Level of alcohol consumption affects health among Japanese residents in Bangkok Thailand

Mr. Takuya Uchiyama

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health Program in Public Health
College of Public Health Sciences
Chulalongkorn University
Academic Year 2015

การดื่มเครื่องดื่มแอลกอฮอล์แต่ละระดับที่มีผลต่อสุขภาพในกลุ่มชาวญี่ปุ่นที่อยู่ใน กรุงเทพมหานคร ประเทศไทย

นายทาคุยะ อุจิยามะ

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
สาขาวิชาสาธารณสุขศาสตร์
วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2558

Thesis Title	Level of alcohol consumption affects health among Japanese residents in Bangkok Thailand
By	Mr. Takuya Uchiyama
Field of Study	Public Health
Thesis Advisor	Assistant Professor Usaneya Perngparn, Ph.D.
Thesis Co-Advisor	Assistant Professor Chitlada Areesantichai, Ph.D.

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

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

THESIS COMMITTEE

.....Chairman
(Professor Sathirakorn Pongpanich, Ph.D.)
.....Thesis Advisor
(Assistant Professor Usaneya Perngparn, Ph.D.)
.....Thesis Co-Advisor
(Assistant Professor Chitlada Areesantichai, Ph.D.)
.....External Examiner
(Associate Professor Sompoch Iamsupasit, Ph.D.)

ทาคุยะ อุจิยามะ : การดื่มเครื่องดื่มแอลกอฮอล์แต่ละระดับที่มีผลต่อสุขภาพในกลุ่มชาวญี่ปุ่นที่อยู่ในกรุงเทพมหานคร ประเทศไทย (Level of alcohol consumption affects health among Japanese residents in Bangkok Thailand) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ดร. อุษณีย์ พึ่งปาน, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: ผศ. ดร. จิตรลดา อารีย์สันติชัย, 108 หน้า.

ที่มา: เครื่องดื่มแอลกอฮอล์เป็นปัจจัยเสี่ยงสำคัญอย่างหนึ่งที่มีผลกระทบต่อสุขภาพในโลก เป็นที่ทราบกันดีว่าผลกระทบ ดังกล่าวมีความสัมพันธ์กับคุณภาพชีวิต อย่างไรก็ตาม ยังไม่มีการศึกษาถึงความสัมพันธ์ระหว่างระดับการดื่มเครื่องดื่ม แอลกอฮอล์ กับคุณภาพชีวิตในกลุ่มชาวญี่ปุ่นที่อยู่ในกรุงเทพมหานคร การศึกษานี้จึงมีประโยชน์ในการให้คำแนะนำเกี่ยวกับ พฤติกรรมการดื่มฯ ในประชากรกลุ่มนี้ วิธีการศึกษา: การศึกษาภาคตัดขวาง เจาะจงในกลุ่มชาวญี่ปุ่นจำนวน 300 คน จากชาวญี่ปุ่นที่อยู่ในกรุงเทพมหานคร 46,367 คน เก็บข้อมูลโดยวิธีการตอบเอง ด้วยแบบสอบถาม 57 ข้อ วิเคราะห์ข้อมูลโดยใช้สถิติ t-test และ one way ANOVA ที่ระดับความเชื่อมั่น 95% ในกรณีที่เป็น one way ANOVA จะใช้ post hoc ทดสอบความสัมพันธ์ระหว่างตัวแปรต่อไปว่า มีค่าเฉลี่ยคู่ใดบ้างที่แตกต่างกัน ผลการศึกษา: การศึกษานี้พบความสัมพันธ์ระหว่างเพศ/อายุ/อาชีพกับระดับการดื่มเครื่องดื่มแอลกอฮอล์ เช่นเดียวกับ ลักษณะ ทางประชากรและสังคมบางตัวก็มีความสัมพันธ์กับคุณภาพชีวิต ในกลุ่มชาวญี่ปุ่นที่อยู่ในกรุงเทพมหานคร พบว่าระดับการดื่ม เครื่องดื่มแอลกอฮอล์มีความสัมพันธ์กับคุณภาพชีวิตโดยเฉพาะกลุ่มที่ดื่มฯแบบเสี่ยงต่ำ และดื่มฯแบบเสี่ยง พบว่า มีคุณภาพ ชีวิตสูงกว่ากลุ่มที่ดื่มฯ แบบอันตราย และผู้ติด อภิปรายผล: ถึงแม้จะพบว่า ชาวญี่ปุ่นที่อยู่ในกรุงเทพมหานคร มีแนวโน้มที่จะดื่มเครื่องดื่มแอลกอฮอล์มากกว่าชาวญี่ปุ่นทั่วๆไป แต่สุขภาพของประชากรกลุ่มนี้อยู่ในเกณฑ์ดีกว่าประชากรปกติ โดยเฉพาะอย่างยิ่งในกลุ่มผู้ชายที่อายุ 40-59 ปี เป็นผู้บริหารจะดื่มฯ มากกว่า แต่สุขภาพดีไม่แตกต่างจากกลุ่มอื่น

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2558 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

ลายมือชื่อ อ.ที่ปรึกษาร่วม .....

5878814653 : MAJOR PUBLIC HEALTH
KEYWORDS: ALCOHOL / HRQOL / AUDIT / SF-36 / JAPANESE RESIDENTS IN BANGKOK / HEALTH STATUS

TAKUYA UCHIYAMA: Level of alcohol consumption affects health among Japanese residents in Bangkok Thailand. ADVISOR: ASST. PROF. USANEYA PERNGPARN, Ph.D., CO-ADVISOR: ASST. PROF. CHITLADA AREESANTICHAI, Ph.D., 108 pp.

Background: Alcohol is one of the most major risk factors for health consequences in the world. It is known to be significantly associated with health-related quality of life (HRQoL). However, the association between level of alcohol consumption and HRQoL among Japanese residents in Bangkok has not been researched yet. This study is useful to advertise healthier drinking behavior among them. Methodology: Cross-sectional study was conducted with 300 participants who were purposively selected by the researcher among 46,367 Japanese residents. Data was collected by self-report questionnaire which has 57 questions. For statistical analysis, t-test and one way ANOVA were employed at 95% of CI. Post hoc test was done when significant association was found by one way ANOVA. Result: There is a significant association between gender/age/occupation and level of alcohol consumption. Also, some socio-demographic characteristics are significantly associated with HRQoL. Among Japanese residents in Bangkok, level of alcohol consumption is significantly associated with HRQoL. Especially, low risk drinkers and hazardous drinkers show higher mean score of HRQoL than other alcohol-related risk groups. Discussion: Though Japanese residents in Bangkok tend to drink more alcohol than Japanese general population, their health status is better than Japanese general population. Especially, those who are male, 40-59 years old, and management level employees have higher alcohol-related risk among Japanese residents in Bangkok. However, their health status is not so bad, compared to other groups.

Field of Study: Public Health
Academic Year: 2015

Student's Signature .....
Advisor's Signature .....
Co-Advisor's Signature .....

ACKNOWLEDGEMENTS

At first, I would like to express my sincere gratitude to my advisor, Asst. Prof. Usaneya Perngparn, Ph.D, for the continuous support of my study and related research, for her patience, motivation, and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my study here.

Secondly, I would also like to thank the rest of my thesis committee: Prof. Sathirakorn Pongpanich, Ph.D., chairman, Asst. Prof. Chitlada Areesantichai, Ph.D., thesis co-advisor, and Assoc. Prof. Sompoch Iamsupasit, Ph.D., external examiner, not only for their insightful comments, but also for the hard questions which encouraged me to widen my research from various perspectives.

Besides, my sincere thanks also goes to all the academic staff who provided me with practical knowledge and exciting experiments, and administration staff who supported me with administrative procedures. Without your helps, I could not have done this. Also, I'm really thankful for support of my classmates. I'm sure that I could achieve this because you advised and encouraged me.

Thank you very much for all the participants to this study. You helped me a lot, even though you were so busy. I hole this could help, even slightly, to improve the health among Japanese residents in Bangkok. And, thank you very much, my research assistant, Ms. Lee. You worked very hard to support my study. I really appreciate it.

At last, I would like to express my deepest gratitude to my family, Mika and Shunya. Your cooperation enabled me to complete this thesis.

CONTENTS

Page

Page

LIST OF TABLES

CHAPTER 1 INTRODUCTION

1.1 Background and rationale

According to WHO, 2015, individuals aged 15 or above consume 6.2 litters of pure alcohol every year on average in the world. That is, 13.5 grams of pure alcohol per person is consumed everyday worldwide. The highest consuming countries are mainly high income countries.

Many studies found that alcohol consumption is significantly associated with specific diseases or syndromes; high blood pressure, stroke, pancreatitis, liver disease, depression, dementia, sexual problems, various cancers and other chronic diseases (NHS in U.K., 2015; CDC in the U.S., 2015; WHO, 2015). In addition, the association was found not only between alcohol consumption and specific diseases or symptoms but also between alcohol consumption and health-related quality of life (HRQoL). HRQoL includes not only specific diseases or symptoms of all the organs in a body, but also mental health perceptions, health risks and conditions, functional status, social support, and socioeconomic status according to the definition of CDC. In the previous research (Waller et al., 2015), the negative association between level of alcohol consumption and HRQoL (General Health, Social Function and Role Limitations Due To Physical Health) in the Australian Defense Force was found. The higher level of alcohol consumption is, the lower level of HRQoL is. HRQoL is an important factor for work/study performance not only in a workplace or a school but also in a non-work activity. It was found that poor HRQoL often leads to poor performance in work/study in the form of both absenteeism and presenteeism (i.e. reduced productivity) (Prasad et al., 2004). Compared to specific diseases or symptoms, it is easy to assess HRQoL because it can be measured without being diagnosed by a medical doctor. It can be measured by themselves.

Regarding the situation of chronic diseases attributed to alcohol in Japan, Ministry of Health, Labour and Welfare in Japan shows that the large amount of alcohol consumption is significantly associated with cirrhosis of liver, diabetes, high blood pressure, circulatory disease, diarrhea, and various cancers among Japanese people. According to the large-scale cohort studies conducted in Japan, mortality risk increased linearly with rising alcohol dose among drinkers, and 5% of total mortality,

3% of cancer mortality, 2% of heart disease mortality and 9% of cerebrovascular disease mortality in men could be gained by the alcohol consumption of more than 46 g/day (Inoue et al., 2010). Additionally, as for level of alcohol consumption among Japanese people, the national survey in Japan in 2005 (Ministry of Health, Labour and Welfare in Japan, 2006) shows that the rate of drinking behavior consuming at least 2 cans of beer in a day for at least 3 times in a week in whole population over 20 years old was 20.8%. The rate between male and female is totally different. Although the rate in female was only 7.3%, the rate in male was 36.7%.

As for the situation of chronic diseases attributed to alcohol in Thailand, according to the cohort study conducted in Thailand, the prevalence of high cholesterol, high blood pressure, liver disease and obesity were increased with greater alcohol consumption especially among men (Wakabayashi et al., 2015). Regarding level of alcohol consumption among Thai people, the amount of alcohol consumed in Thailand was increasing from 1999 to 2008 and it had been the highest in Southeast Asian countries by 2008 (WHO, 2015). Alcohol is the third most significant health risk for Thai men, which becomes 8.2% of DALYs (Thamarangsi T., 2006). It is estimated that 78% of males and 53% of females are occasional or regular drinkers (Wakabayashi et al., 2015).

The number of Japanese residents living in Thailand who hold any kind of visa has been increasing. According to the Embassy of Japan in Thailand, in 2001, it is estimated that 22,731 Japanese residents were living in Thailand. In 2008, the number was 44,114, which is nearly twice as large as that of 2001. And, in 2014, there were 64,285 Japanese residents in Thailand. The data from Ministry of foreign affairs in Japan shows that the increase in the number of Japanese residents living in Thailand is more remarkable than that in any other countries. It achieved 77% increase in the past 10 years. Most of the Japanese residents in Thailand are business persons and their accompanying family members. Also, there are Japanese students or researchers enrolling in the institutions in Thailand. Furthermore, some are residing for their lives after retirement, others are living in Thailand for their own business (Embassy of Japan in Thailand, 2015). In 2014, it was estimated that almost 75% of them were living in Bangkok (Embassy of Japan in Thailand, 2015).

Although the number of Japanese residents in Bangkok has been increasing rapidly, their health conditions and health risk factors in Bangkok have not been researched enough. There are many risk factors attributable for health consequences as smoking, high cholesterol food, less exercise and so on. Alcohol is one of the most major risk factors for health consequences. In 2010, 4.9 million deaths and 5.5 % of Disability Adjusted Life Years (DALYs) were attributed to alcohol consumption in the world (Lim et al., 2012).

Previous studies found that smoking and obesity is also significantly associated with HRQoL (especially general health) (Riise et al., 2003; Prosper et al., 2009). However, according to Jepsen et al., 2014, though the OR of current smoker for poor self-rated general health is 1.2 and that of BMI more than 35 is 1.7, that of alcohol consumption is higher, especially, that of drinking liquor more than 15 units per two weeks is 3.3, suggesting HRQoL is by far more attributable to level of alcohol consumption than any other factors. Therefore this research focuses only on the effect of level of alcohol consumption. The results from this study will be beneficial to advertise drinking behavior which will do good for their HRQoL and that will improve their working life as well as private life.

As above-mentioned, there are some previous researches dealing with the association between alcohol drinking and some chronic diseases both in Japan and Thailand. However, there are few researches focusing on the effect of alcohol consumption for HRQoL especially among Japanese residents in Bangkok. Besides, level of alcohol consumption among Japanese residents in Bangkok has also not been enough researched yet. Therefore, this study aims to examine 1) level of alcohol consumption and HRQoL among Japanese residents in Bangkok, 2) the association between socio-demographic characteristics and level of alcohol consumption 3) the association between socio-demographic characteristics and HRQoL among Japanese residents in Bangkok and 4) the association between level of alcohol consumption and HRQoL among Japanese residents in Bangkok.

1.2 Research questions

1. What is level of alcohol consumption and HRQoL among Japanese residents in Bangkok?

2. Are there any associations between socio-demographic characteristics and level of alcohol consumption among Japanese residents in Bangkok?
3. Are there any associations between socio-demographic characteristics and HRQoL among Japanese residents in Bangkok?
4. Are there any associations between level of alcohol consumption and HRQoL among Japanese residents in Bangkok?

1.3 Hypothesis (null hypothesis)

1. There is no association between socio-demographic characteristics and level of alcohol consumption
2. There is no association between socio-demographic characteristics and HRQoL among Japanese residents in Bangkok
3. There is no association between level of alcohol consumption and the level HRQoL among Japanese residents in Bangkok

1.4 Objectives

1. To find out level of alcohol consumption and HRQoL among Japanese residents in Bangkok
2. To examine the association between socio-demographic characteristics and level of alcohol consumption among Japanese residents in Bangkok
3. To examine the association between socio-demographic characteristics HRQoL among Japanese residents in Bangkok
4. To find out the association between level of alcohol consumption HRQoL among Japanese residents in Bangkok

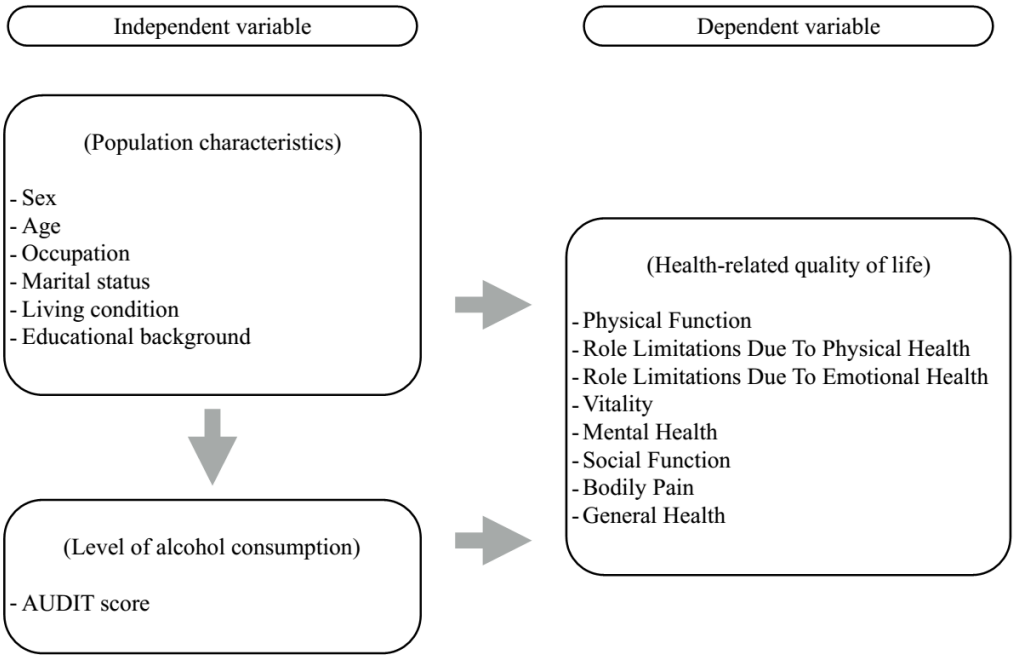
1.5 Operational definition

- Japanese residents: those who have Japanese nationality, hold any kind of visa to stay in Thailand for more than 30 days, and are aged 20 or above
- Health-related quality of life (HRQoL): includes not only specific diseases or symptoms of all the organs in a body, but also mental health perceptions, health risks and conditions, functional status, social support, and socioeconomic status. HRQoL is measured by the questionnaire, SF-36, in this

study and is a comprehensive term which indicates physical function, role limitations due to physical health, role limitations due to emotional problem, vitality, mental health, social function, bodily pain, and general health

- Level of alcohol consumption: frequency of drinking, typical quantity, frequency of heavy drinking, impaired control over drinking, increased salience of drinking, morning drinking, guilt after drinking, blackouts, alcohol-related injuries, others concerned about drinking. Level of alcohol consumption is measured by the questionnaire, AUDIT, in this study
- Socio-demographic characteristics: gender, age, occupation, marital status, living condition, and educational background

1.6 Conceptual framework



CHAPTER 2 LITERATURE REVIEW

2.1 Global status of alcohol

2.1.1 Alcohol-related harms

Alcohol consumption is regarded as a cause for more than 200 diseases, injuries and other health outcomes (WHO, 1992; Rehm et al., 2009a). For diseases and injuries causally impacted by alcohol, there is a dose–response relationship. For instance, the higher the consumption of alcohol, the larger the risk for alcohol-attributable cancers (IARC, 2010; Shield et al., 2013).

Not only the amount of alcohol consumption, but also the pattern of drinking affects the risks of harm (Rehm et al., 2003a). In particular, pattern of drinking is linked to intentional and unintentional injuries (Macdonald et al., 2013) and risk of cardiovascular diseases (Roerecke & Rehm, 2010a).

The quality of alcoholic beverages may also impact on morbidity and mortality (Preedy & Watson, 2005). Some ingredients in alcoholic beverages which are produced illegally, have been analyzed as potential causes of health problems (Kanteres et al., 2009; Lachenmeier et al., 2009; Leitz et al., 2009). However, recent reviews of the study found no evidence that consumption of those illegal alcohol is significantly linked to morbidity and mortality over the effects of ethanol (Rehm, Kanteres & Lachenmeier, 2010; Rehm et al., 2014).

The study from 11. National Health Services in the U.K. mentions that there are two types of negative effects of alcohol consumption; long-term effects and short-term effects. The long-term effects on health are high blood pressure, stroke, pancreatitis, liver disease, depression, dementia, sexual problems, and various cancers. It also has effects on social implications as family break-up, domestic abuse, unemployment, homelessness, and financial problems. The short-term effects on health are headache, hangover, blackout, stupor, coma and so on. Excessive amounts of alcohol consumption in a single setting, which is so called binge drinking defined as more than 5 drinks per occasion for men and 4 for women, interferes with the body's normal functions and causes the above symptoms (Paschall et al., 2011), which cause accidents, injuries and unplanned time off work or class (National Health Services UK, 2015). It also damages neural systems responsible for impulse control (Balodis et

al., 2009), which increases likelihood of aggressive and risky behaviors (Dvorak et al., 2014).

