

**FACTORS AFFECTING HEALTH RISK BEHAVIORS OF THE
RAGLAI ETHNIC GROUP IN KHANH VINH DISTRICT -
KHANH HOA PROVINCE – VIETNAM**

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
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ABSTRACT

This study examines factors affecting health risk behaviors—specifically, smoking and drinking alcohol—of the Raglai ethnic group in Khanh Vinh district, Khanh Hoa province, Vietnam. It uses secondary data from a cross-sectional survey on health indicators of Raglai people aged 20-51 in Khanh Vinh district, conducted by researchers at the Khanh Hoa Department of Health from October 2012 to October 2014. Simple random sampling design was used to select a total of 818 Raglai ethnic citizens, who were contacted directly for a face-to-face interview by health officers.

The results of binary logistic regression reveal that age group, gender, educational level and income affect health risk behaviors. The findings indicate that age and income have a positive relationship with smoking and drinking alcohol behaviors, while educational level was found to have a negative relationship. Male Raglai are 8.03 times more likely to report smoking and 19.4 times more likely to report drinking alcohol than female.

KEY WORDS: HEALTH RISK BEHAVIORS / RAGLAI / KHANH HOA / VIETNAM

59 pages

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CHAPTER I

INTRODUCTION

This thesis examines the health risk behaviors of one of Vietnam's ethnic groups, the Raglai, in Khanh Hoa province. Background on Vietnam's ethnic groups and on the Raglai group in particular is provided in order to place the study in context before defining the objectives of the study.

1.1 Ethnic Groups in Vietnam

Vietnam has 54 ethnic groups; the proportion of the Kinh ethnic group is 85.7% and the 53 other ethnic groups are minority groups. Each ethnic group has their own characteristics and identities; however, they have in common that they live in the remote and the mountainous regions. These places them at a disadvantage for doing business, and are poor environments health-wise so that the groups are affected by dengue fever and diarrhea. While some ethnic groups are non-nomadic and their situation has improved over time, there are many undeveloped ethnic groups such as the Mong, Dao, Coho, La Hu, Raglai, Mnong, Kho Mu, and Stieng. These low profile groups are located in highland, remote and border areas that have poor transportation; the residents only focus on farming and hunting to feed and raise themselves, (Trung, 2014).

The government has tried so hard to level up life-quality for those poor ethnic groups; sadly they still can't grow their economic or increase their incomes to compare to other strong and rich ethnic groups. The fact are stated that those poor ethnic groups still tend to live in areas where lack of important factors to grow their life. Low percentage in receiving high education, illiteracy is a big problem as well that really prevent them how to grow their community strong and rich, (Trung, 2014).

For what being said, health problems also need to be resolved. Proportion of malnourished less than 5 years old children among minority ethnic groups is highest

(from 25% to 35%) to compare to the whole country. Sadly, some minority reaches up to 40% in mortality-children cases. Based on the statistic, nearly 60% of commune health centers are substandard; health care staffs have shortages and poor trained-skills are common in some minority ethnic groups. Malaria is one of the main killers of minority people. It is a very dangerous disease which takes away human life if he/she doesn't get the medical attention in time with the right treatment. The fact that people who work or cross the forests, free immigrants and border exchangers have the highest chance to catch this deadly disease, (Trung, 2014).

All mentioned information proves that poverty is always associated with developing condition and existing of epidemics among the minority ethnic, remote and mountainous areas. With 54 ethnic groups in one country, the government policies are deploying equal rights between ethnics to reduce the economic and culture gaps; therefore the government can ensure all ethnic groups have a prosperous life, happy and comprehensive development, (Trung, 2014).

