  value  $< 0.05$ ). There was also association between educational status and alcohol drinking with significant level ( $p$  value  $< 0.05$ ). Occupation, monthly income, drinkers in family members and close friends were strongly associated with alcohol drinking with the level of significant ( $p$  value  $< 0.001$ ).

The association between the socio-demographic characteristics and AUDIT score also tested and there was an association between age group and AUDIT score with significant level ( $p$  value  $< 0.05$ ). Educational status was also associated with the AUDIT score with the level of significant level of ( $p$  value  $< 0.05$ ).

This study indicated that several variables which were environmental, personal factors and their drinking behavior were associated with each other.

According to social cognitive theory, environment, people and behavior are influencing each other. Therefore it can be concluded this study is consistent with the social cognitive theory. Furthermore, all the factors of social cognitive theory should be taken into account for intervention to control alcohol using and also for further studies.

The limitations for this study were lack of facilities like the laboratory facilities to test the strength, quality and safety of the alcoholic beverages especially the homemade alcohol. This study could only focus on one township and nearby villages and so it was difficult to generalize and could not represent the other areas of the country, Myanmar.

## 5.2 Conclusion

In this study area, about 60 of participants had alcohol drinking practice and the number of male drinkers are higher than female in every age groups and both setting. When the numbers of drinkers from three different age groups are compared, the group of age 25-44 years has higher than the other groups and the number of male drinkers is higher than that of female.

Six types of alcohol were commonly used in Myanmar. Among them, palm tree juice and beer are the most common types of alcohol used in this study areas and the third commonest types was homemade alcohol. The strength, the quality and safe of the locally produced alcoholic beverages are not tested and approved by the authority.

Over 30% participants drank alcohol from 1 to 5 times in the last two weeks and about 25% of participants drank alcohol over 6 times in the last two weeks. For



the amount, the group of participants who drinks more than 30 SD in the last two weeks attributed 18.6% (40 participants).

There were 67 participants who had binge drinking practices and this group represented 31.2%. Binge drinking was more common in age group for 25-44 years. The percentage of participant with 9 to 10 time binge drinking in week days was 19.4% of binge drinkers.

For the first time alcohol drinking, the age group of 16 to 20 is highest and it contributes 67.4% and the most common types of alcohol for first time drinking is palm tree juice which is 54.4%. There were several reasons for first time drinking but the most common reasons are persuasion by friends and festival those two reason contribute more than 50%.

Classification by AUDIT shows five groups of alcohol drinkers and among them low risk drinkers had the higher number (over 50%) than the other groups. And 11.6% was hazardous drinkers and 7.9% was dependence.

For the whole study population, alcohol drinking has associations with several demographic characteristics which are age group, gender, ethnic group, religion, educational status, occupation, monthly income and drinker in family members or close friends but there was no association between alcohol drinking and marital status of participants.

For urban setting, age groups, gender, religion, ethnic group, educational status, occupation, monthly income and drinkers in family members and close friends had association with alcohol drinking.

In rural setting, alcohol drinking had association with gender, occupation and drinkers in family members and close friends.

Alcohol dependency identified by AUDIT score had association with age group and educational status.

### 5.3 Recommendation

Based on the results of this study and conclusion of results, the follow action and intervention are recommended.

Alcohol drinking was obviously higher in the male than the female and it is also highest in the age group of 25yr-44yr. Not only the alcohol drinking, but also the binge drinking practice was higher in the male gender and age group of 25yr to 44yr. Therefore, it would be recommended that any interventions or health education program about alcohol drinking and binge drinking practice should target to those groups to be more effective.

More than 40% of drinkers started their alcohol drinking in age from 15 to 19 and therefore awareness of hazards of alcohol drinking should be promoted by either government or nongovernmental organizations. The reasons for first time drinking were persuasion by close friends and festivals. It is also recommended to create peer supporting societies for the teenage and plan to control alcohol drinking in the festivals such as selling, buying and taxation. For intervention or implantation programs in effort to control alcohol using, factors of social cognitive theory should be considered in order to get better outcomes.

As mentioned above, palm tree juice drinking is very common in this areas and the three preferred types of alcohol are palm tree juice, beer and homemade alcohol. Palm tree juice was the top in the types of first time drinking. But the strength, quality and safety of the palm tree juice and homemade alcohol were not tested. Therefore, testing for the strength, quality and safety of the alcoholic beverages especially palm tree juice and homemade alcoholic beverages should be conducted health authority like FDA (Food and Drug Association) from Myanmar.