According to WHO, major alcohol-related health consequences are as follows; neuropsychiatric conditions, gastrointestinal diseases, cancers, suicides and violence, accidents, cardiovascular diseases, fetal alcohol syndromes, diabetes mellitus, and infectious diseases. In addition to physical harm, alcohol consumption is often associated with socio-economic consequences. Major socio-economic risks of alcohol consumption are financial problems, family problems, unemployment, and stigma and barriers to accessing health services. Furthermore, alcohol is harmful not only for drinkers but also for others. This type of harm is shown in the form of violent behaviors, neglect or abuse, default on social role, financial burden, and loss of peace of mind especially against spouse, child, relative, friend, and co-worker.

2.1.2 Factors affecting alcohol consumption

Both at individual and social level, there are variety factors which affect the magnitude and patterns of alcohol consumption and increase the risk of alcohol-use disorders and other alcohol-related problems (Shi & Stevens, 2005; Babor et al., 2010). Economic development, culture, availability of alcohol, and alcohol policies are environmental factors explaining differences in vulnerability between societies, historical trends in alcohol consumption and alcohol-related harm (WHO, 2007; Babor et al., 2010; Nelson et al., 2013). Even though there is no single dominant risk factor, Schmidt et al., 2010 suggests that the more vulnerabilities a person has, the more likely the person is to develop alcohol-use disorders. From a view point of public health, vulnerability represents susceptibility to poor physical and mental health, which can cause various types of alcohol-related problems. Vulnerable individuals are often at greater risk of having more than one individual risk factor, e.g., unhealthy nutrition, lack of exercise and other substance use (Blas & Kurup, 2010).

Gender: 7.6% of all male deaths in the world in 2012 were estimated to be attributable to alcohol, compared to 4.0% of female deaths. From a perspective of burden of disease, while 2.3% of DALYs were attributed to alcohol for women, 7.4 % for men. This is because men drink alcohol more frequently and consume more

alcohol than women (WHO, 2014). For women, they are affected by the drinking behavior of men, which results in interpersonal violences or risky sexual behaviors (Morojele et al., 2006; Kalichman et al., 2007). Women who drink alcohol when they are pregnant may increase the risk of fetal alcohol spectrum disorder (FASD), and other health consequences in their newborns (Barr & Steissguth, 2001; Viljoen et al., 2005)

Age: Adolescents and elderly people are typically regarded as more vulnerable to alcohol-related harm than other age groups (Hilton, 1987; Midanik & Clark, 1995; Mäkelä & Mustonen, 2000). Early initiation of alcohol use (before 14 years) is a predictor of damaged health status because it is highly likely to increase the risk for alcohol dependence at later ages (Grant & Dawson, 1997; Grant, 1998; DeWit et al., 2000; Kraus et al., 2000, Sartor et al., 2007). While the amount of alcohol consumption is usually decreased along with age, it is found older drinkers consume alcohol beverages more frequently than other age groups, which leads to unintentional injuries, such as falls, because their bodies can typically digest less alcohol than in their previous life (Sorock et al., 2006; Grundstrom et al., 2012).

Socio-economic status and economic development: Researches in the high income countries mention that people with higher socio-economic status have more occasions of drinking with low risk drinking patterns, while people in lower socio-economic groups are more vulnerable to problems and consequences related to alcohol (Grittner et al., 2012). This is because people with lower socio-economic status have fewer resources and less support from others to avoid alcohol-related harm. Regarding the association between alcohol consumption and economic growth, WHO found that, in most of the regions, they are significantly positively associated. That is, the more affluent the region is, the more alcohol people in the region consume.

Marital status: According to the former study (Chris Power et al., 1999), marital status is significantly associated with heavy drinking. It reveals that those who have divorced have highest alcohol consumption, followed by single, and married person. In this study, "married" can be a protective factor for consuming a lot of alcohol.

2.1.3 Actions to reduce harmful use of alcohol

Alcohol policies are developed in order to reduce harmful use of alcohol. These measures are taken in any governmental or societal sector.

National alcohol policies and awareness-raising activities: According to WHO, 66 WHO Member States had written national alcohol policies in 2012 and more than 60% of those countries are European countries. As for the awareness-raising activities, more than 130 countries initiated some form of those activities before. Raising awareness for drink drive is the most common in those countries.

Regulations on availability of alcohol: According to Babor et al., 2010, there are two types of governmental control over alcohol sales; licensing and monopoly. The number of countries which need license to produce alcohol beverages is 126 and 136 countries need licensing from government to sell alcohol beverages. Age restriction is also effective in reducing the amount of alcohol consumption among youth (Wagenaar et al., 2005). The minimum age of legal drinking ranges from 10 to 25 and most common age is 18 years old, while some countries have no age restrictions.

Marketing restriction: Some longitudinal studies mention that young generations exposed to alcohol advertisement are more likely to start drinking (Anderson et al., 2009). In lower and middle income countries, which are emerging marketplaces for alcohol, alcohol marketing has an enormous effect on alcohol consumption (Babor et al., 2010; Jernigan, 2013). Regulating the content and volume of marketing, sponsorships, promotions especially for young people is recommended.

Pricing: Some studies show that raising the price of alcohol beverages is effective in reducing alcohol-related harm among drinkers (Wagenaar et al., 2009; 2010; Elder et al., 2010). Most common way of raising the price of alcohol is imposing tax. More than 90% of countries put tax on alcohol.

AUDIT: Because the efficient methods to identify persons with harmful and hazardous alcohol consumption were needed, WHO invented AUDIT to measure the alcohol-related risk for health and social consequences. It was developed and evaluated over a period of two decades, and it has been found to provide an accurate measure of risk across gender, age and cultures. Now, it is used as a first screening test and a brief intervention used in primary care settings (WHO, 2016). AUDIT is consisted of 10 items related to drinking behavior about “frequency of drinking”,

“typical quantity”, “frequency of heavy drinking”, “impaired control over drinking”, “increased salience of drinking”, “morning drinking”, “guilt after drinking”, “blackouts”, “alcohol-related injuries”, and “others concerned about drinking”. Each question has a score from 0 to 4. The scores are summed from 0 up to 40. According to the general cut-off score in the in the guideline of AUDIT, people who score 0 are abstainers, those who have 1-7 are low risk drinkers, those who have 8-15 are hazardous drinkers, those who have 16-19 are harmful drinkers, and those who have 20-40 are probable alcohol dependent drinkers. However, because drinking patterns and the alcohol content of standard drinks are different by countries, cut-off score is subject to change slightly in each country’s setting. AUDIT is used both in interview style questionnaire and in self-report style questionnaire. There are many former studies which used AUDIT to measure the alcohol-related risk for health and social consequences. For example, in 2010, AUDIT was used to identify the effect of brief intervention called “TGCBI” in the quasi-experimental research in Thailand. AUDIT score was compared between before and after. Because AUDIT is used all over the world and in many studies related to alcohol, it is easy to compare the result with other result. By showing the score, it is possible to explain how effective the intervention is.

2.1.4 Levels of consumption

Alcohol is consumed almost everywhere in the world. Even though both men and women drink, the gap of the rate of drinking and the amount of alcohol consumption between men and women is wide. Also, there is a large difference of alcohol consumption between regions.

Gender: There are large sex differences in the proportion of current drinkers among people aged 15 years or above. In South-East Asian countries, the proportion of current drinkers among women is 5.0%, whereas 21.7% among men. However, In Europe, the proportion of current drinkers among women is 59.9%, while 73.4% among men, and in the region of America, the difference of proportion of current drinkers between men and women is small, compared to South-East Asian countries.

Total per capita consumption: According to WHO, individuals aged 15 or above consume 6.2 litters of pure alcohol every year on average in the world. That is, 13.5

grams of pure alcohol per person is consumed everyday worldwide. The highest consuming countries are mainly high income countries, especially regions in Europe and America. The intermediate level consumption is found in Pacific regions and African countries. South-East Asian countries are regarded as low level of consumption. Level of alcohol consumption in Middle-East Asian countries is quite low.

Most consumed alcoholic beverages: Beer, wine, and spirits are most consumed types of alcohol beverages. Among them, spirits are most consumed in the world. Nearly 80% of alcohol beverages consumed in South-East Asian countries is spirits, while wine is less consumed. However, in European countries, more than quarter of alcohol beverages is wine. In the region of America, more than half of consumed alcohol is beer. More than 50% of alcohol consumed in African countries is local variation of alcoholic beverages.

2.1.5 Positive effects of alcohol on health

Although most of the researches related alcohol consumption are discussing about negative effects on health, moderate drinking has benefits on health, especially good for the heart and circulatory system, and probably protects against type 2 diabetes and gallstones (School of Public Health, Harvard University, 2015). The term "moderate drinking" refers to less than one drink per day in some studies, whereas three or four drinks per day in other studies. Thus, there's no universally accepted standard drink definition as of now (Kloner et al., 2007). It depends on each country's context. For example, in the United States, "no more than one to two drinks per day for men, and no more than one drink per day for women", which is the definition used by the U.S. Department of Agriculture and the Dietary Guidelines for Americans, is widely accepted (Dietary guidelines for Americans, 2005).

Cardiovascular disease: A lot of previous studies found negative association between moderate drinking and risk of heart attack, ischemic stroke, peripheral vascular disease, sudden cardiac death, and death from all cardiovascular causes (Goldberg et al., 2001). Former researches suggest moderate drinking reduce the risk at 25 to 40 percent. This benefit is biologically and scientifically approved. Moderate amounts of alcohol increase levels of high-density lipoprotein (HDL, or "good"

cholesterol), (Booyse et al., 2007) and higher HDL levels are factors to protect against heart disease.

Type 2 diabetes: Compared to those who do not drink at all, healthy adults who drink one to two glasses per day have a decreased risk of developing type 2 diabetes (Lando et al., 2004).

Gallstones: According to researchers at the University of East Anglia, drinking two glasses of alcohol decreases the chance of getting gallstones by one-third in U.K. However, excessive drinking cause adverse effects.

Dementia: In a study which included more than 365,000 participants since 1977, drinkers who consume moderate amounts were less likely to develop cognitive impairment or Alzheimer's disease and other forms of dementia by 23%. Small amounts of alcohol might make brain cells more fit. Alcohol in moderate amounts stresses cells and thus strengthens them up to cope with major stresses that could cause dementia (Neafsey et al., 2011).

Common cold: A study conducted in 1993 with 391 adults shows that drinks up to three or four per day were associated with decreased risk for developing colds because drinking was negatively associated with illness infection. However, this association was found only among non-smokers (Cohen et al., 1993).

2.2 Japanese status of alcohol

2.2.1 The rate of regular drinkers

According to the survey conducted in 2005 (Ministry of Health, Labour, and Welfare in Japan, 2006), total rate of regular drinkers (drinkers who consume at least 2 cans of beer in a day for at least 3 times in a week) in Japan is 20.8%. The breakdown is 36.7% in men and 7.3% in women. As for level of drinking among men, the survey shows people aged 20 to 29 years old consume less alcohol (19.4%) than any other age groups, even the age group of 70 or above (23.1%). On the other hand, the age group of 40 to 49 years old consumes alcohol most (48.1%), following the people of 50 to 59 years old (47.9%) and 60 to 69 years old (41.9%). Regarding level of drinking among women, it is quite low and the trend for alcohol consumption is different compared to that among men. The age groups of 30 to 39 (13.5%) and 40 to 49 (13.6%) are at the highest level among women. The rate of regular drinkers among

women aged 70 or above is 0.9%. This figure suggests that most of them are abstainers or occasional drinkers. For alcohol-related risk groups, Table 1 shows the distribution among general population in Japan (Ministry of Health, Labour, and Welfare in Japan, 2016). In females, 96.7% of them are abstainers and low risk drinkers. Few females are categorized as risky drinkers. In males, 76.1% of them are abstainers and low risk drinkers. 5% of them are harmful drinkers and probable alcohol dependent drinker, which are categorized as being at higher alcohol-related risk.

Table 1 Distribution (percent) of alcohol-related risk groups among general population in Japan

	General population in Japan	
	Male	Female
Abstainer (AUDIT score : 0) Low risk drinker (AUDIT score : 1 - 7)	76.1	96.7
Hazardous drinker (AUDIT score : 8 - 14)	18.9	2.6
Harmful drinker (AUDIT score : 15 - 19)	3.4	0.5
Probable alcohol dependent drinker (AUDIT score : 20 - 40)	1.6	0.2

2.2.2 Alcohol-related problems

Alcohol use disorders: According to the national survey in 2003, the percentages of alcohol dependence identified by the Kurihama Alcoholism Screening Test (KAST), which has been most frequently used to assess alcohol-related harms in Japan since 1978, are estimated to be 7.1% for men and 1.2% for women, or 4.3 million people based on the whole population in Japan. However, another method, the Semi-Structured Assessment of the Genetic Studies of Alcoholism, using the same data in 2003 estimates the prevalence of ICD-10 alcohol dependence as 1.9% for men and 0.1% for women (Higuchi et al., 2006), which are much lower than the estimates of KAST.

Alcohol-related chronic diseases: The rate of alcoholic liver diseases among all liver diseases has been increasing since 1961 and it reached 23% in 2002. 73% of all the patients with alcoholic liver disease did not have viral hepatitis (Yamagishi et al., 2004). According to Lin et al., 2000, the number of patients who received treatment for chronic pancreatitis was estimated to be about 32,000 in 1994 and more than half of the pancreatitis cases were attributable to heavy drinking.

Underage drinking: Alcohol consumption less than legitimate minimum drinking age (20 years old) is a social problem and common also in Japan (Higuchi et al., 2006). According to the large scale survey of more than 100,000 junior high school (aged 12 to15 years old) and senior high school (aged 15 to 18 years old) students conducted in 1996 and 2000, around 50% of junior high-school and 70% of senior high-school students reported some experiences of alcohol consumption (Uehata et al., 2001). A longitudinal cohort study (Suzuki, Takeda, Matsushita, Higuchi, & Shirakura, 2002) focusing on underage drinking was conducted in 1997 on 802 junior high-school students and it shows initial 5-year follow-up revealed that the rate of alcohol consumption among young people doubled and the rate of problem drinkers increased more than 100 times over the 5-year period. Takeida et al., 2001 shows that a survey conducted in 2000 among 743 junior high-school students and 791 senior high-school students in Hokkaido found that 90.2% of male students and 87.9% of female students in the third grade of senior high-school consumed alcohol more than once per month. Frequent drinkers tend to experience alcohol-related problems such as vomiting or blackout.

2.2.3 Comparison between Japan and Thailand

There are some differences of alcohol consumption, alcohol-related harm, and alcohol-related policy between Japan and Thailand. Table 2 and 3 show the differences of alcohol consumption. Table 4 shows the differences of alcohol-related harm. Table 5 shows the differences of alcohol-related policy.

Compared to those who are living in other cities in Thailand, people living in Bangkok has 1.7-10 times higher possibilities to become a hazardous/harmful/probable alcohol dependent drinker, suggesting living in Bangkok is an important factor of consuming high level of alcohol in Thailand. For gender, in

Bangkok, young Thai people (20-24) drink a lot compared to other age groups. Married Thai people drink less than single Thai. And there is almost no difference of alcohol consumption between occupations. There are similarities and differences of alcohol consumption characteristics between general Japanese population and general Thai population.

Table 2 Alcohol per capita (15+) consumption (in litres of pure alcohol) in total population, average 2008-2010 (WHO,2014)

	Japan	Thailand
Total	7.2	7.1
Males / Females	10.4 / 4.2	13.8 / 0.8

Table 3 Alcohol per capita (15+) consumption (in litres of pure alcohol) only among drinkers, 2010 (WHO, 2014)

	Japan		Thailand	
Total	10.4		23.8	
Males / Females	13.7	6.7	30.3	5.2

Table 4 Mortality and morbidity caused by alcohol in 2012 (WHO, 2014)

	Japan		Thailand	
	Age-standardized death rates per 100,000 population	alcohol-attributable fractions (%)	Age-standardized death rates per 100,000 population	alcohol-attributable fractions (%)
Liver cirrhosis, males / females	10.5 / 3.2	49.3 / 55.2	28.2 / 8.7	67.2 / 40.5
Road traffic accidents, males / females	6.4 / 2.0	10.4 / 3.7	70.3 / 18.5	24.9 / 1.4

Table 5 Differences in policies and interventions for drinking alcohol between Japan and Thailand (WHO, 2014)

	Japan	Thailand
Written national policy (adopted/revised) / National action plan	Yes (2000 / —) / Yes	Yes (2008/2009) / Yes
Excise tax on beer / wine / spirits	Yes/Yes/Yes	Yes / Yes / Yes
National legal minimum age for off-premise sales of alcoholic beverages (beer / wine / spirits)	20 / 20 / 20	20 / 20 / 20
National legal minimum age for on-premise sales of alcoholic beverages (beer / wine / spirits)	20 / 20 / 20	20 / 20 / 20
Restrictions for on-/off-premise sales of alcoholic beverages: hours, days / places, density, specific events / intoxicated persons / petrol stations	No, No / No, No, No / No / No	Yes, Yes / Yes, No, No / Yes / Yes
National maximum legal blood alcohol concentration (BAC) when driving a vehicle (general / young / professional), in %	0.03 / 0.03 / 0.03	0.05 / 0.05 / 0.00
Legally binding regulations on alcohol advertising / product placement	No / No	Yes / Yes
Legally binding regulations on alcohol sponsorship / sales promotion	No / No	Yes / Yes
Legally required health warning labels on alcohol advertisements / containers	No / No	Yes / Yes
National government support for community action	Yes	Yes
National monitoring system(s)	Yes	Yes

2.3 Health-related quality of life (HRQoL)

2.3.1 Definitions of HRQoL

There is no consensus about the definition of HRQoL, however, according to WHO, it is defined as “individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” (WHO, 1997). Patrick defined it as “the measure in which the assigned value is modified to the duration of the life in function of the perception of physic, psychological and social limitations and the decrease of opportunities due to the disease, its sequels, the treatment and/or the health policies”

(Patrick et al., 1993) and Naughton defined it as “a subjective perception, influenced by the current health status, of the ability to perform those activities important for the individual” (Naughton, 1996). Additionally, according to the definition by World Bank, HRQoL is “optimum levels of mental, physical, role (e.g. work, parent, carer, etc.) and social functioning, including relationships, and perceptions of health, fitness, life satisfaction and well-being” (World Bank, 1999).

2.3.2 Alcohol and HRQoL

According to Kim et al., 2015, in Korea National Health and Nutrition Examination Survey in 2010 and 2011, the relationship between alcohol consumption and HRQoL among middle-aged to older South Koreans was examined. AUDIT was used to assess level of alcohol consumption and EuroQoL 5-Dimension (EQ-5D) was used for the assessment of HRQoL. It shows an inverted U-shaped relationship between AUDIT and EQ-5D scores, suggesting HRQoL of moderate alcohol drinkers was higher than that of non-drinkers and heavy drinkers.

In population-based cross-sectional study which was conducted in Spain in 2008-2010, the score of HRQoL in SF-12 was compared between no drinkers, average moderate drinkers, and average heavy drinkers. The result shows that no drinkers reported less scores of HRQoL than average moderate and heavy drinkers (Valencia-Martín et al., 2013).

The relationship between alcohol consumption and HRQoL among 4521 male workers aged 25 yr and older in Japan was examined in a cross-sectional study. Drinking status was classified according to daily alcohol consumption or frequency of drinking and HRQoL was assessed by SF-36. There is a negative association between Vitality conditions and levels of alcohol consumption. Role-Emotional scores were not associated with alcohol drinking. People who drink 5 or 6 days per week had higher levels of Role-Physical and Vitality, and those who drink 1 or 2 days per week had better scores of Vitality and Mental Health scores than non-drinkers (Saito et al., 2005).