1.2 The Raglai

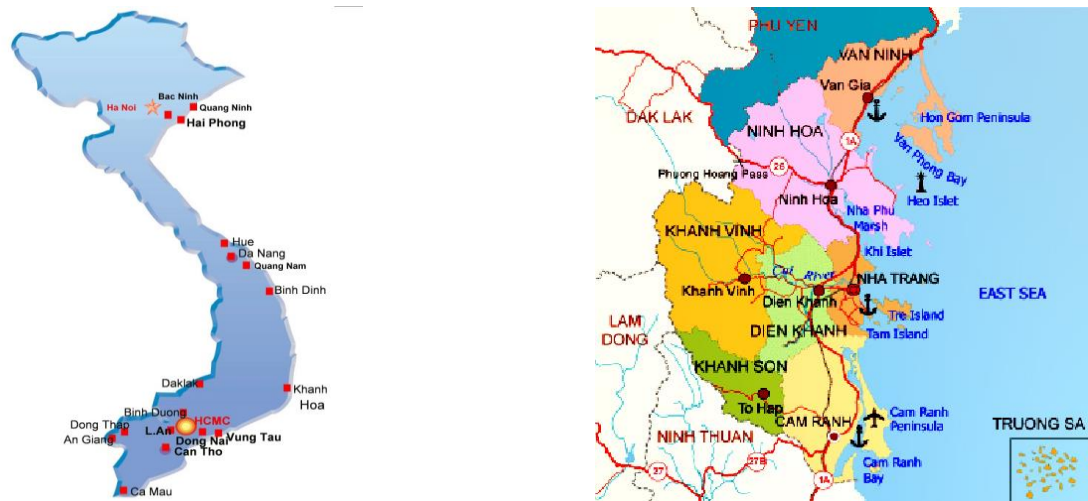
The Raglai is one of the ethnic minority groups with 0.14% proportion population. The general population of the Raglai people is 122,245, ranking 19 out of 54 ethnic groups in Vietnam. The Raglai live in 18 out of 63 provinces and cities in Viet Nam; however, they are gather in two places which are known as Ninh Thuan Province (48.2% of all Raglai) and Khanh Hoa Province (37.6% of all Raglai), (SCCPHCG, 2010).

Table1.1 Distribution of several ethnic groups in Vietnam, 2009

Order	Ethnic group	Number of people	Percentage
1	Kinh	73,594,427	85.7%
2	Tay	1,626,392	1.9%
3	Thai	1,550,423	1.8%
4	Muong	1,268,963	1.5%
5	Kho Me	1,260,640	1.5%
6	Hmong	1,068,189	1.2%
7	Nung	968,800	1.1%
8	Hoa	823,071	1.0%
9	Dao	751,067	0.9%
10	Gia rai	411,275	0.5%
11	Ede	331,194	0.4%
12	Ba Na	227,716	0.3%
13	Xo Dang	169,501	0.2%
14	San Chay	169,410	0.2%
15	Co Ho	166,112	0.2%
16	Cham	161,729	0.2%
17	San Diu	146,821	0.2%
18	Hre	127,420	0.1%
19	Raglai	122,245	0.1%
20	Mnong	102,741	0.1%

Source: The 2009 Vietnam population and housing census: completed results (CPAHCSC, 2010)

Currently, there are 32 ethnic groups in Khanh Hoa Province. The 95.3% are belonged to Kinh ethnic, while only 3.4% counts for Raglai ethnic. The Raglai residents are gather as big communities in two Districts, Khanh Son and Khanh Vinh (KHPL, 2010).



Source: Khanh Hoa Electronic Information Portal (KHEIP, 2012)

Figure 1.1 Maps of Vietnam and Khanh Hoa province

Khanh Vinh is one of the two poorest districts of Khanh Hoa Province with 88.5% population are in the rural area. The agricultural sector is very important in the economic development of the District. However, infrastructure serving the agricultural production has not been invested properly. Raglai ethnic is not only known as a minority ethnic, but also listed with a low education level. No wonder why they are poor and undeveloped agriculture, (Hoan, 2011).

Table 1.2 Health, education and socio-cultural resources of Khanh Vinh district, 2012

Schools	Primary	14
	Secondary	4
	High school	1
	Total	19
Health centers	Hospital	1
	Commune health stations	14
	Regional clinics	2
Media and culture	Library	1
	Stadium	1
	Commune radio stations	14

Source: Statistical Yearbook 2012, Khanh Vinh district Statistical Sub-Department (Sub-Department, 2013)

The population of Khanh Vinh District is 36,024 (50.2 % female). There are 17,464 Raglai ethnic people (occupy 48.5%), distributed in one town and 12 communes (except Giang Ly commune). The population density of Khanh Vinh district is 30.9people/km² while the population density of Khanh Hoa province as a whole is 227people/km² (more than 7 times larger to compare to Khanh Vinh District). Khanh Vinh has 26% poor households; among poor household 11% are Raglai households (Sub-Department, 2013) (GSO, 2012).