The percentage of alcohol dependency was relatively higher in this study area and therefore treatment centers and supporting programs for the alcohol withdrawals symptoms for those who want to quit alcohol drinking are recommended to provide.

#### **5.4 Further research or study**

The research departments from Myanmar are suggested to do more research and study about the alcohol including pattern, associations and other specific alcohol related problems like binge drinking or alcohol related health hazards not only in this study area but also in other part of Myanmar to explore more about the situation of alcohol drinking in Myanmar.

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## APPENDIX

## 1.1 Questionnaires

Questionnaires on Alcohol Consumption among the adults in Pha-An Township,  
Karen state, Myanmar

Identification

Number

Place of interview.....

Name of interviewer .....

Date of interview.....

Start Time..... Finish Time.....

Part I ( Socio-demographic Characteristics )

1. How old are you? Age ..... years.

2. Gender

Male  Female

3. What is your religion?

Buddhist  Christian

Islam  Hindu

4. Where do you live?

The name of Ward or Village.....

5. What is your marital status?

Single  Married  Divorced

Separated  Widowed



6. What is your highest educational level?

- Never been to school    Primary level    Middle level  
 High school level    Degree and higher level

7. What is your current occupation?

- Government employee    Private employee  
 Business    Farmer    Vendor  
 Unemployee    Others ( specify ).....

8. What is your monthly income in Myanmar Currency ( Kyat )?

Amount.....

Part II Environmental context

9. Is there any family member who drinks alcohol?

No ( skip to question no; 10 )      Yes

If yes, describe the relationship

( a ).....

Age.....years

Life time drinker

Within last year

Within last month

Type of alcohol.....

Amount of alcohol consumption .....

Frequency of alcohol drinking .....

( b ) .....

Age.....years

- Life time drinker  
 Within last year  
 Within last month

Type of alcohol.....

Amount of alcohol consumption .....

Frequency of alcohol drinking .....

( c ).....

Age.....years

- Life time drinker  
 Within last year  
 Within last month

Type of alcohol.....

Amount of alcohol consumption .....

Frequency of alcohol drinking .....

( d ).....

Age.....years

- Life time drinker  
 Within last year  
 Within last month

Type of alcohol.....

Amount of alcohol consumption .....

Frequency of alcohol drinking .....

10. Is there anyone in your close friends who drinks alcohol?

No ( skip to question no; 11 )      Yes

How Many.....

( a ) Age.....years

- Life time drinker
- Within last year
- Within last month

Type of alcohol.....

Amount of alcohol consumption .....

Frequency of alcohol drinking.....

( b ) Age.....years

- Life time drinker
- Within last year
- Within last month

Type of alcohol.....

Amount of alcohol consumption .....

Frequency of alcohol drinking .....

( c ) Age.....years

- Life time drinker
- Within last year
- Within last month

Type of alcohol.....

Amount of alcohol consumption.....

Frequency of alcohol drinking .....

( d ) Age.....years

- Life time drinker
- Within last year
- Within last month

Type of alcohol.....

Amount of alcohol consumption .....

Frequency of alcohol drinking .....

### Part III Assessment of alcohol consumption

11. Have you ever drink alcohol containing beverages?

No ( skip to question no; 19 )       Yes

12. When did you start alcohol drinking?

..... years of age.

13. What was the reason of your first drinking?

Friends       Socialization       No special reason  
 Celebration       Festival       Occupational problem  
 Family problems       Educational problem  
 Financial problem       Other.....

14. What kind of alcohol did you drink in the first time?

Beer       Spirit       Wine  
 Palm tree juice       Others.....

15. How much do you spend money in each month for drinking alcohol?

Free       Spend about.....per month

16. Have you got health related consequences of alcohol drinking in last year?

No ( skip to question no;17 )       Yes

If yes, what is it?.....

17. Have you got the health related consequences of alcohol drinking last month?

No ( skip to question no; 18 )       Yes

If yes, what is it?.....

18. Have you ever used other substances?

No( skip to question no; 19 )       Yes

If yes, type of substance use

Smoking       Betal nut       Other.....

Amount.....