2.3.3 Smoking and HRQoL

Cross-sectional household survey among 7525 men and 8486 women aged 25-64 year was conducted in France in 2003. The associations between HRQoL and smoking history, the amount of cigarettes and smoking cessation were examined while controlling for various socio-economic variables, depression, alcohol dependence and pathological conditions. Male never smokers had higher HRQoL scores than smokers. On the contrary, scores of HRQoL among female never smokers were lower than occasional smokers (Coste et al., 2014).

The cross-sectional study investigating the relationship between smoking-related variables and HRQoL was conducted in Spain between June 2009 and July 2010. The assessed variables were collected through anonymous interviews carried out in the home of the participants by psychologists. SF-12v2 was used to collect data about HRQoL, the Fagerström Test for Nicotine Dependence was used for collecting data assessing nicotine dependence, and the Stages of Change Questionnaire was used to find out the degree of motivation to give up smoking. Nicotine dependence was not associated with the physical dimension of HRQoL, however, nicotine dependent smokers showed significantly worse scores of HRQoL than never smokers ($p = 0.004$). The association between no-nicotine dependent smokers and never smokers was not found. Smoking status (non-smokers vs. smokers), amount of smoking per day, stage of change, quit attempts in the past year or age of smoking initiation were not related to HRQOL (Becoña et al., 2013).

National Health and Nutrition Examination Surveys were conducted in 2001 to 2008. Data on smoking and HRQoL from a sample of 4,848 adolescents aged between 12 and 17 years old. Smoking status was determined by using self-report data (current, not current, and never). HRQoL was assessed based on self-report on physical and mental health, activity limitations, and general self-rated health. Adolescents who have ever smoked reported physically ($p < .001$) and mentally ($p < .0001$) unhealthy days and activity limited days ($p < .01$)) compared with never smokers. Compared with never smokers, adolescents who have ever smoked or who were current smokers were more likely to report ≥ 14 physically unhealthy days, ≥ 14 mentally unhealthy, ≥ 14 activity limitation days, and fair or poor health (Dube et al., 2012).

2.3.4 Diseases and HRQoL

In UK, cross-sectional surveys were merged to compare HRQoL between general population and people living with HIV: the ASTRA study which recruited participants who are 18 years old or older with HIV from outpatient clinics (3258 people); and the Health Survey for England which measures health and HRQoL in individuals living in private households (8503 people). HRQoL was assessed with the Eurol 5D questionnaire 3 level (EQ-5D-3L) instrument. HRQoL score in people with HIV was lower than that in the general population, particularly in anxiety/depression domain (Miners et al., 2014).

Using the national health and nutrition examination survey which was conducted in Korea in 2010 - 2012, the researchers analyzed data from 10,307 adults who are 30 years old or above to examine the association between HRQoL and cardiovascular disease (CVD). The subjects were stratified into 3 on the basis of their Framingham risk score, CVD risk estimate in 10 years; less than 10% is defined as “low risk”, 10 - 19.9% is “moderate risk”, and 20% or more is “high risk”. And the EuroQol-5D (EQ-5D) was used to assess HRQoL in this study. Significantly higher proportion of high-risk subjects had impaired HRQoL (in EQ-5D, defined as the lowest category) than low-risk groups even after adjusting confounders in multivariable logistic regression analysis (male: OR, 1.62; 95% CI, 1.24-2.11; female: OR, 1.46; 95% CI, 1.02-2.08). Besides, “High-risk” in cardiovascular disease in 10 years was significantly associated with morbidity in men (OR, 3.15; 95% CI, 2.02-4.90) (Ko et al., 2015)

The cross-sectional study which was undertaken by using 75 patients who are attending King Abdulaziz University Hospital, Saudi Arabia, to find out the association between HRQoL and type 2 diabetes. EQ-5D was used to evaluate HRQoL. The result shows that only gender was significantly associated with HRQoL among diabetes patients. The mean score of EQ-5D in female patients was lower than in male patients (0.58 ± 0.23 vs 0.74 ± 0.20). There were no statistically significant associations between HRQoL and age groups, duration of diabetes, marital status, educational level and type of treatment (Al-Aboudi et al., 2015)

2.3.5 Obesity and HRQoL

The study used the data from Korea National Health and Nutrition Examination Survey, a cross-sectional, nationwide, population-based survey, from 2007 to 2012 to examine whether the situation of obesity is significantly associated with HRQoL. HRQoL was assessed by EQ-5D-3L and those who have higher score than average were defined as good health. Of all the participants (34,945), 28% were classified as obese, 3.8% were severely obese, and 23.6% were overweight. After adjustments, through multiple logistic regressions, females with severe obesity had 31% significantly lower HRQoL than females with normal weight (95% confidence interval = 1.12-1.53), however, the same trend was not observed in males (Song et al., 2016).

The research explored the association between body mass index (BMI) and HRQoL by using the data from 21,218 adults aged 18 years old or older. It classifies the subjects into 5 groups; underweight, normal weight, overweight, class I obese, and class II obese based on their BMI. Their HRQoL was measured by SF-36. The independent impact of each BMI category on HRQoL was examined through standard least squares regression by comparing the difference of SF-36 scores. It shows that the class I obese was significantly associated with better scores of HRQoL in the mental component than normal weight (75.1 vs. 73.4, $P<0.001$) and the underweight had the lowest score in both the physical and mental component (Zhu et al., 2015).

2.3.6 Socio-economic status and HRQoL

The researchers examined whether level of income and education is associated with HRQoL by using the result of Canadian National Population Health Survey (n=13,682) for adults aged 20 and older (1994/95 to 2006/07) as level of HRQoL and socio-economic position (income and education). HRQoL is consistently highest for the highest income and the most highly educated people. HRQoL was declined with age for both men and women. Additionally, there was a sharper decline in HRQoL for upper-middle and highest income groups for women than for the poorest women (Ross et al., 2012).

The study explored the association between socio-economic factors and housing conditions and HRQoL in Rome. The cross-sectional study employed 1,068 adults.

SF-36 was used to assess level of HRQoL in this research. Further population characteristics (sex, age, marital status, education, permanent occupation etc.) and housing conditions (stable housing, access to basic amenities such as drinkable water, drainage, electricity which compose material deprivation) were involved as independent variables. Non parametric tests and multiple linear regression models were applied to identify the factors that have significant association with HRQoL. After controlling for population characteristics, health status and housing conditions, sex, age, education, chronic diseases, stable housing and material deprivation were found to be significant determinants of the Roma's HRQoL (Pappa et al., 2015).

2.3.7 HRQoL in Japan: Table 6 shows the mean score of SF-36, which measures HRQoL, in Japan. According to Guideline for SF-36 in Japan (Fukuhara S, Suzukamo Y, 2015), there is a statistically significant difference in the score between gender. Also, a significant difference is observed between age groups.

Table 6 SF-36 Japanese standardized score in 2007

	PF	RP	RE	VT	MH	SF	BP	GH
total mean score (n=2279)	89.1	89.2	87.8	62.8	71.6	86.4	73.8	62.9
standard deviation	13.9	18.8	20	19.5	18.6	19.4	22.4	18.8
mean score in males (n=1113)	90.5	90.2	89.1	63.9	72.2	88	76.1	63.1
standard deviation	13.2	18.7	19.4	19.1	18.1	18.6	21.9	18.8
mean score in females (n=1166)	87.8	88.3	86.6	61.8	71	84.8	71.5	62.8
standard deviation	14.5	18.9	20.6	19.8	19.1	20.2	22.9	18.7
mean score in 20-29 (n=270)	96.1	92.1	86.5	59.9	69.1	85.5	78.2	67.2
standard deviation	7.7	18	20.5	21.1	19.4	19.5	21.2	20.2
mean score in 30-39 (n=395)	93.9	91.7	89.9	61.1	70.2	87.5	75.8	66.1
standard deviation	9.6	16.7	17.3	18.7	18.5	17.6	22.8	17.8
mean score in 40-49 (n=398)	91.7	91.2	88.4	59.3	69.1	85.9	72.1	62.1
standard deviation	11.8	15.9	19.5	19.2	19	19.9	23.2	18.3
mean score in 50-59 (n=472)	89.3	91.3	91.5	64.9	73.8	87.9	74.5	61.4
standard deviation	13.1	17.1	16.3	17.6	16.9	18.3	21.5	17.8
mean score in 60-69 (n=438)	84.9	87.3	88	67	75	86.9	73.1	60.7
standard deviation	17.1	21.6	22.4	20.1	18.8	20.7	23	19.3
mean score in 70-79 (n=306)	74.6	78	79.3	64.6	72.1	82.7	66.1	58.4
standard deviation	22.6	24.9	26.1	21.5	20.1	22.4	24.4	20.2

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Research design

This is a cross-sectional analytical and descriptive study which finds out level of alcohol consumption and HRQoL among Japanese residents in Bangkok, and also examines

- the association between socio-demographic characteristics and level of alcohol consumption
- the association between socio-demographic characteristics and HRQoL
- the association between level of alcohol consumption and HRQoL

among Japanese residents in Bangkok

3.2 Study area

This study is conducted in Bangkok, Thailand. The researcher conducts data collection among the members of Japanese groups which are located in Siam, Sukhumvit, Ladprao, Bangkapi, and Sathorn.

3.3 Study population

According to the Embassy of Japan in Thailand, it was estimated that there were 46,367 Japanese long-stay residents in Bangkok in 2014.

Inclusion criteria

The population of this study is those who (both male and female);

1) have Japanese nationality
2) hold a visa to stay in Thailand
3) can read and write Japanese
4) are aged 20 or above (this is because drinking alcohol is allowed for those who are 20 or above both in Japan and in Thailand)
5) have been living in Bangkok for more than 30 days
6) agree with the concept of this study and participation in the questionnaire

Exclusion criteria

Those who;

1) hold a transit or a tourist visa to stay in Thailand for a short period

2) do not meet any of the above-mentioned inclusion criteria

are excluded from the population of this study

3.4 Sampling technique

Purposive sampling was conducted to recruit the samples of Japanese residents in Bangkok in this study. Communities which have many Japanese members in Siam, Sukhumvit, Ladprao, Bangkapi, and Sathorn were searched online by the researcher and the researcher contacted Japanese residents in the communities for the appointment of data collection.

3.5 Sample and sample size

Based on the article which focuses on determining sample size (Glenn D. Israel, 1992), Cochran's formula is used to calculate sample size.

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where n0 is the sample size, Z square is the abscissa of the normal curve that cuts off an area α at the tails, e is the desired level of precision, p is the estimated proportion of an attribute that is present in the population, and q is 1-p. The value for Z is found in statistical tables which contain the area under the normal curve. As many researchers suggest, confidence level = 95% (Z = 1.96), margin of error = 5% (e = 0.05) is applied to this research. According to the national survey in 2005, the rate of drinking behavior consuming at least 2 cans of beer in a day for at least 3 times in a week (regular drinker defined by Ministry of Health, Labour, and Welfare in Japan) in whole population over 20 years old was 20.8% (Ministry of Health, Labour and Welfare in Japan, 2006). So, p is 0.20 and q is 0.8. Then, the sample size of this research is 253.

3.6 Measurement tool

- Socio-demographic characteristics s: there were 6 items to ask in this category - gender, age, occupation, marital status, living condition, and educational background.
- Level of alcohol consumption: AUDIT was used to measure level of alcohol consumption during last year. Ten items, "frequency of drinking", "typical quantity", "frequency of heavy drinking", "impaired control over drinking", "increased salience of drinking", "morning drinking", "guilt after drinking", "blackouts", "alcohol-related injuries", "others concerned about drinking", were asked. The first eight items have five response options which have score from 0 to 4 and the last two items have three response options which have score at 0, 2 or 4. The scores are summed from 0 up to 40. According to the general cut-off score in the guideline of AUDIT, people who score 0 are abstainers, while those who have 1-7 are considered as low risk drinkers. A score between 8 and 15 represents people who drink in excess of guidelines for low risk consumption (hazardous drinking; more than 10 grams of alcohol a day). A score between 16 and 19 is classified as drinking at a harmful level and a score ≥20 is defined as probable alcohol dependence. However, as written in the guideline of AUDIT, cut-off score is subject to change slightly depending on the country's drinking patterns and the alcohol content of standard drinks. According to Ministry of Health, Labour, and Welfare in Japan, cut-off score in AUDIT in Japan is recommended as follows; 0 is abstainer, 1-7 is low risk drinking, 8-14 is hazardous drinking, 15-19 is harmful drinking, and ≥ 20 is probable alcohol dependence. Therefore, this cut-off score was applied in this study. In addition to AUDIT, 4 items about drinking history in life, age at first drink, frequency of alcohol drinking within 30 days, and amount of alcohol drinking per occasion within 30 days were asked.
- Health-related quality of life (HRQoL): SF-36 was used to measure HRQoL. 36 items were asked in the questionnaire. Those items are consisted of 8 concepts; Physical Function, Role Limitations Due To Physical Health, Role Limitations Due To Emotional Problem, Vitality, Mental Health, Social

Function, Bodily Pain, and General Health. Each of 36 questions belongs to one of 8 concepts and scored according to the score table. After all the questions are scored, scores are averaged in each of 8 concepts. The average score is the score in that concept. High score defines a more favorable health state.

The questionnaire which was used to collect data in this study is consisted of these three measurement tools and conducted by the form of interview.

3.7 Data collection

The instruction for participation in this research was given in front of participants and the questionnaire, information sheet and form of informed consent were distributed by the researcher. They answered the self-report questionnaire if they admitted to being participants in this research. It usually took 15-20 minutes to complete the questionnaire. The researcher monitored the participants answering the questionnaire and collected it when they completed. A research assistant was employed in this research. The assistant were fluent in Japanese and Thai because communication in Thai was required to negotiate to conduct data collection in a restaurant/public place with the owner, and was expected to have connections with Japanese residents because the assistant also could be a source of information about Japanese communities. The researcher provided a guidance, an instruction, and a training about the rationale of this study, the way of conducting data collection, especially about informed consent and privacy protection, and FAQ. The assistant also saw the participants and helped the researcher to distribute and collect the questionnaires and answer inquiries from the participants.

3.8 Validity and reliability

In this study, three experts in this field reviewed the content validity before conducting data collection and approved the questionnaire. Because AUDIT and SF-36 are international questionnaires, the questions among them cannot be deleted. The questionnaire was translated from English into Japanese and the pilot test was conducted. The researcher did the reliability test for the questionnaire among 45

samples. Cronbach's alpha in AUDIT was 0.81. Cronbach's alpha in SF-36 was 0.84 in physical function, 0.68 in role limitations due to physical health, 0.78 in role limitations due to emotional problem, 0.83 in vitality, 0.81 mental health, 0.73 in social function, 0.66 in bodily pain, 0.87 in general health.

3.9 Data analysis

- For descriptive statistics, frequencies, percentage, mean and standard deviation was calculated
- T-test and one way ANOVA are used to examine the associations between socio-demographic characteristics and level of alcohol consumption. Age is grouped as 20-39, 40-59, and 60 or above. Independent variables are each category of socio-demographic characteristics (categorical data) and dependent variable is AUDIT score (continuous data)
- T-test and one way ANOVA are used to examine the associations between socio-demographic characteristics and each subscale of HRQoL in SF-36. Age is grouped 20-39, 40-59, and 60 or above. Independent variables are each category of socio-demographic characteristics (categorical data) and dependent variable is SF-36 score (continuous data)
- One way ANOVA is used to examine the associations between level of alcohol consumption and each subscale of HRQoL in SF-36. Level of alcohol consumption is divided into 5 groups based on AUDIT score. 0 is abstainer, 1-7 is low risk drinker, 8-14 is hazardous drinker, 15-19 is harmful drinker, and $\geq$ 20 is probable alcohol dependent drinker. Independent variable is a group of alcohol consumption based on the AUDIT score (categorical data) and dependent variable is SF-36 score (continuous data)

3.10 Ethical consideration

This study was approved by Chulalongkorn University Ethical Review Committee. The sample populations were approached by the researcher through the communities of Japanese residents. The researcher explained about the importance of this research project and asked them to participate individually. Because each individual belonged

to each community, this study also followed the guideline for personal information protection and ethical consideration in each community.

CHAPTER 4 RESULT

4.1 Descriptive statistics

4.1.1 Socio-demographic characteristics among Japanese residents in Bangkok

Table 7 shows the socio-demographic characteristic in this study. 300 Japanese residents in Bangkok participated in this study.

For gender, the number of males is more than twice as large as that of females. Nearly 70% of the participants are males. Mean age is 44.5 years old (±13.86). Mode is the age group of 40-59 years old. Regarding occupation among the participants, nearly one-third of them are management level employees. Ordinary employees including administration staff and technical personnel are 17% of all the participants. There are 59 unemployed persons, which are nearly 20% of all the participants. Most of the unemployed persons are the retired and the accompanying family from Japan. 42 participants are categorized as others. Most of them are university students from Japan, especially exchange students. The mean period of stay in Bangkok is 5.65 years, in other words, the participants in this research have been staying in Bangkok for about 5 years and 8 months averagely. For marital status, nearly 60% of the participants are married and 36% of them have never married. There are 15 participants, or 5% of participants, who are categorized as others. Others are consisted of those who have divorced and are the widowed. In regard to living condition, nearly 55% of participants are living alone and the rest, nearly 45% of them, are living with their family or someone. In respect of educational background, senior high school as the final educational history is 15.3%, undergraduate is 65.3%, graduate is 11.3%, and others are 8.0%. The participants in others graduated from a junior high school or a vocational school.

Table 7 Socio-demographic characteristics among Japanese residents in Bangkok (n = 300)

		Frequency	Percent
Gender	Male	209	69.7
	Female	91	30.3
Age (years old)	20-39	115	38.3
	40-59	136	45.3
	60 or above	49	16.3
	Mean of age	44.53	
	SD	13.86	
Occupation	Management	94	31.3
	Staff (administration)	25	8.3
	Staff (technical personnel)	26	8.7
	Professional (medical doctor, lawyer, professor..)	32	10.7
	Self-employed	22	7.3
	Unemployed	59	19.7
	Others	42	14.0

Table 7 Socio-demographic characteristics among Japanese residents in Bangkok (cont.)

		Frequency	Percent
Period of stay in Bangkok (years)	Less than 1 year	68	22.7
	Between 1 year and 3 years	90	30.0
	More than 3 years	142	47.3
	Mean of period of stay in Bangkok	5.65	
	SD	7.68	
Marital status	Married	177	59.0
	Never married	108	36.0
	Others (divorced / widowed)	15	5.0
Living condition	Living alone	164	54.7
	Living with family/others	136	45.3
Educational background	Senior high school	46	15.3
	Undergraduate	196	65.3
	Graduate	34	11.3
	Others	24	8.0

4.1.2 Alcohol consumption characteristics among Japanese residents in Bangkok

Table 8 shows the alcohol consumption characteristic in this study.

For drinking history in life, 299 participants have ever drunk alcoholic beverage in their lives. There is only one participant who has never drunk in her life. In regard to age at first drink, the mean is 18.02 years old (±2.93). Nearly half of the participants had their first drink when they were 16-19 years old. More than one-third of the participants had their first drink at or after 20 years old, which is the legal drink age in Japan. The youngest first drink age among them is 3 years old. Regarding frequency of alcohol drinking within 30 days, the mode is 4 or more times a week (28.7%). 86.7% of the participants had at least one drink within 30 days before answering the questionnaire. Nearly 90% of the drinkers had alcoholic beverages 2 or more times within that period. As for amount of alcohol drinking per occasion within 30 days, 66.7% of participants answered they consumed less than 5 drinks when they drank in that period. One-third of the participants answered they consumed 5 or more drinks per occasion, which is defined as binge drinking. In respect of AUDIT score, the mean is 7.40 (±6.34), which is regarded as low risk drinking. When the participants are divided into 5 groups of alcohol-related risk by their AUDIT scores, as abstainers, low risk drinkers, hazardous drinkers, harmful drinkers, and probable alcohol dependent drinkers, half of them are low risk drinkers and 9.3% are abstainers who consume no alcohol. There are 40 participants who consume alcohol at the level of 15 or above in AUDIT score, which is categorized as harmful drinkers or probable alcohol dependent drinkers and regarded as riskier drinkers. Table 9 shows the distribution (percent) of the alcohol-related risk groups in AUDIT. Comparing this table with Table 1, they show that there are more hazardous, harmful, and probable alcohol dependent drinkers among Japanese residents in Bangkok than among general population in Japan. This suggests Japanese residents in Bangkok tend to drink more alcohol than in Japan.