Table 1.3 Distribution of ethnic groups in Khanh Vinh, 2012

Order	Ethnic	Number of population	Percentage
1	Raglai	17,464	48.5%
2	Kinh	9,512	26.4%
3	Co Ho	5,078	14.1%
4	Ede	1,655	4.6%
5	Tay	1,286	3.6%
6	Nung	720	2.0%
7	Muong	209	0.6%
8	Dao	38	0.1%
9	Mnong	15	0.04%
10	Thai	11	0.03%
11	Hoa	10	0.03%
12	Cham	10	0.03%
13	Hre	8	0.02%
14	Tho	6	0.02%
15	Kho me	2	0.01%

Source: Statistical Yearbook 2012, Khanh Vinh district Statistical Sub-Department (Sub-Department, 2013)

Raglai, also known as Oranglai, is one of the ethnics of the Malayo-Polynesian language system. Raglai people live in each pa-lay (village) on the high land and near water sources. Each pa-lay usually gathers a few dozens of family within same clan and communicate with each other by their own language. Raglai ethnic group has unique culture background associated with cultivation of agricultural environmental conditions in South Central area. Raglai people are living mostly due to cultivation and forest exploitation. Raglai people are not nomadic, they only rotate crops on the fields that they had. Their main food sources are corn, rice, sorghum, potatoes, beans, fruits and vegetables. They exploit foods from forest by trapping and hunting birds and animals. They also raise fishes, pigs, goats, chickens, ducks, cats and horses for their own food sources, to sacrifice their ritual, and also for compensation. They keep dogs to scare away the thieves/robbers from their houses and help them

hunting as well. The craftsmanship like basketry, pottery, weaving, paper kites were formed but develop slowly. These arts are provided for their community, not for commodity. The truth is told that Raglai people do not know how to trade. For example, when they have huge amount of agricultural products, they rarely sell for strangers or display them in the central market to attract the buyers. The fact that, they always reserve their products for goods exchange priority, or sell to an acquaintance shop owner in the village even the price may be lower (Sang, 2003).

Raglai society is strongly influenced by matriarchal traditions. Inheritance is transferred to the daughter, especially to the youngest daughter. Men live their married life at his wife's house. Their children follow mother's family name. Mothers/wives have the right to decide the family matters. Raglai residents follow The Mountain God (Yang-cho), The God of Forest (Yang gla glai), and The God of Rice (Yang Paday), etc. (Sang, 2003)

The stilt house or the long house is the traditional house for the Raglai ethnic group. From the ground to the floor is not more than one meter. The long house is inhabited by at least three or four generations from the grandparents, the parents, the daughter and the son, the grandchildren, to the great-grandchildren which is under the control of the head of the household, usually the oldest one in the family or the clan. Like other ethnic groups, family is the cradle to form young children's personalities. Parents and children are family member, so they take responsibilities to each other. Raglai customary law specifies clearly that parents must be responsible towards their children by taking good care and teaching their children about the Raglai's cultures and traditions, (Sang, 2003).

Raglai people have many specific traditional activities; however, some of these may lead to health risk behaviors. The big gathering event is The Bo Ma celebration. About two or three days after someone passed away, the family members and others from his/her village plus outsiders will come to perform their rituals. They have been told to gather foods and alcohols to treat the dead person well for his/her last time meal so that the dead person's soul will go to their ancestors. After finishing all the rituals, the foods and alcohols are distributed to every single one as the belief of they received the offering from their ancestors

1.3 Problem identification

Improving the quality of life of human beings is the objective and motivation of social development, so human development is always the priority in the economic, culture and society development strategy of Viet Nam. First to develop a comprehensive quality of life, people need to have good health. Ho Chi Minh attached great importance to human health, he said: "Every weak person makes a weak country. Every healthy person makes a healthy country. If people are powerful, the country will be prosperous" (Ministry, 2004).

The WHO definition of health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948). The definition seeks to include social and economic sectors within the scope of attaining health and reaffirms health as a human right. Gender, culture, income, education, working and social conditions, social support networks, social and physical environments, personal health practices, biology and genetics, quality of health services are main factors that affect human health.