19. Alcohol consumption

Types of alcohol	Life time		Last 1 year		Last 1 month		How many day	How many drink	Last 1 week		How many day	How many
	No	Yes	No	Yes	No	Yes	per mth	per day	No	Yes	per week	drink per day
Beer												
Spirit												
Rum												
Wine												
Local beverages												
Palm Tree wine												
Other												
Other												

Part IV Alcohol Use Disorders Identification Test ( AUDIT)

20. Assessment of the Alcohol Use Disorder with in last one year

Alcohol Use Disorder Identification Test ( AUDIT )

	QUESTION	0	1	2	3	4
1	How often do you have a drink containing alcohol?	Never	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week
2	How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
3	How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
4	How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
5	How often during the last year have you failed to do what was normally expected from you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
6	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7	How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
8	How often during the last year have you been unable to remember what happened the night before because you had been drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
9	Have you or someone else been injured as a result of your drinking?	No		Yes, but not in last year		Yes, during the last year
10	Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in last year		Yes, during the last year

## Part V Timeline Follow Back

### 21. Timeline follow back

1. Type of alcohol
2. Amount of alcohol
3. Location
4. Drinking with whom
5. Duration of drinking

	SUN	MON	TUE	WED	THU	FRI	SAT
DATE							
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
	SUN	MON	TUE	WED	THU	FRI	SAT
DATE							
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5



จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

လူ့စောင့်ရှောက်ရေးဥပဒေ

ကရင်ပြည်နယ် ဘားအံမြို့နယ်တွင်ရှိ အရွယ်ရောက်ပြီးသူများတွင် အရက်သောက်သုံးမှုအခြေအနေ

တိုင်းတာချိမ်းမေးခွန်း ကုတ်နံပါတ်

အင်တာဗျူးနေရာ.....

အင်တာဗျူးမေးသူ.....

အင်တာဗျူးသောနေ့.....

စတင်ချိန်..... ပြီးဆုံးချိန်.....

အပိုင်း ၁ ( ကိုယ်ရေးအချက်အလက်ဆိုင်ရာမေးခွန်းများ )

၁။ အသက်သယ်လောက်ရှိပြီလား

အသက်.....နှစ်

၂။ အမျိုးသား သို့မဟုတ် အမျိုးသမီး

အမျိုးသား  အမျိုးသမီး

၃။ ကိုကွယ်သည့်ဘာသာ

ဗုဒ္ဓ  ခရစ်ယာန်

မွစ္စလင်  ဟင်ဒူ

၄။ နေရပ်

ရပ်ကွက်အမှတ် သို့ ကျေးရွာအမည်.....

၅။ အိမ်ထောင်ရေးအခြေအနေ

အိမ်ထောင်မရှိ  အိမ်ထောင်ရှိ  ကွာရှင်း

သီးခြားခွဲနေ  မုဆိုးမိ ( သို့ ) မုဆိုးမ



၆။ အမြင့်ဆုံးအောင်မြင်ခဲ့သည့်အတန်းပညာ

- ကျောင်းမနေသူ၊  မူလတန်း၊  အလယ်တန်း
- အထက်တန်း၊  ဘွဲ့ရနှင့်အထက်

၇။ လက်ရှိအလုပ်အကိုင်

- အစိုးရဝန်ထမ်း၊  ပုဂ္ဂလိက
- ကိုယ်ပိုင်စီးပွားရေး၊  လယ်သမား၊  ဈေးသည်
- အလုပ်လက်မဲ့၊  အခြား ( ဖော်ပြရန် ).....

၈။ လစဉ်ရရှိသည့်ငွေ

.....ကျပ်

**အပိုင်း ( ၂ ) ပတ်ဝန်းကျင်အခြေအနေ**

၉။ မိသားစုအတွင်းအရက်သောက်သုံးသူရှိပါသလော။

- မရှိ ( မရှိလျှင် မေးခွန်း ၁၀ သို့ကျော်ရန် )  ရှိ
- ရှိပါကတော်စင်ပုံဖော်ပြပေးရန်  
( က ).....

အသက်.....နှစ်

- သောက်ခဲ့သူ၊ သို့သော်မသောက်ဖြစ်တာတစ်နှစ်ကျော်ကြာပြီဖြစ်
- လွန်ခဲ့သောတစ်နှစ်အတွင်း
- လွန်ခဲ့သောတစ်လအတွင်း

သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရေအတွက်.....

( ခ ).....