Table 8 Alcohol consumption characteristics among Japanese residents in Bangkok

		Frequency	Percent
Drinking history in life (n = 300)	Yes	299	99.7
	No	1	0.3
* Age at first drink (n = 287)	≤ 15	38	13.2
	16-19	142	49.5
	≥ 20	107	37.3
	Missing (n) including a lifelong abstainer	(13)	-
	Mean of first-drink age	18.02	
	SD	2.93	
Frequency of alcohol drinking within 30 days (n = 300)	Never	40	13.3
	Once	27	9.0
	2-4 times	72	24.0
	2-3 times a week	75	25.0
	4 or more times a week	86	28.7

* The classification of Age at first drinking is according to school level and legal age of drinking

Table 8 Alcohol consumption characteristics among Japanese residents in Bangkok (cont.)

		Frequency	Percent
Amount of alcohol drinking per occasion within 30 days (n = 258)	1-2 drinks	83	32.2
	3-4 drinks	89	34.5
	5-6 drinks	41	15.9
	7-9 drinks	21	8.1
	More than 9 drinks	24	9.3
	Missing (n) including a lifelong abstainer and those who have never drunk within 30 days	(42)	-
Alcohol-related risk group (n = 300)	Abstainer	28	9.3
	Low risk	150	50.0
	Hazardous	82	27.3
	Harmful	25	8.3
	Probable alcohol dependent	15	5.0
AUDIT score	Mean score of AUDIT	7.40	
	SD	6.34	

Table 9 Distribution (percent) of alcohol-related risk group among Japanese residents in Bangkok

	Japanese residents in Bangkok	
	Male	Female
Abstainer (AUDIT score : 0)	6.7	15.4
Low risk drinker (AUDIT score : 1 - 7)	42.6	67.0
Hazardous drinker (AUDIT score : 8 - 14)	32.1	16.5
Harmful drinker (AUDIT score : 15 - 19)	12.0	0
Probable alcohol dependent drinker (AUDIT score : 20 - 40)	6.7	1.1

4.1.3 HRQoL characteristics among Japanese residents in Bangkok

Table 10 shows the HRQoL characteristic in this study.

There are 8 subscales in SF-36, which is a questionnaire for HRQoL - Physical Function, Role Limitations Due To Physical Health, Role Limitations Due To Emotional Problem, Vitality, Mental Health, Social Function, Bodily Pain, and General Health. Every subscale has its own score ranging from 0 to 100 (mean score of group of questions in a subscale). However, the score itself has no meaning. When it is compared with a specific standard score, it becomes meaningful. Here, the mean score of Japanese residents in Bangkok is compared with Japanese national standard score so that we can find differences between them.

For physical function, the mean is 91.67 (±9.95) and Japanese national standard score is 89.1. The mean score of Japanese residents in Bangkok is 2.57 points higher than the national standard score in Japan, which indicates the better situation of physical function in Bangkok than in Japan. Regarding role limitations due to physical health, the mean is 91.75 (±22.23), which is higher than Japanese national standard score (89.2). The mean score of role limitations due to emotional problem is 89.44 (±26.21). This is also better than Japanese national standard score (87.8). In respect to vitality, the mean is 64.65 (±17.64). It is 1.85 point higher than Japanese national standard score (62.8). As for mental health, the mean is 73.45 (±15.34),

which is 1.85 point higher than Japanese national standard score. In respect of social function, the mean is 88.04 (±15.98) and Japanese national standard score is 86.4. The mean score of bodily pain is 82.19 (±19.63), which is much higher, even compared to the differences in other subscales, than Japanese national standard score (73.8). When it comes to general health, the mean is 66.53 (±17.81). It is higher than Japanese national standard score (62.9). Every subscale has higher score than Japanese national standard score.

Table 10 HRQoL characteristics among Japanese residents in Bangkok (n = 300)

		Mean	SD
Physical Function	Mean / SD	91.67	(±9.95)
	Japanese standard score	89.1	
Role Limitations Due To Physical Health	Mean / SD	91.75	(±22.23)
	Japanese standard score	89.2	
Role Limitations Due To Emotional Problem	Mean / SD	89.44	(±26.21)
	Japanese standard score	87.8	
Vitality	Mean / SD	64.65	(±17.64)
	Japanese standard score	62.8	
Mental Health	Mean / SD	73.45	(±15.34)
	Japanese standard score	71.6	
Social Function	Mean / SD	88.04	(±15.98)
	Japanese standard score	86.4	
Bodily Pain	Mean / SD	82.19	(±19.63)
	Japanese standard score	73.8	
General Health	Mean / SD	66.53	(±17.81)
	Japanese standard score	62.9	

4.2 Association between socio-demographic characteristics and level of alcohol consumption

To find out the association between socio-demographic characteristics and level of alcohol consumption, t-test and one way ANOVA are used and 95% of Confidence

Interval is applied. When a significant association is found by using one way ANOVA, Tukey post hoc test is done to find between which groups of socio-demographic characteristics there is a significant difference. The results are shown in Table 11.

As Table 11 shows, the mean score of AUDIT in males is twice as large as that in females. As a whole, males are categorized as hazardous drinkers and females are low risk drinkers. A significant association between gender and level of alcohol consumption is found by t-test (p-value = 0.000). In regard to the association between age and level of alcohol consumption, the mean scores of AUDIT are 6.87 in 20-39, 8.37 in 40-59, and 5.98 in 60 or above. A significant association is found between age and level of alcohol consumption by one way ANOVA (p-value = 0.040), however, no significant difference is found between age groups by using Tukey post hoc test. The mean score of AUDIT in every occupation is as follows; 10.40 in management level employees, 7.95 in self-employed workers, 7.32 in administration staff, 7.23 in technical personnel staff, 5.78 in professional workers, 5.64 in others, and 4.66 in unemployed persons. A significant association is found between occupation and level of alcohol consumption by one way ANOVA (p-value = 0.000). According to Tukey post hoc test, there are significant differences between management level employees and professional workers (p-value = 0.004), between management level employees and unemployed persons (p-value = 0.000), and between management level employees and others (p-value = 0.000). For the associations between marital status and level of alcohol consumption, between living condition and level of alcohol consumption, and between educational background and level of alcohol consumption, the results of statistical analyses are not significant.

Table 11 Association between socio-demographic characteristics and level of alcohol consumption (n = 300)

Socio-demographic factors		Fequency	Mean of AUDIT	SD	t-value/ F-value	p-value
Gender	Male	209	8.78	6.64	6.048	* 0.000
	Female	91	4.23	4.15		
Age	20-39	115	6.87	5.61	3.263	** 0.040
	40-59	136	8.37	6.71		
	60 or above	49	5.98	6.60		
Occupation	Management	94	10.40	7.06	7.025	** 0.000
	Staff (administration)	25	7.32	5.15		
	Staff (technical personnel)	26	7.23	3.81		
	Professional (medical doctor, lawer, professor..)	32	5.78	4.92		
	Self-employed	22	7.95	6.21		
	Unemployed	59	4.66	6.08		
	Others	42	5.64	5.35		

* p-value from t-test, ** p-value from one way ANOVA

According to Tukey post hoc test, among occupations, there are signifiant differences of AUDIT score between Management and Professional (medical doctor, lawer, professor..) with p-value at 0.004, between Management and Unemployed with p-value at 0.000, and between Management and Others with p-value at 0.000, however, there is no significant difference of AUDIT score between ages

Table 11 Association between socio-demographic characteristics and level of alcohol consumption (n = 300)

Socio-demographic factors		Fequency	Mean of AUDIT	SD	t-value/ F-value	p-value
Maital status	Married	177	8.05	6.88	2.471	** 0.086
	Never married	108	6.33	5.00		
	Others (divorced/widowed)	15	7.53	7.70		
Living condition	Living alone	164	7.76	6.06	1.077	* 0.283
	Living with family/others	136	6.97	6.66		
Educational background	Senior high school	46	6.11	5.49	0.772	** 0.511
	Undergraduate	196	7.65	6.78		
	Graduate	34	7.44	4.73		
	Others	24	7.83	6.19		

* p-value from t-test, ** p-value from one way ANOVA

4.3 Association between socio-demographic characteristics and HRQoL

To find out the association between socio-demographic characteristics and HRQoL, t-test and one way ANOVA are used and 95% of Confidence Interval is applied. When a significant association is found by using one way ANOVA, Tukey post hoc test is done to find between which groups of socio-demographic characteristics there is a significant difference.

4.3.1 Association between gender and HRQoL

In Table 12, t-test is run to find the association between gender and HRQoL. In physical function, role limitations due to physical health, role limitations due to emotional health, and bodily pain, males have the higher mean than females. On the contrary, females have the higher mean score in vitality, mental health, social function, and general health. There is no significant association between gender and every subscale of HRQoL

Table 12 Association between gender and HRQoL (n = 300)

Gender	Frequency	Mean of HRQoL	SD	t-value	p-value
			Physical Function		
Male	209	91.94	9.38	0.715	0.475
Female	91	91.04	11.19		
			Role Limitations Due To Physical Health		
Male	209	92.34	20.69	0.702	0.484
Female	91	90.38	25.49		
			Role Limitations Due To Emotional Problem		
Male	209	89.79	26.19	0.348	0.728
Female	91	88.64	26.40		
			Vitality		
Male	209	64.55	18.09	-0.155	0.877
Female	91	64.89	16.63		
			Mental Health		
Male	209	73.05	15.15	-0.685	0.494
Female	91	74.37	15.80		
			Social Function		
Male	209	87.92	16.23	-0.202	0.840
Female	91	88.32	15.46		
			Bodily Pain		
Male	209	82.88	19.01	0.924	0.356
Female	91	80.60	21.00		
			General Health		
Male	209	65.33	17.78	-1.773	0.077
Female	91	69.29	17.66		

p-value from t-test

4.3.2 Association between age and HRQoL

In Table 13, one way ANOVA is run for the association between age and HRQoL. There is a significant association between age and physical function (p-value = 0.000). Age group of 20-39 has the highest mean score (94.65), followed by 40-59 (91.51) and 60 or above (85.10). The younger they are, the higher mean score of physical function they have. In Tukey post hoc test, there are significant differences between each age group (20-39 and 40-59 with p-value at 0.024, 20-39 and 60 or above with p-value at 0.000, and 40-59 and 60 or above with p-value at 0.000). For role limitations due to physical health, though the mean score in the age group of 20-39 is the highest (94.13), followed by the age group of 40-59 (92.10) and the age group of 60 or above (85.20), no significant association with age is found. There is a significant association between age and bodily pain (p-value = 0.005). The trend of mean score is same as above-mentioned. In Tukey post hoc test, the significant differences between 20-39 and 60 or above (p-value = 0.007), and between 40-59 and 60 or above (p-value = 0.009) are found. Also, in general health, a significant association with age is found (p-value = 0.026). The mean scores in each age group are 68.91 in 20-39, 66.62 in 40-59, and 60.71 in 60 or above. The significant difference is found between 20-39 and 60 or above (p-value = 0.019) by using Tukey post hoc test.

Table 13 Association between age and HRQoL (n = 300)

Age	Frequency	Mean of HRQoL	SD	F-value	p-value
		Physical Function			
20-39	115	94.65	7.80		
40-59	136	91.51	9.22	17.612	0.000
60 or above	49	85.10	12.97		
		Role Limitations Due To Physical Health			
20-39	115	94.13	18.53		
40-59	136	92.10	20.57	2.835	0.060
60 or above	49	85.20	31.84		
		Role Limitations Due To Emotional Problem			
20-39	115	87.83	26.61		
40-59	136	91.42	24.34	0.706	0.494
60 or above	49	87.76	30.20		
		Vitality			
20-39	115	62.26	18.19		
40-59	136	65.18	17.89	2.483	0.085
60 or above	49	68.78	14.81		
		Mental Health			
20-39	115	71.76	15.98		
40-59	136	74.29	15.29	1.193	0.305
60 or above	49	75.10	13.79		

p-value from one way ANOVA

According to Tukey post hoc test, among ages, there are significant differences of physical function between 20-39 and 40-59 with p-value at 0.024, between 20-39 and 60 or above with p-value at 0.000, and between 40-59 and 60 or above with p-value at 0.000

Table 13 Association between age and HRQoL (cont.)

Age	Frequency	Mean of HRQoL	SD	F-value	p-value
			Social Function		
20-39	115	85.98	18.07		
40-59	136	90.07	13.79	2.136	0.120
60 or above	49	87.24	16.03		
			Bodily Pain		
20-39	115	84.09	18.47		
40-59	136	83.55	18.34	5.297	0.005
60 or above	49	73.98	23.67		
			General Health		
20-39	115	68.91	16.89		
40-59	136	66.62	17.86	3.709	0.026
60 or above	49	60.71	18.79		

p-value from one way ANOVA
According to Tukey post hoc test, among ages, there are significant differences of bodily pain between 20-39 and 60 or above with p-value at 0.007, and between 40-59 and 60 or above with p-value at 0.009, and there is a significant difference of general health between 20-39 and 60 or above with p-value at 0.019

4.3.3 Association between occupation and HRQoL

In Table 14, one way ANOVA is used to analyze the association between occupation and HRQoL. A significant association is found between occupation and role limitations due to emotional problem (p-value = 0.021). The highest mean score is 95.39 in management level employees. On the contrary, the lowest is 77.27 in self-employed workers. Tukey post hoc test does not find any significant difference of role limitations due to emotional problem between occupations. Occupation is also significantly associated with social function (p-value = 0.009). The highest mean score is 90.56 in management level employees and the lowest is 78.13 in professional workers. By using Tukey post hoc test, significant differences between management

level employees and professional workers (p-value = 0.002), and between unemployed persons and professional workers (p-value = 0.011) are found. Furthermore, there is a significant association between occupation and bodily pain (p-value = 0.002). Tukey post hoc test found that there are significant differences between management level employees and unemployed persons (p-value = 0.013), and between technical personnel staff and unemployed persons (p-value = 0.020). As a whole, management level employees tend to have highest mean scores, followed by others, technical personnel staff, unemployed persons, administration staff, self-employed workers, and professional workers.

Table 14 Association between occupation and HRQoL (n = 300)

Occupation	Frequency	Mean of AUDIT	SD	F-value	p-value
		Physical Function			
Management	94	93.03	8.43		
Staff (administration)	25	93.20	9.12		
Staff (technical personnel)	26	89.62	11.66		
Professional (medical doctor, lawer, professor..)	32	93.13	8.01	2.016	0.063
Self-employed	22	90.00	11.55		
Unemployed	59	88.47	12.01		
Others	42	93.21	8.96		
		Role Limitations Due To Physical Health			
Management	94	94.41	16.86		
Staff (administration)	25	93.00	15.34		
Staff (technical personnel)	26	91.35	22.30		
Professional (medical doctor, lawer, professor..)	32	89.06	26.13	1.133	0.343
Self-employed	22	85.23	33.33		
Unemployed	59	88.14	29.12		
Others	42	95.83	12.24		

p-value from one way ANOVA

Table 14 Association between occupation and HRQoL (cont.)

Occupation	Frequency	Mean of AUDIT	SD	F-value	p-value
		Role Limitations Due To Emotional Problem			
Management	94	95.39	16.65		
Staff (administration)	25	82.67	29.06		
Staff (technical personnel)	26	91.03	24.14		
Professional (medical doctor, lawer, professor..)	32	81.25	36.84	2.523	0.021
Self-employed	22	77.27	40.35		
Unemployed	59	89.83	25.71		
Others	42	91.27	22.16		
			Vitality		
Management	94	67.07	19.42		
Staff (administration)	25	63.20	19.99		
Staff (technical personnel)	26	61.73	16.85		
Professional (medical doctor, lawer, professor..)	32	58.59	14.44	1.121	0.350
Self-employed	22	64.55	15.80		
Unemployed	59	65.85	17.62		
Others	42	64.88	15.16		

p-value from one way ANOVA

According to Tukey post hoc test, there is no significant difference of role limitations due to emotional problems between occupations

Table 14 Association between occupation and HRQoL (cont.)

Occupation	Frequency	Mean of AUDIT	SD	F-value	p-value
			Mental Health		
Management	94	73.83	16.75		
Staff (administration)	25	72.16	13.29		
Staff (technical personnel)	26	70.15	15.36		
Professional (medical doctor, lawer, professor..)	32	69.25	13.19	1.019	0.413
Self-employed	22	73.45	16.22		
Unemployed	59	74.92	16.82		
Others	42	76.57	11.40		
			Social Function		
Management	94	90.56	15.95		
Staff (administration)	25	89.50	11.23		
Staff (technical personnel)	26	89.42	14.44		
Professional (medical doctor, lawer, professor..)	32	78.13	18.51	2.927	0.009
Self-employed	22	87.50	19.67		
Unemployed	59	90.04	13.49		
Others	42	85.71	16.23		

p-value from one way ANOVA

According to Tukey post hoc test, among occupations, there are significant differences of social function between Management and Professional (medical doctor, lawer, professor..) with p-value at 0.002, and between Professional (medical doctor, lawer, professor..) and Unemployed with p-value at 0.011

Table 14 Association between occupation and HRQoL (cont.)

Occupation	Frequency	Mean of AUDIT	SD	F-value	p-value
			Bodily Pain		
Management	94	87.31	15.64		
Staff (administration)	25	81.10	16.27		
Staff (technical personnel)	26	91.25	12.53		
Professional (medical doctor, lawer, professor..)	32	79.30	22.69	3.594	0.002
Self-employed	22	78.86	26.96		
Unemployed	59	76.48	22.73		
Others	42	77.74	17.87		
			General Health		
Management	94	70.11	17.02		
Staff (administration)	25	61.80	18.65		
Staff (technical personnel)	26	62.88	16.07		
Professional (medical doctor, lawer, professor..)	32	67.66	16.94	2.014	0.064
Self-employed	22	60.23	23.48		
Unemployed	59	64.07	17.87		
Others	42	69.52	15.88		

p-value from one way ANOVA
According to Tukey post hoc test, among occupations, there are significant differences of bodily pain between Management and Unemployed with p-value at 0.013, and between Staff (technical personnel) and Unemployed with p-value at 0.020

4.3.4 Association between marital status and HRQoL

In Table 15, the association between marital status and HRQoL is tested by one way ANOVA. There is a significant association between marital status and physical function (p-value = 0.001). Those who have never married have the highest mean score, suggesting healthiest status in physical function. Others (divorced/widowed) have the lowest mean. In Tukey post hoc test, there are significant differences between those who are married and those who have never been married (p-value = 0.008), and between those who have never been married and others (p-value = 0.005). For general health, a significant association is found with marital status (p-value = 0.004). It is found that there are significant differences between those who are married

and others (p-value = 0.003), and between those who have never been married and others (p-value = 0.004) by Tukey post hoc test.