Health is precious capital, to enrich for you and create much wealth for social, to promote country development. A major part of your life is your physical health. A poor physical health will reduce productivity at all. It will also make people cannot enjoy their time at home with their friends and family (Maslow, 2010). A good health can contribute to leading a satisfying and successful life.

To maintain good health, people need to have the appropriate behaviors not only to protect their health but also for those around them. Health behavior is human behavior that related to the creation, protection and health promotion or related to a certain health problem. Health behaviors including: health enhance behavior (good), health maintain behavior, health risk behavior (L. C. Minh, 2012). Common health behaviors are smoking tobacco, drinking alcohol, nutrition, doing exercise and sexual behaviors (Conner, 2002). Therefore, I focus on health risk behaviors which are smoking cigarette and drinking alcohol in this study.

Smoking tobacco

Smoking tobacco is killing about six million people per year. About five million people died because of direct smoking and around 600,000 cases because of being exposed (second-hand smoke). One in 10 adult deaths every six seconds is because of smoking. 80% smokers over the world live in low and medium income countries. Tobacco caused 100 million deaths in the 20th century. Second-hand smoke is cause of coronary heart disease and lung cancer. Pregnant women who smoke tobacco can have babies with low birth weight (WHO, 2013b).

Table 1.4 Current smoking of any tobacco product (age-standardized 15+ rates)

Countries	Male (%)	Female (%)	Both (%)
Cambodia	42	3	22
Laos	48	4	26
Myanmar	38	7	22
Thailand	46	3	24
Vietnam	46	2	23

Source: Prevalence - adult age-standardized, data by country (WHO, 2011)

According to information presented at the workshop comment research report "Assessment of the capacity of preventing the harmful effects of tobacco in Vietnam," by the Vietnam Ministry of Health and World Health Organization held in Vietnam on 22/8/2011, 62% deaths in Vietnam are related to cigarette smoking (about 40,000 people per year), three times higher than deaths from traffic accidents (N. Minh, 2011).

Proportion of passive smoking in Vietnam are very high, in which 67.6% of non-smokers exposed to secondhand smoke at home and 49% exposure in the workplace - that is the result of the global survey about tobacco use among adults in Vietnam in 2010, the tobacco prevention program office of Ministry of Health (VINACOSH) reported in the morning of 5/11/2010 in Ho Chi Minh City (Linh, 2010).

Vietnam still faces a series of challenges, high smoking rates in men and the social acceptance of live together peacefully with smoke still quite common (N. Minh, 2011).

Alcohol use

Alcohol is both a tonic and a poison. The dose and concentration are the difference to become tonic or poison. Moderate drinking can have a positive impact to circulatory system and heart, prevent gallstones and type 2 diabetes diseases. Heavy drinking is dangerous for the liver and heart, negative affect to an unborn child, the risk of many cancers, cause of violence and depression (NIAAA, 2000).

Moderate drinking is a balance consuming action. Moderate drinking is the point that people who drink alcohol can get health benefits more than the risks. In fact, among alcohol scientists, the term “moderate drinking” is fairly fluid. Some studies refer to less than one drink per day but others refer to three or four drinks per day (Kloner & Rezkalla, 2007).

Alcohol users are increasing in many countries. Alcohol abuse is a cause of many kinds of cancer such as liver, larynx, esophagus, colon, rectum, oral cavity, pharynx and breast (in women) (Boffetta & Hashibe, 2006). Alcohol abuse is also related to several infectious diseases such as tuberculosis, HIV/AIDS and STIs (sexually transmitted infections). There is a great ratio of the disease due to harmful drinking alcohol such as unintentional and intentional injuries, including traffic accidents, violence, and suicides (WHO, 2014a).