အသက်.....နှစ်

- သောက်ခဲ့သူ၊ သို့သော်မသောက်ဖြစ်တာတစ်နှစ်ကျော်ကြာပြီဖြစ်
- လွန်ခဲ့သောတစ်နှစ်အတွင်း
- လွန်ခဲ့သောတစ်လအတွင်း

သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရောအတွက်.....

( ခ ).....

အသက်.....နှစ်

သောက်ခဲ့သူ၊ သို့သော်မသောက်ဖြစ်တာတစ်နှစ်ကျော်ကြာပြီဖြစ်

လွန်ခဲ့သောတစ်နှစ်အတွင်း

လွန်ခဲ့သောတစ်လအတွင်း

သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရောအတွက်.....

( ဃ ) .....

အသက်.....နှစ်

သောက်ခဲ့သူ၊ သို့သော်မသောက်ဖြစ်တာတစ်နှစ်ကျော်ကြာပြီဖြစ်

လွန်ခဲ့သောတစ်နှစ်အတွင်း

လွန်ခဲ့သောတစ်လအတွင်း

သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရောအတွက်.....

။ ၎င်းနီးသောသူငယ်ချင်းများတွင်အရက်သောက်သုံးသူရှိပါသလော။

မရှိ ( မရှိလျှင် မေးခွန်း ၁၁ သို့မဟုတ်ရန်  ရှိ

ရှိလျှင်သူငယ်နှစ်ယောက်ရှိပါသလဲ.....

( င ) အသက်.....နှစ်

သောက်ခဲ့သူ၊ သို့သော်မသောက်ဖြစ်တာတစ်နှစ်ကျော်ကြာပြီဖြစ်

လွန်ခဲ့သောတစ်နှစ်အတွင်း

လွန်ခဲ့သောတစ်လအတွင်း

သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရောအတွက်.....

( ဝ ) အသက်.....နှစ်

သောက်ခဲ့သူ၊ သို့သော်မသောက်ဖြစ်တာတစ်နှစ်ကျော်ကြာပြီဖြစ်

- လွန်ခဲ့သောတစ်နှစ်အတွင်း
  - လွန်ခဲ့သောတစ်လအတွင်း
- သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရေအတွက်.....

( ဂ ) အသက်.....နှစ်

- သောက်ခဲ့သူ သို့သော်မသောက်ခြင်းတာတစ်နှစ်ကျော်ပြားပြီဖြစ်
- လွန်ခဲ့သောတစ်နှစ်အတွင်း
- လွန်ခဲ့သောတစ်လအတွင်း

သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရေအတွက်.....

( ဃ ) အသက်.....နှစ်

- သောက်ခဲ့သူ သို့သော်မသောက်ခြင်းတာတစ်နှစ်ကျော်ပြားပြီဖြစ်
- လွန်ခဲ့သောတစ်နှစ်အတွင်း
- လွန်ခဲ့သောတစ်လအတွင်း

သောက်ခဲ့သောအရက်အမျိုးအစား .....

ပမာဏ.....

အပြိုင်အရေအတွက်.....

ခရီး ၃ ( အရက်သောက်သုံးမှုအခြေခံအားပေးခြင်း )

၁။ သင့်အတွက် အရက်မိခင်သောအရက်ပမာဏ သောက်သုံးသူမိခင်လား။

- မရှိ ( မရှိလျှင်မေးခွန်း ၁၉ သို့ကျော်ရန် )
- ရှိ

၂။ သင့်အသက်ထပ်ပေါက်တွင် အရက်စတင်သောက်သုံးခဲ့သလို။

..... နှစ်

၃။ ပထမဆုံးအကြိမ်သောက်သုံးခြင်းအကြောင်းရင်း

- သူငယ်ချင်းတိုက်တွန်းသဖြင့်
- လူမှုစရုအရ
- အကြောင်းရင်းမရှိလို့



\* သို့မဟုတ်ပေးသောက်ခြင်းတာဝန်ပေးကုန်ကြာပြီဖြစ်

**အပိုင်း ( ၄ ) အရက်ပေးသောက်သုံးခြင်းကြောင့်ရရှိသောဆုတံဆိပ်ပေးပို့မှုများအကြောင်းဖော်ပြခြင်း**

၂၁။ ရွှေနိုင်ငံပေးသောက်မှုအတွင်းအရက်ပေးသောက်သုံးခြင်းကြောင့်ရရှိသောဆုတံဆိပ်ပေးပို့မှုများအကြောင်းဖော်ပြခြင်း