Table 15 Association between marital status and HRQoL (n = 300)

Marital status	Frequency	Mean of HRQoL	SD	F-value	p-value
			Physical Function		
Married	177	90.62	9.94		
Never married	108	94.21	8.18	7.554	0.001
Others (divorced/widowed)	15	85.67	16.13		
			Role Limitations Due To Physical Health		
Married	177	91.24	23.10		
Never married	108	94.21	16.95	2.840	0.060
Others (divorced/widowed)	15	80.00	38.03		
			Role Limitations Due To Emotional Problem		
Married	177	90.02	25.76		
Never married	108	89.81	25.15	1.027	0.359
Others (divorced/widowed)	15	80.00	37.37		
			Vitality		
Married	177	64.80	17.96		
Never married	108	65.05	17.95	0.554	0.575
Others (divorced/widowed)	15	60.00	10.00		

p-value from one way ANOVA

According to Tukey post hoc test, among marital statuses, there are significant differences of physical function between Married and Never married with p-value at 0.008, and between Never married and Others (divorced/widowed) with p-value at 0.005

Table 15 Association between marital status and HRQoL (cont.)

Marital status	Frequency	Mean of HRQoL	SD	F-value	p-value
			Mental Health		
Married	177	73.67	14.93		
Never married	108	74.15	15.88	1.977	0.140
Others (divorced/widowed)	15	65.87	15.03		
			Social Function		
Married	177	88.56	14.34		
Never married	108	87.96	18.16	0.997	0.370
Others (divorced/widowed)	15	82.50	17.55		
			Bodily Pain		
Married	177	81.62	19.69		
Never married	108	83.75	19.59	0.812	0.445
Others (divorced/widowed)	15	77.67	19.40		
			General Health		
Married	177	67.26	16.72		
Never married	108	67.41	19.11	5.675	0.004
Others (divorced/widowed)	15	51.67	14.84		

p-value from one way ANOVA

According to Tukey post hoc test, among marital statuses, there are significant differences of general health between Married and Others (divorced/widowed) with p-value at 0.003, and between Never married and Others (divorced/widowed) with p-value at 0.004

4.3.5 Association between living condition and HRQoL

In Table 16, t-test is used for the association between living condition and HRQoL. In regard to physical function, role limitations due to physical health, role limitations due to emotional problem, and bodily pain, those who are living alone have higher mean scores than those who are living with family/others. In the other subscales, those who are living with family/others have higher mean scores. There is a significant association between living condition and physical function (p-value = 0.034).

In Table 17, one way ANOVA is run for the association between educational background and HRQoL. A significant association is found between educational background and vitality (p-value = 0.041), however, Tukey post hoc test does not find any significant difference between educational backgrounds. Participants whose final education is senior high school have the highest mean score. On the contrary, participants whose final education is others (junior high school/vocational school) have the lowest mean.

Table 16 Association between living condition and HRQoL (n = 300)

Living condition	Frequency	Mean of HRQoL	SD	t-value	p-value
			Physical Function		
Living alone	164	92.77	8.88	2.129	0.034
Living wih family/others	136	90.33	10.99		
			Role Limitations Due To Physical Health		
Living alone	164	93.90	18.18	1.849	0.065
Living wih family/others	136	89.15	26.12		
			Role Limitations Due To Emotional Problem		
Living alone	164	90.45	24.98	0.727	0.468
Living wih family/others	136	88.24	27.68		
			Vitality		
Living alone	164	64.54	17.54	-0.116	0.908
Living wih family/others	136	64.78	17.81		
			Mental Health		
Living alone	164	71.90	15.70	-1.932	0.054
Living wih family/others	136	75.32	14.72		
			Social Function		
Living alone	164	87.96	16.55	-0.100	0.920
Living wih family/others	136	88.14	15.31		
			Bodily Pain		
Living alone	164	83.98	17.80	1.737	0.083
Living wih family/others	136	80.04	21.50		
			General Health		
Living alone	164	65.76	18.56	-0.823	0.411
Living wih family/others	136	67.46	16.89		

p-value from t-test

Table 17 Association between educational background and HRQoL (n = 300)

Educational background	N	Mean of HRQoL	SD	F-value	p-value
		Physical Function			
Senior high school	46	91.52	9.06	2.208	0.087
Undergraduate	196	92.04	9.41		
Graduate	34	93.09	10.30		
Others	24	86.88	13.97		
		Role Limitations Due To Physical Health			
Senior high school	46	96.20	11.75	1.110	0.345
Undergraduate	196	90.18	24.20		
Graduate	34	92.65	21.79		
Others	24	94.79	20.82		
		Role Limitations Due To Emotional Problem			
Senior high school	46	93.48	21.80	0.540	0.655
Undergraduate	196	89.12	26.05		
Graduate	34	86.27	31.91		
Others	24	88.89	27.22		
		Vitality			
Senior high school	46	70.54	17.58	2.793	0.041
Undergraduate	196	64.41	17.24		
Graduate	34	61.76	17.62		
Others	24	59.38	19.01		

p-value from one way ANOVA

According to Tukey post hoc test, there is no significant difference of vitality between educational backgrounds

Table 17 Association between educational background and HRQoL (cont.)

Educational background	N	Mean of HRQoL	SD	F-value	p-value
			Mental Health		
Senior high school	46	76.70	16.81	1.490	0.217
Undergraduate	196	73.59	15.13		
Graduate	34	70.94	13.66		
Others	24	69.67	15.87		
			Social Function		
Senior high school	46	92.12	17.75	1.630	0.183
Undergraduate	196	86.73	16.04		
Graduate	34	90.07	12.98		
Others	24	88.02	14.96		
			Bodily Pain		
Senior high school	46	85.22	18.45	0.442	0.723
Undergraduate	196	81.71	19.96		
Graduate	34	81.03	19.83		
Others	24	81.98	19.45		
			General Health		
Senior high school	46	68.04	19.34	1.459	0.226
Undergraduate	196	67.27	17.57		
Graduate	34	65.00	18.13		
Others	24	59.79	15.57		

p-value from one way ANOVA

4.4 Association between level of alcohol consumption and HRQoL

In Table 18, the association between level of alcohol consumption and HRQoL is tested by one way ANOVA. When a significant association is found between them, Tukey post hoc test is done to find between which groups (abstainer, low risk drinker, hazardous drinker, harmful drinker and probable alcohol dependent drinker) there is a significant difference.

There is a significant association between level of alcohol consumption and physical function (p-value = 0.005). The table shows low risk drinkers have the highest mean score, followed by hazardous drinkers, harmful drinkers, probable alcohol dependent drinkers, and abstainers. In Tukey post hoc test, significant differences between abstainers and low risk drinkers (p-value = 0.009), and between abstainers and hazardous drinkers (p-value = 0.042) are found. A significant association is found between level of alcohol consumption and vitality (p-value = 0.036), however, any significant difference between them is not indicated by Tukey post hoc test. Low risk drinkers have the highest mean score, followed by hazardous drinkers, abstainers, probable alcohol dependent drinkers, and harmful drinkers. Also, in bodily pain, a significant association with level of alcohol consumption is found (p-value = 0.017). The mean score in each AUDIT group is 70.36 in abstainers, 83.92 in low risk drinkers, 83.63 in hazardous drinkers, 80.90 in harmful drinkers, and 81.33 in probable alcohol dependent drinkers. Tukey post hoc test finds that there are significant differences between abstainers and low risk drinkers (p-value = 0.007), and between abstainers and hazardous drinkers (p-value = 0.016). Significant associations are not found between level of alcohol consumption and role limitations due to physical health/role limitations due to emotional problem/mental health/social function/general health.

Table 18 Association between level of alcohol consumption and HRQoL (n = 300)

Level of alcohol consumption	Frequency	Mean of HRQoL	SD	F-value	p-value
		Physical function			
Abstainer	28	86.25	11.76		
Low risk drinker	150	92.90	9.47		
Hazardous drinker	82	92.26	9.23	3.810	0.005
Harmful drinker	25	91.40	9.74		
Probable alcohol dependent drinker	15	86.67	11.60		
		Role limitations due to physical health			
Abstainer	28	84.82	32.87		
Low risk drinker	150	93.33	21.22		
Hazardous drinker	82	93.60	16.11	1.530	0.193
Harmful drinker	25	86.00	24.02		
Probable alcohol dependent drinker	15	88.33	31.15		
		Role limitations due to emotional problem			
Abstainer	28	89.29	31.50		
Low risk drinker	150	89.78	26.18		
Hazardous drinker	82	90.65	23.00	0.243	0.914
Harmful drinker	25	85.33	29.00		
Probable alcohol dependent drinker	15	86.67	30.34		

p-value from one way ANOVA

According to Tukey post hoc test, among levels of alcohol consumption, there are significant differences of physical function between Abstainer and Low risk drinker with p-value at 0.009, and between Abstainer and Hazardous drinker with p-value at 0.042

Table 18 Association between level of alcohol consumption and HRQoL (cont.)

Level of alcohol consumption	Frequency	Mean of HRQoL	SD	F-value	p-value
			Vitality		
Abstainer	28	61.07	14.30		
Low risk drinker	150	66.60	17.54		
Hazardous drinker	82	65.85	17.10	2.606	0.036
Harmful drinker	25	57.00	19.20		
Probable alcohol dependent drinker	15	58.00	20.60		
			Mental health		
Abstainer	28	69.00	14.83		
Low risk drinker	150	75.71	15.10		
Hazardous drinker	82	72.59	15.96	2.032	0.090
Harmful drinker	25	70.08	16.17		
Probable alcohol dependent drinker	15	69.60	10.78		
			Social function		
Abstainer	28	84.38	18.83		
Low risk drinker	150	89.58	15.08		
Hazardous drinker	82	87.96	16.60	1.149	0.334
Harmful drinker	25	86.00	13.65		
Probable alcohol dependent drinker	15	83.33	18.70		

p-value from one way ANOVA

According to Tukey post hoc test, among levels of alcohol consumption, no significant difference of vitality is identified

Table 18 Association between level of alcohol consumption and HRQoL (cont.)

Level of alcohol consumption	Frequency	Mean of HRQoL	SD	F-value	p-value
			Bodily pain		
Abstainer	28	70.36	27.02		
Low risk drinker	150	83.92	19.66		
Hazardous drinker	82	83.63	16.83	3.061	0.017
Harmful drinker	25	80.90	16.10		
Probable alcohol dependent drinker	15	81.33	17.14		
			General health		
Abstainer	28	60.54	17.97		
Low risk drinker	150	68.60	18.31		
Hazardous drinker	82	67.01	16.88	2.359	0.054
Harmful drinker	25	64.60	16.70		
Probable alcohol dependent drinker	15	57.67	15.68		

p-value from one way ANOVA

According to Tukey post hoc test, among levels of alcohol consumption, there are significant differences of bodily pain between Abstainer and Low risk drinker with p-value at 0.007, and between Abstainer and Hazardous drinker with p-value at 0.016

CHAPTER 5 DISCUSSION

5.1 Association between socio-demographic characteristics and level of alcohol consumption

As written in Chapter 2, compared to those who are living in other cities, people living in Bangkok has 1.7-10 times higher possibilities to become a hazardous/harmful/probable alcohol dependent drinker, suggesting living in Bangkok is an important factor of consuming high level of alcohol in Thailand (Assanangkornchai S, 2010). For gender, age, occupation, there are both similarities and differences of alcohol consumption characteristics between general population in Thailand and Japanese residents in Bangkok.

According to the result of this study, as for level of alcohol consumption, there is a significant difference between male and female. This is consistent with the former study from WHO (WHO, 2014) as written in chapter 2. It is considered that males have more occasions to drink alcohol and the absolute amount of alcohol drinking is larger than females. Both socially and physically, males tend to drink alcohol more than females.

Based on the mean score of AUDIT, 40-59 is the riskiest age group in terms of higher level of alcohol consumption, followed 20-39, and 60 or above. This trend is almost consistent with the result of national survey which is shown in chapter 2 (Ministry of Health, Labour, and Welfare in Japan, 2006). Older generation (60 or above) tends to decrease the amount of alcohol consumption, even though they consumed a lot when they were young, because of increasing age. For Japanese, they often go for a drink not only with friends but also with co-workers. A lot of Japanese business persons go for a drink with their colleagues after work on weekdays. When they get retired, their chances to go for a drink with colleagues could be decreased. Also, physically, they cannot drink as much as they consumed when they were young. Middle-aged generation (40-59) has tendency to drink a lot, however, younger generation (20-39) tends to drink less alcohol. One of the possible explanations for this is that regulations and penalties related to alcohol drinking have been strict in the last few decades. Younger generation has been grown up in the environment having many restrictions and penalties for a lot of alcohol consumption (education related to

alcohol in schools, strict penalty for drinking drive, restriction on sale of alcohol to underage people, etc.). However, for middle-aged generation, when they were young, the restrictions and penalties were not so strict, compared to what they are now. That could affect their drinking behavior. Also, young generation has more health-conscious mind than the middle-aged and the old generations (Ministry of Health, Labour, and Welfare in Japan, 2014). That would decrease the amount of alcohol consumption in young generation. Besides, there are other possible reasons for this, as younger generation likes to spend money on their own hobbies, compared to middle-aged generation, or younger generation does not like to go for a drink with their colleagues after work, and so on. Multiple reasons seem to be related to one another for this situation.

There are significant differences of alcohol consumption between occupations - difference between professional workers and management level employees, between unemployed persons and management level employees, and between others and management level employees. As Table 11 shows, the mean score of AUDIT in management level employees is enormously higher than other occupations. This is inconsistent with the former study (Grittner et al., 2012) in chapter 2. It says people with higher socio-economic status have less alcohol-related risk than lower socio-economic groups, even though they have more occasions of drinking. Some of the business persons in the participants mentioned that, in Bangkok, they are required to host temporary business travelers from Japan. And, usually, the senior workers tend to attend that kind of meeting. That could increase their chances of drinking alcohol.

Though there is no significant association between marital status and level of alcohol consumption, the mean score of AUDIT among those who are married is the highest at 8.05. This is inconsistent with the former study (Chris Power et al., 1999). It mentions that “being married” is a protective factor for drinking, in other words, those who are married drink less than those who are single. The reason for the difference between the result of this study and the former study is not clear. However, from a perspective of age, the result of this study seems slightly reasonable. Most of the participants in 20-39 age group are those who have never been married (64.3%). And 68.5% of those who have never been married are persons from age group of 20-39. As the association between age and level of alcohol consumption shows, 20-39 age group

consumes less alcohol. That's why the mean score in those who have never been married could become relatively lower. Also, those who are widowed and divorced tend to drink more compared to both married and never married persons and significantly increase the amount of alcohol compared to before the loss of their spouses (Trivedi J.K., 2009). This is because they feel much stress and it makes them to drink more than before in order to escape from the stress. In this study, the mean score of AUDIT among others (divorced/widowed) is higher than that among those who have never been married, however, it is lower than that among married persons. This is partly consistent but partly inconsistent with the former research.

Though there is no significant association between living condition and level of alcohol consumption, the mean score of AUDIT is higher among those who are living alone than those who are living with family/others. In Bangkok, a large proportion of Japanese residents are expatriate workers from Japanese companies. They usually come to Bangkok with their family if they are married, however, it is not so uncommon for them to leave their family in Japan and come alone even if they are married. Table 11 shows there are 177 married persons, which is 59.0% of all the participants, in this study, however, in living condition, the number of living with family/others is only 136 (45.3%) and 12 of them are living with others. And some of the participants living with family might be living not with their spouses but with their parents/children. Then, the proportion of those who are living with their family is 41.3% ((136-12)/300). So, it is possible to conclude that at least 17.7% of the participants (53 participants) are living alone even though they are married. This confounds the analysis of association between marital status and level of alcohol consumption in this study.

It seems reasonable to think that living condition is more powerful protective factor of drinking than status of marriage. Whether they are married or not, they can easily reach to alcohol if they live alone. If the former studies regard the word "married" as a synonym of "living with spouse" and find that it is a protective factor of alcohol drinking, living condition can be a protective factor of drinking in this study. And Table 11 shows living with someone plays a role to decrease alcohol consumption and the result is consistent with the former studies, though it is not significantly associated with level of alcohol consumption in this study.

The result shows there is no significant association between educational background and level of alcohol consumption. The mean scores of AUDIT among participants whose final education is graduate school and participants whose final education is junior high school or vocational school are almost same. This is inconsistent with a former study mentioning higher socio-economic status is significantly associated with less alcohol-related risk (Grittner et al., 2012).

5.2 Association between socio-demographic characteristics and HRQoL

As the Guideline of SF-36 in Japan shows there is a significant association between gender and HRQoL (Fukuhara S, Suzukamo Y, 2015). It indicates that men tend to have higher score of SF-36 in every subscale, which means men tend to have better HRQoL than women. However, in this study, no significant association is found between gender and HRQoL. This is inconsistent with the former studies. The reason for this is not clear.

Former studies show there is a significant associations between age and HRQoL. Some of them mention that there is a negative relationship between them (El Emrani L et al., 2016). This study shows there is a significant association between age and physical function/bodily pain/general health. As long as Table 13 shows, higher mean scores are relatively seen in young and middle age groups (20-39 and 40-59). This is almost consistent with the negative relationship, which is mentioned in the former studies. Especially, in physical components (physical function, role limitations due to physical health, bodily pain, and general health), the age group of 20-39 has the highest mean score, followed by 40-59, and 60 or above. This trend is also true in Japanese national standard data, which is shown in Table 6. People easily get diseases or physical malfunctions along with the increase in age. The older they become, the more chances of getting worse physical condition they tend to have. So, the result seems reasonable.

There is a significant association between occupation and role limitations due to emotional problem/social function/bodily pain. Among those three subscales, professional workers have a tendency to have relatively lower mean score, on the contrary, management level employees and technical personnel staff tend to have higher mean scores, compared to other occupations. In this study, most of the

participants categorized in professional workers are teachers or lecturers in universities/schools. Those teaching staff has less healthy status in role limitations due to emotional problem, social function, and bodily pain than other occupations. However, the reason for this is unclear.

Previous studies show that there is a significant association between marital status and HRQoL and having a spouse is helpful for better physical health management and sound psychological stability (Zhou J et al., 2016; Par K et al., 2015). There is a significant association between marital status and physical function/general health in this study. However, the result is totally different from what the former studies show. In most of the subscales including physical function and general health which are significantly associated with marital status, those who have never been married have the highest mean scores. This means having a spouse does not play a role for better physical and mental health. Others (divorced/widowed) have the lowest mean scores among them in all subscales. This is consistent with a former study (Harvard Medical School, 2010). Because the divorced and the widowed have the mental burden related to the loss of their spouses. It affects not only their mental health but also their physical health. They were physically and mentally supported by their spouses when they were sick or in a difficult situation. However, once they lose their spouses, they have no one to rely on in their houses if they do not have children or parents. That would increase the risk of getting worse health.

A significant association between living condition and physical health is found and tells that those who are living alone have higher mean score of physical function than those who are living with family/others. This is totally opposite result from the former study (Harvard Medical School, 2012). Usually, those who are living alone have difficulties in taking care of themselves physically. When they are in need of support, they have no one to rely on. Furthermore, their mental health is also affected by loneliness. Nonetheless, in physical function, role limitations due to physical health, role limitations due to emotional problem, and bodily pain, those who are living alone have the higher mean score. One of the possible explanations for this inconsistent situation is that most of the participants in 20-39 age group are not married (64.3%) and living alone (69.6%). As shown in the association between age and HRQoL, the younger group have a tendency to have better health statuses. The percentage of

participants in middle and older age groups who are married is 72.8% in 40-59 and 75.5% in 60 or above, and who are living with family/others is 54.4% in 40-59 and 55.1% in 60 or above. This suggests that because distribution of age groups in marital status and living condition is disproportionate in the samples, the result could be influenced and different from the former studies.

Former studies show that HRQoL is significantly positively associated with educational background (Tchicaya A et al., 2015; Pappa et al., 2015). In this study, there is a statistically significant association between educational background and vitality. According to those articles, people with higher education tend to have higher health status. However, in this study, people whose final education is graduate school have the mean score at 61.76, people whose final education is undergraduate have 64.41, and people whose final education is senior high school have 70.54. This is perfectly opposite tendency from the result of former studies.