Table 1.5 Proportion of alcohol use disorders and alcohol dependence (% 2010) and health consequences (2012) in several countries

Countries	Alcohol use disorders*			Alcohol dependence			Death rates alcohol-attributable fractions (AAF), 2012			
	Male	Female	Both	Male	Female	Both	Liver cirrhosis		Road traffic accidents	
							Male	Female	Male	Female
Vietnam	8.7	0.9	4.7	5.9	0.1	2.9	71.7	37.7	36.2	0.7
Malaysia	4.1	0.8	2.4	1.8	0.4	1.1	30.8	28.6	1.3	0.1
Laos	7.6	1.4	4.5	5.0	0.7	2.8	72.6	51.2	26.3	5.4
Cambodia	7.6	1.4	4.4	5.0	0.7	2.7	65.4	50.5	10.2	2.4
Thailand	9.1	1.0	5.0	3.4	0.3	1.8	67.2	40.5	24.9	1.4
Myanmar	2.7	0.5	1.5	1.3	0.2	0.7	20.0	29.2	0.5	0.0

Source: Country profile (WHO, 2013a)

According to Vu Thi Minh Hanh, Director of the Institute for Strategic Studies Health Ministry, within the past 10 years, consumption of alcohol in Vietnam increased. Vietnam ranked the first in alcohol consumption in the Southeast Asia region (CAND, 2014).

1.4 Problem justification

Currently, Raglai ethnic group occupy about half of the population in Khanh Vinh district of Khanh Hoa province. They face to many problems and the risk of adverse impacts to health behaviors, including: poverty, disease, low education level, occupation, eating behavior, and knowledge - practice habits to protect their health, the understanding about the importance of access to modern medical services, the traditional customs and habits. This situation derived from causes such as the historical, social and natural conditions. Up to now, Khanh Hoa province has no comprehensive research about health behaviors as well as the factors that can affect human such as nutrition, genetics, sports, environment and social psychology of the Vietnamese community in general and Raglai people in particular. Several research

studies have been undertaken in Khanh Son and Khanh Vinh but they are limited to studies of malnutrition prevention for children (Thiet & Thu, 2013).

According to the local authority's requirement to Khanh Hoa Department of Health and real situation, we need to access, research and find appropriate solutions to improve the health behaviors of Raglai ethnic people.

1.5 Research question

What are the factors affecting health risk behaviors of the Raglai ethnic group in Khanh Vinh district - Khanh Hoa province - Vietnam?

1.6 Research objective

Ultimate objective

To help the local authority finds the best methods to improve health risk behaviors of Raglai ethnic group.

Immediate Objectives

To investigate factors affect to health risk behaviors of the Raglai ethnic group.

CHAPTER II

LITERATURE REVIEW

2.1 Theoretical Models



Figure 2.1 Social-Ecological models

Source: Health Behavior Theory (Cupal & Jonker, 2008)

Individual, interpersonal, organizational, community and society are factors that affect people in health behavior, knowledge, attitude, belief, culture, policies and laws. Human beings do not live lonely; in fact, we live in a family, in a group, in a community, in a society, a group of friend, a club, a school environment, a working organization, a place of worship, and a volunteer group, etc. These environments day by day not only effect to human behavior in how to perform actively in physical, but also contribute useful knowledge that enhance people know how to feed them with good and healthy nutrition; on top of that, human being learn how to manage and make themselves to fix in a health and good lifestyle. According to Jan Becker, RN, & MS, 1984, the culture, social policies and environments can provide

healthy foods; smoke-free public places and places do physically active by media campaigns (Cupal & Jonker, 2008).

Hence, health behaviors of an individual are affected by many factors inside as well as outside the individual. However, each individual, each level of the organization, each time of, the level of impact may be different. To research and determine this, we need to have a comprehensive way of looking.