စဉ်	အမျိုးအစား	၀	၁	၂	၃	၄
၀	ပေးသောက်ပေးသောကြောင့်ရရှိသည့်ဆုတံဆိပ်	ပေးသောက်မှု ပေးသောက်ပါ	လစဉ် မှန် အဆက်	ပေးသောက်မှု ၂ ကြိမ်မှ ၄ ကြိမ်	ပေးသောက်မှု ၂ ကြိမ်မှ ၃ ကြိမ်	ပေးသောက်မှု ၄ ကြိမ်မှ အဆက်
၂	ပေးသောက်ခြင်းကြောင့်ပေးသောက် ထုတ်ပေးသောဆုတံဆိပ်	၁ ယူနစ် သို့ ၂ ယူနစ်	၃ ယူနစ် သို့ ၄ ယူနစ်	၅ ယူနစ် သို့ ၆ ယူနစ်	၇ ယူနစ် မှ ၉ ယူနစ်	၁၀ ယူနစ် မှ အဆက်
၃	၆ ယူနစ်နှင့်အဆက်ပေးသောက် ပေးသောကြောင့်ရရှိသည့်ဆုတံဆိပ်	ပေးသောက်မှု ပေးသောက်ပါ	လစဉ် အဆက်	လစဉ်	အဆက်စဉ်	မရမည် ( သို့ ) မရမည်ဖြစ်
၄	ရွှေနိုင်ငံပေးသောက်မှုအတွင်း သတ်မှတ်ပေးသောဆုတံဆိပ် ထုတ်ပေးခြင်းအတွက်ပေးသောဆုတံဆိပ်	ပေးသောက်မှု မပေးသောက်ပါ	လစဉ် အဆက်	လစဉ်	အဆက်စဉ်	မရမည် ( သို့ ) မရမည်ဖြစ်
၅	ရွှေနိုင်ငံပေးသောက်မှုအတွင်းအရက်ပေးသောက်သုံးမှုကြောင့် ပေးသောဆုတံဆိပ်ပေးသောက်ခြင်းအတွက်ပေးသောဆုတံဆိပ်	ပေးသောက်မှု မရှိပါ	လစဉ် အဆက်	လစဉ်	အဆက်စဉ်	မရမည် ( သို့ ) မရမည်ဖြစ်
၆	ရွှေနိုင်ငံပေးသောက်မှုအတွင်း ဥပဒေအရပေးသောက် မိသားစုဝင်များအတွက်ပေးသောဆုတံဆိပ်ပေးသောက်ခြင်းအတွက် ထုတ်ပေးသောဆုတံဆိပ်	ပေးသောက်မှု မရှိပါ	လစဉ် အဆက်	လစဉ်	အဆက်စဉ်	မရမည် ( သို့ ) မရမည်ဖြစ်
၇	ရွှေနိုင်ငံပေးသောက်မှုအတွင်းအရက်ပေးသောက်ခြင်းအတွက် ပေးသောဆုတံဆိပ် ပေးသောက်ခြင်းအတွက် ပေးသောဆုတံဆိပ်	ပေးသောက်မှု မရှိပါ	လစဉ် အဆက်	လစဉ်	အဆက်စဉ်	မရမည် ( သို့ ) မရမည်ဖြစ်
၈	ရွှေနိုင်ငံပေးသောက်မှုအတွင်း အရက်ပေးသောက်ခြင်းကြောင့် ပေးသောဆုတံဆိပ်ပေးသောက်ခြင်းအတွက် ပေးသောဆုတံဆိပ်	ပေးသောက်မှု မရှိပါ	လစဉ် အဆက်	လစဉ်	အဆက်စဉ်	မရမည် ( သို့ ) မရမည်ဖြစ်
၉	ပေးသောက်ပေးသောဆုတံဆိပ် ( သို့ ) အခြားထုတ်ပေးသောဆုတံဆိပ်	မရှိပါ		မရှိပါ		ရွှေနိုင်ငံပေးသောက်မှု အတွက်ပေးသောဆုတံဆိပ်
၁၀	ရွှေနိုင်ငံပေးသောက်မှု အတွက် ( သို့ ) ကျွန်ုပ်တို့ပေးသောဆုတံဆိပ် မှ ပေးသောဆုတံဆိပ်ပေးသောက်ခြင်း ကြောင့်ပေးသောဆုတံဆိပ်	မရှိပါ		မရှိပါ		ရွှေနိုင်ငံပေးသောက်မှု အတွက်ပေးသောဆုတံဆိပ်