5.3 Association between level of alcohol consumption and HRQoL

There are 3 significant associations between level of alcohol consumption and HRQoL. In every subscale of HRQoL, low risk drinkers and hazardous drinkers have higher mean score, suggesting the better health status than other AUDIT risk groups. As some former studies (Kim et al., 2015; Saito et al., 2005) show, not only harmful drinkers and probable alcohol dependent drinkers but also abstainers have less healthy statuses than moderate drinkers (low risk drinkers and hazardous drinkers). The result of this study is consistent with those former studies.

Comparing the mean scores of SF-36 among AUDIT risk groups with Japanese national standard scores (Table 6), the mean scores of abstainers are less than Japanese national standard in physical function, role limitations due to physical health, vitality, mental health, social function, bodily pain, and general health. The mean scores of harmful drinkers are less than Japanese national standard in role limitations due to physical health, vitality, mental health, and social function. The mean scores of probable alcohol dependent drinkers are less than Japanese national standard in physical function, role limitations due to physical health, role limitations due to emotional problem, vitality, mental health, social function, and general health. The mean scores of low risk drinkers and hazardous drinkers are more than Japanese

national standard in all the subscale. This suggests that abstainers, harmful drinkers, and probable alcohol dependent drinkers in Bangkok have worse health status than general population in Japan.

Though abstainers do not drink alcohol at all, their health status is not good, compared to low risk and hazardous drinkers. There are some possible reasons why abstainers have less healthy status than low risk and hazardous drinkers, and in some cases, less healthy than even harmful and probable alcohol dependent drinkers. First of all, as written in chapter 2, moderate alcohol drinking is beneficial for our physical and mental health. It prevents some diseases including common cold. Also, drinking alcohol decreases daily stress and makes people socialized. This positive effects of moderate alcohol consumption could possibly make drinkers healthier than abstainers. Furthermore, some abstainers in this study said that they quit drinking alcohol because they already had a disease or a physical malfunction, which could decrease their health status. Both positive aspects of alcohol intake and negative reasons to stop drinking alcohol could generate the differences of health status between them.

5.4 Overview

The former study shows that using AUDIT is reliable to assess the alcohol-related risk in a city in Thailand (Areesantichai C. et al., 2013). Cronbach's alpha in the study is 0.85, which is regarded as reliable. Also, Cronbach's alpha of SF-36 conducted in the former study in Thailand is more than 0.7, which is regarded as reliable, in every subscale (Krittayaphong R. et al., 2000). In this study, Cronbach's alpha in AUDIT was 0.81. Cronbach's alpha in SF-36 was 0.84 in physical function, 0.68 in role limitations due to physical health, 0.78 in role limitations due to emotional problem, 0.83 in vitality, 0.81 mental health, 0.73 in social function, 0.66 in bodily pain, 0.87 in general health. In physical function and social function in SF-36, though the values are slightly lower than 0.7, most of the values are more than 0.7. This shows that using AUDIT and SF-36 is reliable in assessing the alcohol-related risk and HRQoL in the context of Thailand.

The result of this study finds that every subscale of HRQoL among Japanese residents in Bangkok is better than Japanese standard score even though they tend to drink more alcohol than in Japan. There are some prospective explanations for this

situation. At first, some of the participants said that they paid much attention for their health so that they could keep good health condition. Thailand is a foreign country for them, so getting diseases/injury will cause a heavy burden both financially and physically. They become more conscious about their health in order to avoid it. Also, when they get a relatively serious disease, they tend to return to Japan because they believe Japanese healthcare standard is superior to Thailand and it will cost more if they receive good-quality medical service even though they are covered by health insurance in Thailand. Additionally, most of the Japanese residents are business persons and they are expatriate workers from Japan. Their financial status might be better than the average in Japan. Also, their educational background might be higher than the average in Japan because they cannot be promoted to expatriate workers without good achievement in the company. Former studies (Fred C et al., 2010; Andreas M et al., 2014) show that health status is significantly associated with income level and educational level. The higher income and educational level they have, the healthier they are. Furthermore, even though level of alcohol consumption among Japanese residents in Bangkok is higher than that in Japan, their mean score of AUDIT in Bangkok is 7.40, which equals to low risk drinkers, or moderate alcohol drinking. As written in chapter 2, moderate alcohol consumption is good for health. It is possible to speculate that their health status is good because they consume moderate alcohol. Along with these theories, it seems reasonable that Japanese residents in Bangkok have healthier status than general population in Japan.

5.5 Limitation

Because purposive sampling was conducted in this study, the result cannot be generalized. In order to conduct simple random sampling for Japanese residents in Bangkok, the assistance of large Japanese communities or public organizations will be needed because individual persons or groups cannot access to many and unspecified number of Japanese residents only by themselves. Also, the questionnaire used in this study was a self-report, however, the researcher could realize participant's subtle queries by their faces or moods in the interview if the questionnaire is conducted in a face-to-face interview. And the researcher could get some qualitative findings which cannot be measured by self-report. Additionally, this study focuses only on the

alcohol consumption for the influence for health. As written in the background, there are various factors which influence health. Further studies will be recommended to include other factors, as smoking, food, exercise, sleep and so on so that they can assess the health situation as a whole. Also, asking favorite type of alcohol beverage would also be informative because the characteristics of alcohol drinking among Japanese residents in Bangkok can be assessed more precisely. Besides, this is a cross-sectional study, so causality cannot be mentioned. The result of this study tells only that there are significant associations between each variables. So, cohort study which divides participants into 5 alcohol-related risk groups and regularly assigns biomarker test regularly will provide more informative findings and causality between level of alcohol consumption and HRQoL. Also, it can measure the influence of level of alcohol consumption for HRQoL more precisely.

5.6 Policy recommendation

Some statistically significant associations are found between level of alcohol consumption and HRQoL in this study. The more alcohol they drink, the lower possibility to get better health status they have, even though abstainers also have lower possibility to get better score in SF-36.

The result shows that Japanese residents in Bangkok tend to drink more, compared to general population in Japan. Even though HRQoL among them is better than in Japan as of now, it is highly likely to have worse health status if they, especially those who drink at the level of more than 15 in AUDIT score, keep drinking under the present level of alcohol consumption. So, they are required to reduce the amount of alcohol consumption in order to keep better health status. Then, what could be the factors for the difference of alcohol consumption between Bangkok and Japan? One of the factors for this may be the environmental factor surrounding alcohol drinking; price, place, product, promotion and regulation.

According to Global status report on alcohol and health 2014 from WHO, the annual average alcohol per capita (15 years old or more) consumption (in liters of pure alcohol) in total population from 2008 to 2010 is 7.2 in Japan and 7.1 in Thailand. However, comparing only males in both countries, alcohol per capita (15 years old or more) consumption among males in Japan is 10.4 and that in Thailand is 13.8.

Additionally, the annual alcohol per capita (15 years old or more) consumption (in liters of pure alcohol) among only drinkers in 2010 is 10.4 in Japan and 23.8 in Thailand. Only among male drinkers, it is 13.7 in Japan and 30.3 in Thailand. Though this data is not representing only Bangkok but the overall Thailand, it is regarded as the representative data for Bangkok in this chapter.

The comparisons between them show the differences of the amount of alcohol consumption between Japanese and Thai in their own countries. Even though the objective of this study is not to show the difference between Japanese people and Thai people, it is possible to presume how much people including foreigners consume alcohol in both countries. Because the amount of alcohol consumption in a country means how much alcohol is tolerated in the culture and to what extent alcohol drinking is common in the daily life.

Table 9 shows the distribution (percentage) of alcohol-related risk group among Japanese residents in Bangkok. Comparing this with general population in Japan (Ministry of Health, Labour and Welfare in Japan, 2016), the result is as follows; 18.9% are categorized as hazardous drinkers, 3.4% as harmful drinkers, and 1.6% as probable alcohol dependent drinkers among males in general population in Japan. Among female, 2.6% are hazardous drinkers, 0.5% are harmful drinkers, and 0.2% are probable alcohol dependent drinkers. Among males in Japanese residents in Bangkok, 32.1% are categorized as hazardous drinkers, 12% are harmful drinkers, and 6.7% are probable alcohol dependent drinkers. Among female in Japanese residents in Bangkok, 16.5% are hazardous drinker, none of them is harmful drinker, and 1.1% are probable alcohol dependent drinkers. Japanese residents in Bangkok have much higher alcohol-related risk both in male and female. Overall trend is almost the same direction in that men living in Bangkok (Thailand) consume alcohol more than men living in Japan as the result of WHO.

The data of alcohol consumption and alcohol-related risk group in both countries gives us the implication that there seems to be more occasions for men to drink alcohol in Thailand (Bangkok) than in Japan. During data collection, most of the respondents said they can more easily access to alcohol in Bangkok than in Japan because there are more restaurants or bars which serve alcohol in the city than in Japan. Others said the chance of dining out in Bangkok is by far higher than in Japan

because the cost of eating outside is cheaper than cooking by themselves in Bangkok. That may give people more chances to drink alcohol. Also, they said the price of alcohol, especially beer, is cheaper than in Japan. In Japan, the usual price of 350ml can of beer costs 200-300 JPY, which equals to 2-3 USD in the currency rate in May, 2016, however, in Thailand (Bangkok), it is usually 30-40 THB, which equals to 1 USD. Most of the Japanese residents are business persons and most of business persons are expatriate employees from Japanese companies and the level of their salary is good, even compared to the workers in Japan. So, they feel the price of alcoholic drink is cheap. It means the price barrier against drinking alcohol in Bangkok is lower than in Japan. Furthermore, expatriate employees are required to host temporary business travelers from Japan and that would make them to attend more occasions to drink alcohol.

For policies and interventions against alcohol drinking, there are differences between in Bangkok and in Japan (WHO, 2014). For instance, there is no regulation on alcohol sale and promotion in Japan. However, in Thailand (Bangkok), there are restrictions on time and place to sell alcohol, legal binding for promotions and sponsorship, and legally required health warning labels on alcohol beverages. Besides, on some Buddhist holidays, some restaurants or bars serving alcohol cannot operate as usual. This shows policies for alcohol drinking seems more rigorous in Thailand (Bangkok) than in Japan. However, even though this is not evidence-based but an observation-based, as far as I observed in many places in Bangkok, the regulations against alcohol drinking is not as strict as it shows. Because, even on a Buddhist holiday, some bars are open and sell alcoholic beverage and there are advertisements of alcoholic beverage companies, especially beer products, almost everywhere in Bangkok even though the promotion for alcohol beverage is restricted. Furthermore, customers come to bars or clubs by their motor bikes or cars and park in the parking space which those premises have. That means, even though there are regulations, they are not so strictly enforced. The data about mortality and morbidity caused by alcohol in 2012 shows the differences of age-standardized death rates per 100,000 population and alcohol-attributable fractions between Japan and Thailand (WHO, 2014). In Japan, age-standardized death rates per 100,000 population in liver cirrhosis among males is 10.5 and its alcohol-attributable fractions is 49.3%. Age-standardized death rates per

100,000 population in road traffic accidents among males is 6.4 and its alcohol-attributable fractions is 10.4%. However, in Thailand (Bangkok), age-standardized death rates per 100,000 population in liver cirrhosis among males is 28.2 and its alcohol-attributable fractions is 67.2%. Age-standardized death rates per 100,000 population in road traffic accidents among males is 70.3 and its alcohol-attributable fractions is 24.9%. This provides the sense that the policies and interventions in Bangkok do not work well because it shows higher mortality due to alcohol and alcohol-attributable fractions in Thailand (Bangkok) despite the many regulations on alcohol. So, even though there are more rules and restrictions on alcohol in Thailand (Bangkok), they have less impact on the access to alcoholic beverage in Thailand (Bangkok) as they show.

Furthermore, the climate also could be one of the environmental factors. As Japanese National Tax Agency shows (National Tax Agency, 2014), nearly one-third of the amount of alcohol consumption in Japan is consisted of beer. And another research (Demand forecasting and seasonal factors in selling beer, The Operations Research Society of Japan) shows that beer is sold a lot in hot/warm days, compared to cold days. The comparison of the number of alcohol consumption between in summer and in winter in Japan shows that the amount of beer consumption in summer is nearly 4 times larger than in winter. Because the climate in Bangkok is basically always hot throughout a year, compared to four seasons in Japan, it is hypothesized that people in Bangkok tend to drink alcohol, at least beer, more than in Japan.

When all the above-mentioned factors are considered, it is possible to presume that people in Thailand (Bangkok) can more easily reach to alcohol than in Japan and that could be shown as the difference of alcohol consumption between Japanese people in Bangkok and in Japan.

According to OECD, it is estimated that more than 70% of all the alcoholic beverages are consumed by top 20% of risky drinkers in Japan. So, interventions and policies should be focused on those highly risky drinkers. OECD recommends policy interventions, especially more rigorous crackdown on drinking drive, increase in price of alcoholic beverages, and regulation on the promotion for selling alcohol. Those interventions would have effects on decrease in alcohol consumption among highly risky drinkers. However, the difficulty in these interventions for Japanese

organizations in Bangkok is that they, Japanese Embassy, Japanese Chamber of Commerce in Bangkok or Japanese Association in Thailand, have little power on these policy interventions because those decisions are in the hands of Thai government/authority. It is difficult for Japanese organizations to advertise imposing policy/environmental regulations on alcohol in a foreign country.

The other recommendation from OECD is a medical intervention. In a policy suggestion from OECD, it states counseling with a primary care doctor decreases the risk of alcohol consumption. This is also suggested by Ministry of Health, Labour and Welfare in Japan as "Brief Intervention". Brief Intervention is a short-time counseling with a medical doctor to decrease the amount of patient's alcohol consumption with a principle called "FRAMES" (feedback, responsibility, advice, menu, empathy, and self-efficacy). Imposing some policy/environmental restrictions in a foreign country is difficult for Japanese organizations as above-mentioned, but advertisement is slightly easier because permission from Thai authority is not required. So, the researcher suggests that Brief Intervention should be advertised for risky drinkers. What is important for this is how to advertise it, in other words, how to make them think of their health risk due to alcohol and how to urge them to understand how risky they are. AUDIT or other questionnaires to measure the risk of alcohol drinking could be one of the tools which make them feel concerned about the risk of alcohol consumption and their health status. By showing the score and visualizing the risk, those tools might, at least, make them realize their risk of drinking alcohol, which would make them feel like they want to change their drinking behavior. If they feel so, the chance of going to see a doctor for Brief Intervention would become higher. As there are some Japanese doctors and doctors who can communicate in Japanese in Bangkok, those highly risky drinkers are able to receive counseling and change their drinking behavior with a help of medical doctors. This will prevent future decline in health among Japanese residents in Bangkok.

Then, how can Japanese organizations advertise those alcohol-briefing tools? Health checkup is a good chance to make Japanese workers answer those questionnaires. Because Japanese business persons are required to receive an annual health checkup, those briefing tools should be distributed at that time. They can answer the questionnaire during the health checkup and the score of alcohol-briefing test is

announced so that they can find their alcohol-related risk soon. Japanese Chamber of Commerce in Bangkok has more than 1,700 member companies in Thailand. If it recommends member companies have an alcohol-briefing test in the annual health checkup, Japanese residents have more chances to realize their risk of drinking. Also, Japanese Association in Thailand has many individual Japanese members. If it introduces a brief test to the members, some of them might be interested in answering the questionnaire and realize their risk of alcohol consumption. Japanese organizations, especially Japanese Embassy in Thailand, which is responsible for health among Japanese national in Thailand, should try to coordinate with other Japanese organizations and make a comprehensive system about this.

However, this could not be a fundamental solution for the alcoholic problem, even though the advertisement is well done. To decrease the alcohol-related risk more, rigorous policy interventions which restrict the environment surrounding alcohol consumption are needed. Not only for Japanese residents but also for all the people living in Bangkok (Thailand), Japanese organizations and Thai government should work together hand in hand for the better health.

REFERENCES

Al-Aboudi, I. S., Hassali, M. A., Shafie, A. A., Hassan, A., & Alrasheedy, A. A. (2015). A cross-sectional assessment of health-related quality of life among type 2 diabetes patients in Riyadh, Saudi Arabia. SAGE Open Med, 3, 2050312115610129. doi:10.1177/2050312115610129

Anderson P, de Bruijn A, Angus K, Gordon R, & Hastings G. (2009). Impact of alcohol advertising and media exposure on adolescent alcohol use: a systematic review of longitudinal studies. Alcohol Alcohol, 44, 229–243.

Andreas M, Martin V, & Reiner L. (2014). Health-related quality of life and socioeconomic status: inequalities among adults with a chronic disease. Health and Quality of Life Outcomes 2014(12), 58.

Areesantichai, C., Iamsupasit, S., Marsden, J., & Taneepanichskul, S. (2010). Effect of "Tailored Goal Oriented Community Brief Intervention Model" on AUDIT Reduction in Thai Communities. J Med Assoc Thai, 93(8), 992-997.

Areesantichai, C., Perngparn, U., & Pilley, C. (2013). Sustainability of Tailored Goal Oriented Community Brief Intervention Model among risky drinkers in community in Thailand. Biomed Res Int, 2013, 459402. doi:10.1155/2013/459402

Assanangkornchai, S., Sam-Angsri, N., Rerngpongpan, S., & Lertnakorn, A. (2010). Patterns of alcohol consumption in the Thai population: results of the National Household Survey of 2007. Alcohol Alcohol, 45(3), 278-285. doi:10.1093/alcalc/agq018

Babor T, Caetano R, Casswell S, Edwards G, Giesbrecht N, & Graham K. (2010). Alcohol: No Ordinary Commodity—Research and Public Policy. Oxford, UK: Oxford University Press.

Balodis IM, MN, P., & MC, O. (2011). Binge drinking in undergraduates: relationships with sex, drinking behaviors, impulsivity, and the perceived effects of alcohol. Behav Pharmacol., 20(5-6), 518-526.

Barr HM, & Streissguth AP. (2001). Identifying maternal self-reported alcohol use associated with fetal alcohol spectrum disorders. Alcoholism Clin Exp Res, 25, 283-287.

Becona, E., Vazquez, M. I., Miguez Mdel, C., Fernandez del Rio, E., Lopez-Duran, A., Martinez, U., & Pineiro, B. (2013). Smoking habit profile and health-related quality of life. Psicothema, 25(4), 421-426. doi:10.7334/psicothema2013.73

Blas E, & Kurup AS. (2010). Equity, social determinants and public health programmes. Retrieved from Geneva:

Booyse FM, Pan W, & Grenett HE. (2007). Mechanism by which alcohol and wine polyphenols affect coronary heart disease risk. Ann Epidemiol, 17, S24–31.

Centers for Disease Control and Prevention in the U.S. (2011). HRQOL Concepts. Retrieved from http://www.cdc.gov/hrqol/concept.htm

Centers for Disease Control and Prevention in the U.S. (2015). Fact Sheets - Alcohol Use and Your Health. Retrieved from http://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

Coste, J., Quinquis, L., D'Almeida, S., & Audureau, E. (2014). Smoking and health-related quality of life in the general population. Independent relationships and large differences according to patterns and quantity of smoking and to gender. PLoS One, 9(3), e91562. doi:10.1371/journal.pone.0091562

DeWit DJ, Adlaf EM, Offord DR, & Ogborne AC. (2000). Age at first alcohol use: A risk factor for the development of alcohol disorders. Am J Psychiatry, 157, 745-750.

Dube, S. R., Thompson, W., Homa, D. M., & Zack, M. M. (2013). Smoking and health-related quality of life among U.S. Adolescents. Nicotine Tob Res, 15(2), 492-500. doi:10.1093/ntr/nts163

Dvorak, R. D., Pearsonb, M. R., Sargent, E. M., Stevensona, B. L., & Mfon, A. M. (2014). Daily associations between emotional functioning and alcohol

involvement: Moderating effects of response inhibition and gender. Drug and Alcohol Dependence, 163(2016), S46-S53.