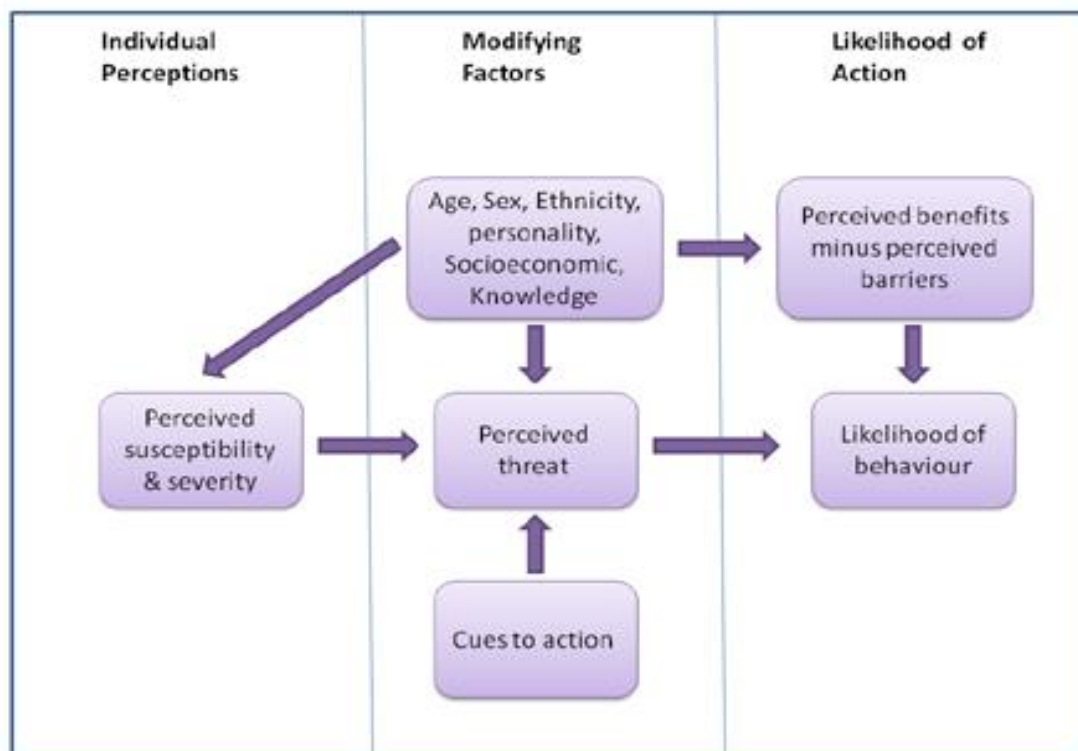


Figure 2.2 Theoretical propositions of health belief model

Source: Health Behavior and Health Education: Theory, Research, and Practice (Glanz, Rimer, & Viswanath, 2008)

The Health belief model is a process which is used to improve healthy behaviors among people who are in risk of negative health outcomes. People need to have perceptions about susceptibility and severity of developing a disease. And then people necessary to feel threatened by that disease. Environment factors can be considered as cues to action (such as television advertising or caring of relatives). Finally, the benefits from change behaviors have to minus the barriers of change

behavior to identify that change behaviors will be worthwhile (Janz, Becker, RN, & MS, 1984).

2.2 Related studies

According to Le Cong Minh (Institute of Hygiene - Public Health Ho Chi Minh city, Vietnam), the factors affect to health behaviors are personal (behavioral and lifestyle), the personal relationship, learning and working environment, law, social policy, community factors (social relationships) (L. C. Minh, 2012).

2.2.1 Socio-demographic factors

Age and gender

Generally, male uses tobacco more than female with overall prevalence globally about four times (48% in male versus 12% in female) (Corrao, Guindon, Cokkinides, & Sharma, 2000). One report in Bahrain showed that the prevalence of smoking habit among male is more than female (Wahab et al., 2002).

Males and females have different roles in society and family; hence they have their own activity and alcohol consumption behavior. In Viet Nam, male smokes more than female, because the picture of seeing a feminine with a cigarette has not been considered appropriate by traditional culture (WHO, 2014b).

Kinh-male ethnic, a majority group in Viet Nam, has 28% ratio of smoking; while the minority male ethnic groups are 31%. On the other hand, Kinh ethnic also has lower percentage in alcohol- consumption to compare to the minority ethnic groups (SAVY, 2009).

Thing gets excited for me to figure out that the older the Indian women are, the lesser they drink which is totally opposite to the Indian male (Benegal, Nayak, Murthy, Chandra, & Gurura, 2005).

In Thailand, working aged people drink more alcohol than teenagers and the elderly (NSOT, 2002). One of United States study stated that people of working age have more chance to enjoy social parties than the others. In addition, people at this age have more income, so it may be the reason that working aged people have the

chance to drink alcohol more than others. Drinking alcohol by the elderly is reduced because of less chance for social parties and reduced of physical status (Janes, Stall, & Giffird, 1986). So that age and gender are important determinants of health-related behavior.