**အပိုင်း ( ၅ ) ဆုတံဆိပ်ပေးသောက်မှုအတွင်းအရက်ပေးသောက်သုံးခြင်း**

၂၂။ ဆုတံဆိပ်ပေးသောက်မှုအတွင်းအရက်ပေးသောက်သုံးခြင်း

( က ) အရက်အမျိုးအစား

- ( ခ ) သောက်သောက်ယောက်
- ( ဂ ) သောက်သောက်နေရာ
- ( ဃ ) အထူးသောက်သူ
- ( င ) ငြိမ်ချိန်

	ထုတ်ဖော်	ထုတ်ဖော်	အင်	ထုတ်ဖော်	ထုတ်ဖော်	ထုတ်ဖော်	ထုတ်ဖော်
ထုတ်ဖော်							
	ထု	ထု	ထု	ထု	ထု	ထု	ထု
	မ	မ	မ	မ	မ	မ	မ
	ဝ	ဝ	ဝ	ဝ	ဝ	ဝ	ဝ
	မ	မ	မ	မ	မ	မ	မ
	င	င	င	င	င	င	င
	ထုတ်ဖော်	ထုတ်ဖော်	အင်	ထုတ်ဖော်	ထုတ်ဖော်	ထုတ်ဖော်	ထုတ်ဖော်
ထုတ်ဖော်							
	ထု	ထု	ထု	ထု	ထု	ထု	ထု
	မ	မ	မ	မ	မ	မ	မ
	ဝ	ဝ	ဝ	ဝ	ဝ	ဝ	ဝ
	မ	မ	မ	မ	မ	မ	မ
	င	င	င	င	င	င	င

### 1.3 The content validity

This questionnaire is validated by three experts. The content validity of the questionnaire is checked by Rovinelli and Hambleton's Index of Item Objective Congruence (IOC).

#### Part II Environmental Context

Question no:	Dr. Thein Tun	Dr. Supodjane Chutidamrong	Asso: Prof : Sawitri Assanangkornchai	Index of Item Objective Congruence	Ref: Score of IOC >0.5
9	+1	0	+1	+0.66	√
10	+1	0	+1	+0.66	√

Part II contains questions to assess the factors effecting the alcohol drinking of the respondents. The content validity of all the question is 0.66.

#### Part III Assessment of alcohol consumption

Question no:	Dr. Thein Tun	Dr. Supodjane Chutidamrong	Asso: Prof : Sawitri Assanangkornchai	Index of Item Objective Congruence	Ref: Score of IOC >0.5
11	+1	+1	+1	+1	√
12	+1	+1	+1	+1	√
13	+1	0	+1	+0.66	√
14	+1	+1	+1	+1	√
15	+1	+1	+1	+1	√
16	+1	+1	+1	+1	√
17	+1	+1	+1	+1	√

18	+1	+1	+1	+1	√
19	+1	+1	+1	+1	√

Part III is composed of questions for the assessment of alcohol consumption. The content validity of the question from part III is range from +0.66 to +1.

#### Part IV AUDIT

Question no:	Dr.Thein Tun	Dr.Supodjanee Chutidamrong	Asso: Prof : Sawitri Assanangkornchai	Index of Item Objective Congruence	Ref: Score of IOC >0.5
20	+1	+1	-1	+0.33	x

The part IV contains questions to assess the Alcohol Used Disorders and the content validity of this part is +0.33. The AUDIT is a standardized questionnaire and can't be changed. But the purpose of this study is also to assess the alcohol use disorders and there decide to keep AUDIT after discussion with supervisors.