El Emrani L, Senhaji M, & Bendriss A. (2016). Measuring health-related quality of life in the population of Tetouan, Morocco, by the SF-36: normative data and the influence of gender and age. East Mediterr Health J, 22(2), 133-141.

Elder RW, Lawrence B, Ferguson A, Naimi TS, Brewer RD, & Chattopadhyay SK. (2010). The effectiveness of tax policy interventions for reducing excessive alcohol consumption and related harms. Am J Prevent Med, 38, 217-229.

Embassy of Japan in Thailand. (2015, 2015). The breakdown of number of Japanese residents living in Thailand Retrieved from http://www.th.emb-japan.go.jp/jp/consular/zairyu14.htm

Goldberg IJ, Mosca L, Piano MR, & Fisher EA. (2001). AHA Science Advisory: Wine and your heart: a science advisory for healthcare professionals from the Nutrition Committee, Council on Epidemiology and Prevention, and Council on Cardiovascular Nursing of the American Heart Association. Circulation, 103, 472–475.

Grant BF. (1998). Age at smoking onset and its association with alcohol consumption and DSM-IV alcohol abuse and dependence: results from the National Longitudinal Alcohol Epidemiologic Survey. J Subst Abuse, 10, 9-73.

Grant BF, & Dawson DA. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from a longitudinal alcohol epidemiologic survey. J Subst Abuse, 9, 103-110.

Grittner U, Kuntsche S, Graham K, & Bloomfield K. (2012). ocial inequalities and gender differences in the experience of alcohol-related problems. Alcohol Alcohol, 47, 597–605.

Grundstrom AC, Guse CE, & Layde PM. (2012). Risk factors for falls and fall-related injuries in adults 85 years of age and older. Arch Gerontol Geriatr, 54, 421–428.

Harvard Medical School. (2010). Marriage and men's health. Retrieved from http://www.health.harvard.edu/newsletter_article/marriage-and-mens-health

Harvard Medical School. (2012). The challenges of living alone. Retrieved from http://www.health.harvard.edu/mind-and-mood/the-challenges-of-living-alone

Hilton ME. (1987). Demographic characteristics and the frequency of heavy drinking as predictors of selfreported drinking problems. Br J Addiction, 82(913–25).

Inoue, M., Nagata, C., Tsuji, I., Sugawara, Y., Wakai, K., Tamakoshi, A., . . . Evaluation of Cancer Prevention Strategies in, J. (2012). Impact of alcohol intake on total mortality and mortality from major causes in Japan: a pooled analysis of six large-scale cohort studies. J Epidemiol Community Health, 66(5), 448-456. doi:10.1136/jech.2010.121830

International Agency for Research on Cancer (IARC). (2010). (Vol. 9). Lyon: IARC.

Israel GD. (2015). Determining Sample Size Retrieved from http://edis.ifas.ufl.edu/pd006

Jepsen, R., Dogisso, T. W., Dysvik, E., Andersen, J. R., & Natvig, G. K. (2014). A cross-sectional study of self-reported general health, lifestyle factors, and disease: the Hordaland Health Study. PeerJ, 2, e609. doi:10.7717/peerj.609

Jernigan D. (2013). Why South Africa's proposed advertising ban matters. Addiction, 108, 183-185.

Kalichman SC, Simbayi LC, Kaufman M, Cain D, & Jooste S. (2007). Alcohol use and sexual risks for HIV/AIDS in sub-Saharan Africa: systematic review of empirical findings. Prev Sci., 8, 141-151.

Kanteres F, Lachenmeier DW, & Rehm J. (2009). Alcohol in Mayan Guatemala: consumption, distribution, production and composition of cuxa. Addiction, 104, 752-759.

Kim, K., & Kim, J. S. (2015). The association between alcohol consumption patterns and health-related quality of life in a nationally representative sample of South Korean adults. PLoS One, 10(3), e0119245. doi:10.1371/journal.pone.0119245

Kloner RA, & Rezkalla SH. (2007). To drink or not to drink? That is the question. Circulation, 116, 1306–1317.

Ko, H. Y., Lee, J. K., Shin, J. Y., & Jo, E. (2015). Health-Related Quality of Life and Cardiovascular Disease Risk in Korean Adults. Korean J Fam Med, 36(6), 349-356. doi:10.4082/kjfm.2015.36.6.349

Kraus L, Bloomfield K, Augustin R, & Reese A. (2000). Prevalence of alcohol use and the association between onset of use and alcohol-related problems in a general population sample in Germany. Addiction, 95, 1389-1401.

Lachenmeier DW, Ganss S, Rychlak B, Rehm J, Sulkowska U, Skiba M, & Zatonski W. (2009). Association between quality of cheap and unrecorded alcohol products and public health consequences in Poland. Alcohol Clin Exp Res, 33, 1757-1769.

Laosanguanek, N., Wiroteurairuang, T., Siritho, S., & Prayoonwiwat, N. (2011). Reliability of the Thai version of SF-36 questionnaire for an evaluation of quality of life in multiple sclerosis patients in multiple sclerosis clinic at Siriraj Hospital. J Med Assoc Thai, 94 Suppl 1, S84-88.

Leitz J, Kuballa T, Rehm J, & Lachenmeier DW. (2009). Chemical analysis and risk assessment of diethyl phthalate in alcoholic beverages with special regard to unrecorded alcohol. PLoS One, 4, e8127.

Lim, S. S., Vos, T., Flaxman, A. D., Danaei, G., Shibuya, K., & Adair-Rohani, H. (2012). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet, 380(9859), 2224-2260.

Macdonald S, Greer A, Brubacher J, Cherpitel C, Stockwell T, & Zeisser C. (2013). Alcohol consumption and injury: Oxford: Oxford University Press.

Mäkelä K, & Mustonen H. (2000). Relationships of drinking behaviour, gender and age with reported negative and positive experiences related to drinking. Addiction, 95, 727-736.

Midanik LT, & Clark WB. (1995). Drinking-related problems in the United States: description and trends, 1984-1990. J Studio Alcohol, 56(395-402).

Miners A, Phillips A, Kreif N, Rodger A, speakman A, & Fisher M. (2014). Health-related quality-of-life of people with HIV in the era of combination antiretroviral treatment a cross-sectional comparison with the general population. Lancet(1), 32-40.

Ministry of Foreign Affairs in Japan. (2015). Annual Report of Statistics on Japanese Nationals Overseas. Retrieved from http://www.mofa.go.jp/mofaj/files/000086464.pdf

Ministry of Foreign Affairs in Japan. (2015). e-health net (health risk caused by alcohol). Retrieved from http://www.e-healthnet.mhlw.go.jp/information/alcohol-summaries/a-01

Ministry of Health Labour and Welfare in Japan. (2006). The situation of drinking customs in Japan. Retrieved from http://www.mhlw.go.jp/topics/bukyoku/kenkou/alcohol/siryo/insyu03.html

Ministry of Health Labour and Welfare in Japan. (2008). e-health net (AUDIT) 2008. Retrieved from http://www.e-healthnet.mhlw.go.jp/information/dictionary/alcohol/ya-021.html

Ministry of Health Labour and Welfare in Japan. (2016). Distribution of AUDIT score among general population in Japan. Retrieved from http://www.mhlw.go.jp/seisakunitsuite/bunya/kenkou_iryou/kenkou/seikatsu/dl/hoken-program3_06.pdf

Morojele NK, Kachieng'a MA, Mokoko E, Nkoko MA, Parry CDH, & Nkowane AM. (2006). Alcohol use and sexual behaviour among risky drinkers and bar and shebeen patrons in Gauteng province, South Africa. Soc Sci Med, 62, 217–227.

National Health Service in the U.K. (2015). Alcohol misuse Risks. Retrieved from http://www.nhs.uk/Conditions/alcohol-misuse/Pages/risks.aspx

National Hospital Organization Kurihama Medical and Addiction Center. (2010). AUDIT in Japan. Retrieved from http://www.kurihama-med.jp/alcohol/audit.html

National Tax Agency. (2014). Report on alcohol in March 2014. Retrieved from https://www.nta.go.jp/shiraberu/senmonjoho/sake/shiori-gaikyo/shiori/2014/pdf/000.pdf

Naughton MJ, Shumaker SA, Anderson RT, & Czajkowski SM. (1996). Psychological Aspects of Health-Related Quality of Life Measurement: Tests and Scales. New York, the U.S.: Lippincott-Raven.

Nelson DE, Jarman DW, Rehm J, Greenfield TK, Rey G, & Kerr WC. (2013). Alcohol-attributable cancer deaths and years of potential life lost in the United States. AM J Public Health, 641-648.

Organisation for Economic Cooperation and Development. (2015). Tackling harmful alcohol use. Retrieved from https://www.oecd.org/els/health-systems/Policy-Brief-Tackling-harmful-alcohol-use-JAPANESE.pdf

Pampel, F. C., Krueger, P. M., & Denney, J. T. (2010). Socioeconomic Disparities in Health Behaviors. Annu Rev Sociol, 36, 349-370. doi:10.1146/annurev.soc.012809.102529

Pappa, E., Chatzikonstantinidou, S., Chalkiopoulos, G., Papadopoulos, A., & Niakas, D. (2015). Health-Related Quality of Life of the Roma in Greece: The Role of Socio-Economic Characteristics and Housing Conditions. Int J Environ Res Public Health, 12(6), 6669-6681. doi:10.3390/ijerph120606669

Park K, Roh S, Lee J, Kwon SC, Jeong M, & Lee SJ. (2015). Health status and related factors in farmers by SF-12. Ann Occup Environ Med., 24(27), 2.

Paschall, M. J., Antin, T., Ringwalt, C. L., & Saltz, R. F. (2011). Effects of AlcoholEdu for College on Alcohol-Related Problems Among Freshmen: A Randomized Multicampus Trial. J Stud Alcohol Drugs, 72(4), 642-650.

Patrick D, & Erickson P. (1993). Health Policy, Quality of Life: Health Care Evaluation and Resource Allocation. New York, the U.S.: Oxford University Press.

Power, C., Rodgers, B., & Hope, S. (1999). <Heavy alcohol consumption and marital status: disentangling the relationship in a national study of young adults.pdf>. Addiction, 94(10), 1477-1487.

Prasad M, Wahlqvist P, Shikiar R, & Shih YC. (2004). A review of selfreport instruments measuring healthrelated work productivity: a patientreported outcomes perspective. Pharmacoeconomics, 45(3), 324-332.

Preedy VR, & Watson RR. (2005). Comprehensive handbook of alcohol-related pathology. London: Elsevier Science.

Prosper MH, Moczulski VL, & Qureshi A. (2009). Obesity as a predictor of self-rated health. American Journal of Health Behavior, 33(1), 319-329.

Rehm J, Kailasapillai S, Larsen E, Rehm MX, Samokhvalov AV, & Shield KD. (2014). A systematic review of the epidemiology of unrecorded alcohol consumption and the chemical composition of unrecorded alcohol. Addiction. doi:10.1111/add.12498.

Rehm J, Kanteres F, & Lachenmeier DW. (2010). Unrecorded consumption, quality of alcohol and health consequences. Drug Alcohol Rev, 29, 426-436.

Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, & Patra J. (2009). Global burden of disease and injury and economic cost attributable to alcohol use and alcohol use disorders. Lancet, 373, 2223-2233.

Rehm J, Room R, Graham K, Monteiro M, Gmel G, & Sempos CT. (2003). The relationship of average volume of alcohol consumption and patterns of drinking to burden of disease -An overview. Addiction, 98, 1209-1228.

Roerecke M, & Rehm J. (2010). Irregular heavy drinking occasions and risk of ischemic heart disease: A systematic review and meta-analysis. Am J Epidemiol, 171, 633-644.

Ross, N. A., Garner, R., Bernier, J., Feeny, D. H., Kaplan, M. S., McFarland, B., . . . Oderkirk, J. (2012). Trajectories of health-related quality of life by socio-economic status in a nationally representative Canadian cohort. J Epidemiol Community Health, 66(7), 593-598. doi:10.1136/jech.2010.115378

Saito I, Okamura T, Fukuhara S, Tanaka T, Suzukamo Y, & Okayama A. (2005). A Cross-sectional Study of Alcohol Drinking and Health-related Quality of Life among Male Workers in Japan. Occup Health, 47(1), 496-503.

Sartor CE, Lynskey MT, Heath AC, Jacob T, & True W. (2007). The role of childhood risk factors in initiation of alcohol use and progression to alcohol dependence. Addiction, 102, 216-225.

Schmidt L.A, Mäkelä P, Rehm J, & Room R. (2010). Alcohol: equity and social determinants. Geneva: World Health Organization.

School of Public Health Harvard University. (2016). Alcohol: Balancing Risks and Benefits. Retrieved from http://www.hsph.harvard.edu/nutritionsource/alcohol-full-story/

Shi L, & Stevens GD. (2005). Vulnerability and unmet health care needs – the influence of multiple risk factors. J Gen Intern Med, 20, 148–154.

Shield KD, Parry C, & Rehm J. (2013). Chronic diseases and conditions related to alcohol use. Alcohol Research Current Reviews, 35, 155-171.

Song, H. J., Lee, E. K., & Kwon, J. W. (2016). Gender Differences in the Impact of Obesity on Health-Related Quality of Life. Asia Pac J Public Health, 28(2), 146-156. doi:10.1177/1010539515626267

Sorock GS, Chen LH, Gonzalgo SR, & Baker SP. (2006). Alcohol-drinking history and fatal injury in older adults. Alcohol, 40(193–9).

Tchicaya A, Lorentz N, Demarest S, Beissel J, & Wagner DR. (2015). Relationship between self-reported weight change, educational status, and health-related quality of life in patients with diabetes in Luxembourg. Health Qual Life Outcomes, 18(13), 149.

The Operations Research Society of Japan. (1998). Demand forecasting and seasonal factors in selling beer. Retrieved from http://ci.nii.ac.jp/els/110001184629.pdf?id=ART0001516148&type=pdf&lang=jp&host=cinii&order_no=&ppv_type=0&lang_sw=&no=1467447101&cp=

Trivedi JK , Himanshu Sareen, & Mohan Dhyani. (2009). Psychological Aspects of Widowhood and Divorce. Mens Sana Monogr, 7(1), 37-49.

U.S. Department of Agriculture. (2005). Dietary guidelines for Americans 2005. Retrieved from http://health.gov/dietaryguidelines/dga2005/document/

Valencia-Martin, J. L., Galan, I., Guallar-Castillon, P., & Rodriguez-Artalejo, F. (2013). Alcohol drinking patterns and health-related quality of life reported in the Spanish adult population. Prev Med, 57(5), 703-707. doi:10.1016/j.ypmed.2013.09.007

Viljoen D, Gossage JP, Brooke L, Adnams CM, Jones K, & Robinson LK. (2005). Fetal alcohol syndrome epidemiology in a South African community: A second study of a very high prevalence area. J Stud Alcohol, 66, 593-604.

Wagenaar AC, Salois MJ, & Komro KA. (2009). Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. Addiction, 179-90, 179-190.

Wagenaar AC, Tobler AL, & Komro KA. (2010). Effects of alcohol tax and price policies on morbidity and mortality: a systematic review. AM J Public Health, 100, 2270-2278.

Wagenaar AC, Toomey TL, & Erickson DJ. (2005). Complying with the minimum drinking age: effects of enforcement and training interventions. Alcohol Clin Exp Res, 29(255–62).

Waller, M., McGuire, A. C., & Dobson, A. J. (2015). Alcohol use in the military: associations with health and wellbeing. Subst Abuse Treat Prev Policy, 10, 27. doi:10.1186/s13011-015-0023-4

World Bank (A. Bowling). (1999). HEALTH-RELATED QUALITY OF LIFE: A DISCUSSION OF THE CONCEPT, ITS USE AND MEASUREMENT BACKGROUND: THE `QUALITY OF LIFE'. Retrieved from http://info.worldbank.org/etools/docs/library/48475/m2s5bowling.pdf

World Health Organization. (1992). WHO Statistical Classification of Diseases and Related Health Problems (ICD) 10th revision. Geneva.

World Health Organization. (1997). WHOQOL: measuring quality of life. Retrieved from http://www.who.int/mental_health/media/68.pdf

World Health Organization. (2007). WHO Expert Committee on Problems Related to Alcohol Consumption. Second report. Retrieved from Geneva:

World Health Organization. (2014). Global Health Estimates 2013: Deaths by Cause, Age and Sex, by Country, 2000-2012. Retrieved from Geneva:

World Health Organization. (2014). Media Center WHO calls on governments to do more to prevent alcohol-related deaths and diseases. Retrieved from http://www.who.int/mediacentre/news/releases/2014/alcohol-related-deaths-prevention/en/

World Health Organization. (2015). Media Center Alcohol. Retrieved from http://www.who.int/mediacentre/factsheets/fs349/en/

World Health Organization. (2015). Global Health Observatory Data Repository (Levels of Consumption: Recorded alcohol per capita consumption, from 1990) Data by country. Retrieved from http://apps.who.int/gho/data/node.main.A1025?lang=en&showonly=GISAH

World Health Organization. (2016). Management of substance abuse Alcohol. Retrieved from http://www.who.int/substance_abuse/facts/alcohol/en/

World Health Organization. (2016). Screening and brief intervention for alcohol problems in primary health care. Retrieved from http://www.who.int/substance_abuse/activities/sbi/en/

Zhou J, & Hearst N. (2016). Health-related quality of life of among elders in rural China: the effect of widowhood. Quality of Life Research, 1-9.

Zhu, Y., Wang, Q., Pang, G., Lin, L., Origasa, H., Wang, Y., Shi, H. (2015). Association between Body Mass Index and Health-Related Quality of Life: The "Obesity Paradox" in 21,218 Adults of the Chinese General Population. PLoS One, 10(6), e0130613. doi:10.1371/journal.pone.0130613

APPENDIX

Questions about you

Please answer the following questions along with each instruction.

No.1 Do you hold any types of visa to reside in Thailand? Please tick the appropriate option.

Yes	No
1. □	2. □

No.2 How old are you? Please write your age as of now.

_____ years old

No.3 Which is your sex? Please tick the appropriate option.

Male	Female
1. □	2. □

No.4 What is your occupation? Please tick the appropriate option. If no appropriate option in the followings, write your occupation in the others.

Management	Staff (administration)	Staff (technical personnel)
1. □	2. □	3. □

Professional (medical doctor, lawer, professor..)	Self-employed	Unemployed
4. □	5. □	6. □

7. □ Others

No.5 How long have you been staying in Bangkok? Please write in the following blanks. For example, if you have been staying for 6 months, please write as 0 year(s) 6 month(s).

_____ years _____ months

No.6 What is your marital status? Please tick the appropriate option.

Married	Never married	Divorced	Widowed
1. □	2. □	3. □	4. □

No.7 What is your living condition? Please tick the appropriate option. If no appropriate option in the followings, write the appropriate living condition in the others

Living alone	Living with family
1. □	2. □

3. □Others

No.8 What is your educational status? Please tick the appropriate option. If no appropriate option in the followings, write the appropriate educational status in the others

Junior high school	Senior high school	Undergraduate	Master/Ph.D
1. □	2. □	3. □	4. □

5. □Others

Questions about your alcohol drinking behavior

This section asks you about your alcohol drinking behavior. Please answer the following questions along with each instruction.

No.1 Have you ever drunk alcohol in your life? Please tick the appropriate option.

Yes	No
1. □	2. □

No.2 How old did you initiate drinking alcohol? Write the age.

_____ years old

The following questions No.3 and 4 ask you about your alcohol drinking behavior within these 30 days.

No.3 How often did you have a drink containing alcohol within these 30 days? Please tick the appropriate option.

Never	Once	2-4 times	2-3 times a week	4 or more times a week
1. □	2. □	3. □	4. □	5. □

No.4 How many drinks containing alcohol did you have on a typical day when you were drinking within these 30 days? Please refer to the following example and tick the appropriate option.
「a cup of Umeshu＝1drink」 「a cup of Shochu＝1 drink」 「a can of beer＝1.5 drinks」 「a glass of wine＝1.5 drinks」 「a cup of Sake＝2 drinks」 「a glass of whisky＝2 drinks」 「A large bin of beer＝2.5 drinks」

1-2 drinks	3-4 drinks	5-6 drinks	7-9 drinks	More than 9 drinks
1. □	2. □	3. □	4. □	5. □

The following questions No. 5 - 14 ask you about your alcohol drinking behavior during the last year.

No.5 How often do you have a drink containing alcohol?

Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
1. □	2. □	3. □	4. □	5. □

No.6 How many drinks containing alcohol do you have on a typical day when you are drinking? Please refer to the following example and tick the appropriate option.
「a cup of Umeshu＝1drink」 「a cup of Shochu＝1 drink」 「a can of beer＝1.5 drinks」 「a glass of wine＝1.5 drinks」 「a cup of Sake＝2 drinks」 「a glass of whisky＝2 drinks」 「A large bin of beer＝2.5 drinks」

1-2 drinks	3-4 drinks	5-6 drinks	7-9 drinks	More than 9 drinks
1. □	2. □	3. □	4. □	5. □

No.7 How often do you have six or more drinks on one occasion?

Never	Less than monthly	Monthly	Weekly	Daily / almost everyday
1. □	2. □	3. □	4. □	5. □

No.8 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 / almost everyday
1. □	2. □	3. □	4. □	5. □

No.9 How often during the last year have you failed to do what was normally expected of you because of drinking?

Never	Less than monthly	Monthly	Weekly	Daily / almost everyday
1. □	2. □	3. □	4. □	5. □

No.10 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 / almost everyday
1. □	2. □	3. □	4. □	5. □

No.11 How often during the last year have you had a feeling of guilt or remorse after drinking?

Never	Less than monthly	Monthly	Weekly	Daily / almost everyday
1. □	2. □	3. □	4. □	5. □

No.12 How often during the last year have you been unable to remember what happened the night before because of your drinking?

Never	Less than monthly	Monthly	Weekly	Daily / almost everyday
1. □	2. □	3. □	4. □	5. □

No.13 Have you or someone else been injured because of your drinking?

No	Yes, but not in the last year	Yes, during the last year
1. □	2. □	3. □

No.14 Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?

No	Yes, but not in the last year	Yes, during the last year
1. □	2. □	3. □

Questions about your health status

This section asks you about how you consider your own health status. Please answer the following questions and choose the most appropriate option.

No. 1 In general, would you say your health is

Excellent	Very good	Good	Fair	Poor
1. □	2. □	3. □	4. □	5. □

No. 2 Compared to one year ago, how would your rate your health in general now?

Much better now than one year ago	Somewhat better now than one year ago	About the same	Somewhat worse now than one year ago	Much worse now than one year ago
1. □	2. □	3. □	4. □	5. □

The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	Yes, Limited a Lot	Yes, Limited a Little	No, Not limited at All
No.3 Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	1. □	2. □	3. □
No.4 Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	1. □	2. □	3. □
No.5 Lifting or carrying groceries	1. □	2. □	3. □
No.6 Climbing several flights of stairs	1. □	2. □	3. □
No.7 Climbing one flight of stairs	1. □	2. □	3. □
No.8 Bending, kneeling, or stooping	1. □	2. □	3. □
No.9 Walking more than a mile	1. □	2. □	3. □
No.10 Walking several blocks	1. □	2. □	3. □
No.11 Walking one block	1. □	2. □	3. □
No.12 Bathing or dressing yourself	1. □	2. □	3. □

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	Yes	No
No.13 Cut down the amount of time you spent on work or other activities	1. □	2. □
No.14 Accomplished less than you would like	1. □	2. □

No.15 Were limited in the kind of work or other activities	1. □	2. □
No.16 Had difficulty performing the work or other activities (for example, it took extra effort)	1. □	2. □

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	Yes	No
No.17 Cut down the amount of time you spent on work or other activities	1. □	2. □
No.18 Accomplished less than you would like	1. □	2. □
No.19 Didn't do work or other activities as carefully as usual	1. □	2. □

No.20 During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

Not at all	Slightly	Moderately	Quite a bit	Extremely
1. □	2. □	3. □	4. □	5. □

No.21 How much bodily pain have you had during the past 4 weeks?

None	Very mild	Mild	Moderate	Severe	Very severe
1. □	2. □	3. □	4. □	5. □	6. □

No.22 During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

Not at all	A little bit	Moderately	Quite a bit	Extremely
1. □	2. □	3. □	4. □	5. □

These questions are about how you feel and how things have been with you during the past 4weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks . . .

	All of the Time	Most of the Time	A Good Bit of the Time	Some of the Time	A Little of the Time	None of the Time
No.23 Did you feel full of pep?	1. □	2. □	3. □	4. □	5. □	6. □
No.24 Have you been a very nervous person?	1. □	2. □	3. □	4. □	5. □	6. □
No.25 Have you felt so down in the dumps that nothing could cheer up?	1. □	2. □	3. □	4. □	5. □	6. □
No.26 Have you felt calm and peaceful?	1. □	2. □	3. □	4. □	5. □	6. □
No.27 Did you have a lot of energy?	1. □	2. □	3. □	4. □	5. □	6. □
No.28 Have you felt downhearted and blue?	1. □	2. □	3. □	4. □	5. □	6. □
No.29 Did you feel worn out?	1. □	2. □	3. □	4. □	5. □	6. □
No.30 Have you been a happy person?	1. □	2. □	3. □	4. □	5. □	6. □
No.31 Did you feel tired?	1. □	2. □	3. □	4. □	5. □	6. □

No.32 During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

All of the time	Most of the time	Some of the time	A little of the time	None of the time
1. □	2. □	3. □	4. □	5. □

How TRUE or FALSE is each of the following statements for you.

	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
No.33 I seem to get sick a little easier than other people	1. □	2. □	3. □	4. □	5. □
No.34 I am as healthy as anybody I know	1. □	2. □	3. □	4. □	5. □
No.35 I expect my health to get worse	1. □	2. □	3. □	4. □	5. □
No.36 My health is excellent	1. □	2. □	3. □	4. □	5. □

Thank you for your cooperation.

あなたの状況について

案内に沿って以下の質問に回答してください。

問１　タイに滞在あするにあたって、ビザはお持ちですか？(あてはまるものに✔印をつけて下さい)

はい	いいえ
1. □	2. □

問２　現在の年齢をご記入ください。

_____才

問３　ご自身の性別に✔印をつけて下さい。

男	女
1. □	2. □

問４　現在の職業についてあてはまるものに✔印をつけて下さい。該当するものが選択肢にない場合は、その他の欄に記入してください。

管理職	事務職	技術職
1. □	2. □	3. □

専門職 (教員,医師,弁護士等)	自営	無職
4. □	5. □	6. □

7. □その他

問５　バンコクに滞在している期間を記入してください。(例：６ヶ月の場合、０年６ヶ月と記入してください)

_____年_____ヶ月

問６　配偶者の有無について一番よくあてはまるものに✔印をつけて下さい。

既婚	未婚	離婚	死別
1. □	2. □	3. □	4. □

問７　バンコクではお一人で住まれていますか。もしくはどなたかと一緒に同居されていますか。あてはまるものに✔印をつけて下さい。該当するものが選択肢にない場合は、その他の欄に記入してください。

一人暮らし	家族と同居
1. □	2. □

3. □その他

問８　ご自身の最終学歴について一番よくあてはまるものに✔印をつけて下さい。該当するものが選択肢にない場合は、その他の欄に記入してください。

中学校	高等学校	大学(学士)	大学院(修士,博士)
1. □	2. □	3. □	4. □

5. □その他

あなたの飲酒行為について

このセクションはあなたの飲酒行為について伺います。以下のそれぞれの質問について回答してください。

問１　これまでアルコール飲料を飲んだことがありますか？(あてはまるものに✔印をつけて下さい)

はい	いいえ
1. □	2. □

問２　初めてアルコール飲料を飲んだのは何才の時ですか？ (該当する年齢を記入して下さい)

_____才

以下の問３および４は、直近１ヶ月間の飲酒行為についてうかがいます。

問３　この１ヶ月の間、あなたはアルコール飲料をどのくらいの頻度で飲みましたか？(一番よくあてはまるものに✔印をつけて下さい)

飲まない	１回	２～４回	１週に２～３度	１週に４度以上
1. □	2. □	3. □	4. □	5. □

問４　この１ヶ月の間、飲酒するときには通常どのくらいの量を飲みましたか？以下の例を参照の上、一番よくあてはまるものに✔印をつけて下さい。
「梅酒小コップ1杯＝1ドリンク」「焼酎お湯割り1杯＝1ドリンク」「缶ビール1本＝1.5ドリンク」「ワイングラス1杯＝1.5ドリンク」「日本酒1合＝2ドリンク」「ウィスキー水割りダブル1杯＝2ドリンク」「ビール大瓶1本＝2.5ドリンク」とします。

１～２ドリンク	３～４ドリンク	５～６ドリンク	７～９ドリンク	10ドリンク以上
1. □	2. □	3. □	4. □	5. □

以下の問５～14までは直近１年間の飲酒行為についてうかがいます。

問５　この１年の間、あなたはアルコール飲料をどのくらいの頻度で飲みましたか？(一番よくあてはまるものに✔印をつけて下さい)

飲まない	１ヶ月に １度以下	１ヶ月に ２～３度	１週に２～３度	１週に４度以上
1. □	2. □	3. □	4. □	5. □

問６　この１年の間、飲酒するときには通常どのくらいの量を飲みましたか？以下の例を参照の上、一番よくあてはまるものに✔印をつけて下さい。
「梅酒小コップ1杯＝1ドリンク」「焼酎お湯割り1杯＝1ドリンク」「缶ビール1本＝1.5ドリンク」「ワイングラス1杯＝1.5ドリンク」「日本酒1合＝2ドリンク」「ウィスキー水割りダブル1杯＝2ドリンク」「ビール大瓶1本＝2.5ドリンク」とします。

１～２ドリンク	３～４ドリンク	５～６ドリンク	７～９ドリンク	10ドリンク以上
1. □	2. □	3. □	4. □	5. □

問７　この１年の間、１度に６ドリンク以上飲酒することがどのくらいの頻度でありましたか？(一番よくあてはまるものに✔印をつけて下さい)

ない	１ヶ月に １度未満	１ヶ月に１度	１週に１度	毎日あるいは ほとんど毎日
1. □	2. □	3. □	4. □	5. □

問８　この１年の間、飲み始めると止められなかった事が、どのくらいの頻度でありましたか？(一番よくあてはまるものに✔印をつけて下さい)

ない	１ヶ月に １度未満	１ヶ月に１度	１週に１度	毎日あるいは ほとんど毎日
1. □	2. □	3. □	4. □	5. □

問９　この１年の間、普通だと行えることを飲酒していたためにできなかったことが、どのくらいの頻度でありましたか？(一番よくあてはまるものに✔印をつけて下さい)

ない	１ヶ月に １度未満	１ヶ月に１度	１週に１度	毎日あるいは ほとんど毎日
1. □	2. □	3. □	4. □	5. □

問10　この１年の間、深酒の後体調を整えるために、翌朝、迎え酒をせねばならなかったことが、どのくらいの頻度でありましたか？(一番よくあてはまるものに✔印をつけて下さい)

ない	１ヶ月に １度未満	１ヶ月に１度	１週に１度	毎日あるいは ほとんど毎日
1. □	2. □	3. □	4. □	5. □

問11　この１年の間、飲酒後、罪悪感や自責の念にかられたことが、どのくらいの頻度でありましたか？(一番よくあてはまるものに✔印をつけて下さい)

ない	１ヶ月に １度未満	１ヶ月に１度	１週に１度	毎日あるいは ほとんど毎日
1. □	2. □	3. □	4. □	5. □

問12　この１年の間、飲酒のため前夜の出来事を思い出せなかったことが、どのくらいの頻度でありましたか？(一番よくあてはまるものに✔印をつけて下さい)

ない	１ヶ月に １度未満	１ヶ月に１度	１週に１度	毎日あるいは ほとんど毎日
1. □	2. □	3. □	4. □	5. □

問13　あなたの飲酒のために、あなた自身か他の誰かがけがをしたことがありますか？(一番よくあてはまるものに✔印をつけて下さい)

ない	あるが、 この１年の間にはない	この１年の間にある
1. □	2. □	3. □

問14　肉親や親戚・友人・医師あるいは他の健康管理にたずさわる人が、あなたの飲酒について心配したり、飲酒量を減らすように勧めたりしたことがありますか？(一番よくあてはまるものに✔印をつけて下さい)

ない	あるが、 この１年の間にはない	この１年の間にある
1. □	2. □	3. □

あなたの健康について

このセクションは、あなたがご自分の健康をどのように考えているかについて伺います。以下のそれぞれの質問について、一番よくあてはまるものに✔印をつけてください。

問１　あなたの健康状態は?(一番よくあてはまるものに✔印をつけて下さい)

最高に良い	とても良い	良い	あまり良くない	良くない
1. □	2. □	3. □	4. □	5. □

問２　１年前と比べて、現在の健康状態はいかがですか。(一番よくあてはまるものに✔印をつけて下さい)

１年前より、はるかに良い	１年前より、やや良い	１年前と、ほぼ同じ	１年前ほど、良くない	１年前より、はるかに悪い
1. □	2. □	3. □	4. □	5. □

以下の質問は、日常よく行われている活動です。あなたは健康上の理由で、こうした 活動をすることが難しいと感じますか。難しいとすればどのくらいですか。(問３〜12までのそれぞれの質問について、一番よくあてはまるものに✔印をつけて下さい)

	とても難しい	少し難しい	ぜんぜん難しくない
問３　激しい活動、例えば、一生けんめい走る、重い物を持ち上げる、激しいスポーツをするなど	1. □	2. □	3. □
問４　適度な活動、例えば、家や庭のそうじをする、１〜２時間散歩するなど	1. □	2. □	3. □
問５　少し重い物を持ち上げたり、運んだりする(例えば買い物袋など)	1. □	2. □	3. □
問６　階段を数階上までのぼる	1. □	2. □	3. □
問７　階段を１階上までのぼる	1. □	2. □	3. □
問８　体を前に曲げる、ひざまずく、かがむ	1. □	2. □	3. □
問９　１キロメートル以上歩く	1. □	2. □	3. □
問10　数百メートルくらい歩く	1. □	2. □	3. □
問11　百メートルくらい歩く	1. □	2. □	3. □
問12　自分でお風呂に入ったり、着がえたりする	1. □	2. □	3. □

過去1ヵ月間に、仕事やふだんの活動(家事など)をするにあたって、身体的な理由で次のような問題がありましたか。(問13〜16までのそれぞれの質問について、一番よくあてはまるものに✔印をつけて下さい)

	はい	いいえ
問13　仕事や普段の活動をする時間をへらした	1. □	2. □
問14　仕事や普段の活動が思ったほど、できなかった	1. □	2. □
問15　仕事や普段の活動の内容によっては、できないものかあった	1. □	2. □
問16　仕事や普段の活動をすることが難しかった (例えばいつもより努力を 必要としたなど)	1. □	2. □

過去１ヵ月間に、仕事やふだんの活動(家事など)をするにあたって、心理的な理由で(例えは、`気分がおちこんだり不安を感じたりしたために)、次のような問題がありましたか。(問17〜19までのそれぞれの質問について、一番よくあてはまるものに✔□印をつけて下さい)

	はい	いいえ
問17　仕事や普段の活動をする時間をへらした	1. □	2. □
問18　仕事や普段の活動が思ったほど、できなかった	1. □	2. □
問19　仕事やふだんの活動がいつもほど、集中してできなかった	1. □	2. □

問20　過去１ヵ月間に、家族、友人、近所の人、その他の仲間との普段のつきあいが、身体的あるいは心理的な理由で、どのくらい妨げられましたか。 (一番よくあてはまるものに✔□印をつけて下さい)

ぜんぜん、妨げられなかった	わずかに、妨げられた	少し、妨げられた	かなり、妨げられた	非常に、妨げられた
1. □	2. □	3. □	4. □	5. □

問21　過去１ヶ月間に、体の痛みをどのくらい感じましたか。(一番よくあてはまるものに✔□印をつけて下さい)

ぜんぜん なかった	かすかな 痛み	軽い痛み	中程度の 痛み	強い痛み	非常に 激しい痛み
1. □	2. □	3. □	4. □	5. □	6. □

問22　過去１ヵ月間に、いつもの仕事(家事も含みます)が痛みのために、どのくらい妨げられましたか。(一番よくあてはまるものに✔□印をつけて下さい)

ぜんぜん、妨げ られなかった	わずかに、 妨げられた	少し、 妨げられた	かなり、 妨げられた	非常に、 妨げられた
1. □	2. □	3. □	4. □	5. □

以下は、過去１ヵ月間に、あなたがどのように感じたかについての質問です。
(問23～31までのそれぞれの質問について、一番よくあてはまるものに✔□印をつけて下さい)

	いつも	ほとんどいつも	かなり	ときどき	まれに	ぜんぜんない
問23　元気いっぱいでしたか	1. □	2. □	3. □	4. □	5. □	6 . □
問24　かなり神経質でしたか	1. □	2. □	3. □	4. □	5. □	6 . □
問25　どうにもならないくらい、気分がおちこんでいましたか	1. □	2. □	3. □	4. □	5. □	6 . □
問26　おちついていて、穏やかな気分でしたか	1. □	2. □	3. □	4. □	5. □	6 . □
問27　活力(エネルギー)にあふれていましたか	1. □	2. □	3. □	4. □	5. □	6 . □
問28　おちこんで、ゆううつな気分でしたか	1. □	2. □	3. □	4. □	5. □	6 . □
問29　疲れ果てていましたか	1. □	2. □	3. □	4. □	5. □	6 . □

問30　楽しい気分でしたか	1. □	2. □	3. □	4. □	5. □	6 . □
問31　疲れを感じましたか	1. □	2. □	3. □	4. □	5. □	6 . □

問32　過去1ヵ月間に、友人や親せきを訪ねるなど、人とのつきあいが、身体的あるいは心理的な理由で、時間的にどのくらい妨げられましたか。 (一番よくあてはまるものに✔□印をつけて下さい)

いつも	ほとんどいつも	ときどき	まれに	ぜんぜんない
1. □	2. □	3. □	4. □	5. □

次にあげた各項目はどのくらいあなたにあてはまりますか。(問33〜36までのそれぞれの質問について、一番よくあてはまるものに✔□印をつけて下さい)

	その通り	ほぼあてはまる	何とも言えない	ほとんどあてはまらない	ぜんぜんあてはまらない
問33　私は他の人に比べて病気になりやすいと思う	1. □	2. □	3. □	4. □	5. □
問34　私は人並みに健康である	1. □	2. □	3. □	4. □	5. □
問35　私の健康は、悪くなるような気がする	1. □	2. □	3. □	4. □	5. □
問36　私の健康状態は非常に良い	1. □	2. □	3. □	4. □	5. □

以上で質問は終了です。ご協力ありがとうございました。

VITA

Name : Takuya Uchiyama

Email : takuya.u@gmail.com

Date of birth : September 30th, 1983

- Education

August, 2015 - August, 2016 : Master degree at College of Public Health Sciences, Chulalongkorn University

April, 2003 - March, 2007 : Bachelor of Faculty of Policy Management, Keio University

- Professional experiences

June, 2007 - November, 2014 : Administration officer in Student Life office in Keio University

Was in charge of supporting international students' life - orientations, scholarships, visas, public procedures, and so on

Administered scholarship selection

Managed control over scholarship funds

November, 2014 - July, 2015 : Administration officer in admissions office in Keio University

Was in charge of administration in admissions procedures and entrance exams and public relations with prospective students

Screened application materials

Interviewed with well-known alumni for admissions guide