#### Part V Timeline Follow Back

Question no:	Dr.Thein Tun	Dr.Supodjanee Chutidamrong	Asso: Prof : Sawitri Assanangkornchai	Index of Item Objective Congruence	Ref: Score of IOC >0.5
21	+1	+1	+1	+1	√

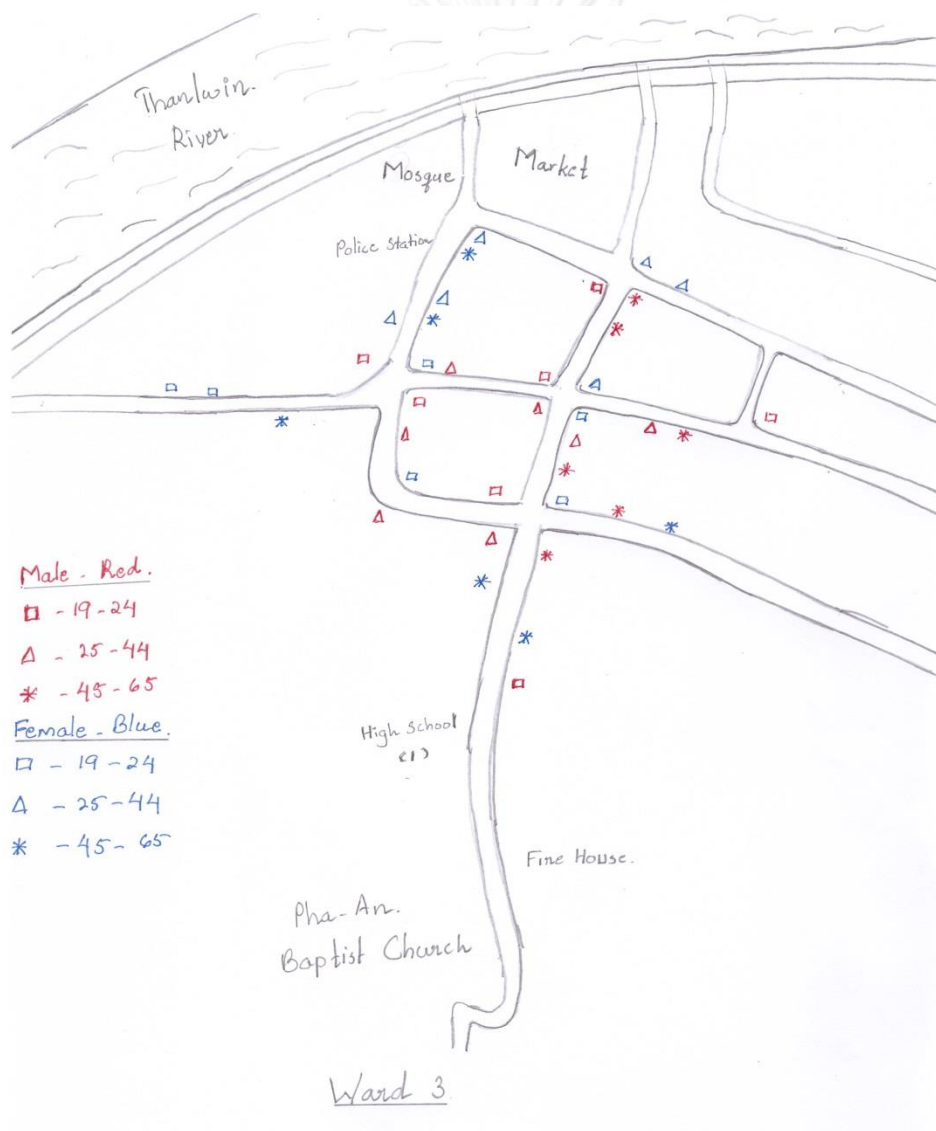
Part V is timeline follow back and aim to assess the detail alcohol consumption in previous two week. The content validity of Part V is +1.



### Overall validity

This questionnaire contains 13 questions to be validated and the total score given by experts is 34 and overall content validity for this questionnaire is +0.87. ( range +0.33 to + 1 )

### Example mapping for Ward 3



## VITA

Full Name-Saw Morgan Soe Win

Date of Birth-April 15th 1983

Gender-Male

Marital status-Married

Nationality-Myanmar

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Email-sawmorgan@gmail.com

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## EDUCATION

Graduated from University of Medicine II (Yangon), M.B.,B.S (2006)

## WORKING EXPERIENCES

As a HIV clinician and team leader with Medicine San Frontier  
( MSF- Holland ) from 2007 Nov to 2010 Oct.

As medical doctor with Premier Urgence – Aide Medicale Internationale  
( PU-AMI ) from 2010 Nov to 2013 May.



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**CHULALONGKORN UNIVERSITY**