Education level

In 20th World Congress of Epidemiology, one report from Japan stated that among current smokers, college and graduated students have lower rate in smoking to compare to the junior high school and high school ones (Nishi et al., 2014). Base on Wahab et al., 2002, in Bahrain, almost 88% of the male smokers are belonging to the illiterate and lower education groups (Wahab et al., 2002).

In an Indian family health national survey showed that low social status, low level of education and low standard of living have relationship to alcohol use (Poznyak, Saraceno, & Obot, 2005). The other survey in India also proved that women who have higher education may drink less frequently and have a shorter duration of drinking (Benegal et al., 2005).

The result of one study in Chiangmai – Thailand indicated that people who finished primary school or lower have ratio of drinking alcohol and alcoholic dependence are much higher than others (Chokkurd, 2002).

Occupation

Among Japanese women, who are in sales and serving work are more likely to smoke cigarettes compared to women in blue-collar work. For Japanese men, who are professional/technical and clerical occupations are more likely to smoke cigarettes compared to men in sales and serving work (Hanaoka, 2008).

A study in 2001 about the attitudes of the Lopburi Province (Thailand) pointed out that people towards alcoholic-consumption are mostly businessman, while doctors, nurses, teachers, lecturers or public health officers tend to not be alcoholics. One interesting stud on 1,574 factory workers who drink alcohol showed that staying on top of being excused to drink alcohol is to reduce stress from work (males 55%, females 52%); next to the list to explain why they choose alcohol is very simple, just

because of drinking must count in every single party (29% in males and 25% in females), (Laichuthai, 2001).

Marital status

According to Tao Tao, 2010, married people smoked more than singles in China, while this result was totally opposite to Japan and South Korea (Tao Tao, 2010). Another research in Japan showed that married men are less likely to smoke than single ones, (Yamamura & Eiji, 2010).

Korean middle-aged person who lives with a partner has lower risk in smoking compared to who lives alone, (Yim et al., 2012). However, married people drink alcohol more frequently than unmarried people in Japan (Tao Tao, 2010).

Income

A study used data from the World Health Survey showed that, the poor males/female are more likely to smoke tobacco than the rich ones, (Hosseinpour, Parker, d'Espaignet, & Chatterji, 2012).

On the contrary, data from the Third Chinese National Health Service Survey in 2003 stated that income was positive associated to alcohol use. For examples, people who are poor are less likely to use alcohol than rich people in urban and rural areas (Wu, Mao, Rockett, & Yue, 2008).

2.2.2 Reinforcing factors

Listen to the radio

Base on my research, Vietnam Radio Voice has a forum about Health and public health which provides information about health system, policies, counseling and care guide (VOV). Specially, Khanh Hoa Radio and Television has a "Talk to doctor", "Health and Life", "Health counseling, KHRT" forums to broadcast health news and status for province residents. The messages behind these forums are Government hope that people have the right to educate themselves how to live a better and healthier life.

Caregiver

Children are dependent on the care of adults. The child's development in all aspects depends on adults' proficiency (WHO, 2004). And in the model of UNICEF, caregiver's behaviors are mediator factors between social, health and caregiver factors and the child's survival, growth and development (UNICEF, 1990).

According to one study in America, parents greatly affect their children's behaviors. Children follow everything from their parent do and combine what they see around their own lives. Undoubtedly, father and mother set up the examples for their children. A negative example can be harmful to a child's growth and can lead them to have bad behavior. Therefore, parents influenced to their kids' behaviors, special mothers (Rothbaum & Weisz, 1994).

A study by Berk (1985) in America show that caregiver education has positive related to their attitude to take care child as a duty, child-oriented attitudes, and stimulating but nondirective behaviors toward children (Berk, 1985). Another study in Japan showed that, children who have main caregiver with high education level will have good health behaviors (Fujiwara, Takao, Iwase, Hamada, & Kawachi, 2012).

Among Vietnamese young people who were living in household with smokers, there are 41% smokers and this percentage is 36% among young people was living in household without smokers (SAVY, 2009).

Raglai customary law states the responsibilities of parents towards their children. Parents have to take care of and teach them in the framework of community ethics. Customary law also mentions about punishments for parents by paying a fine for who do not teach their children and let children do bad things damage or harmful to the others (Van, 2012).

2.3 Conceptual framework

Dependent variable

Independent variables

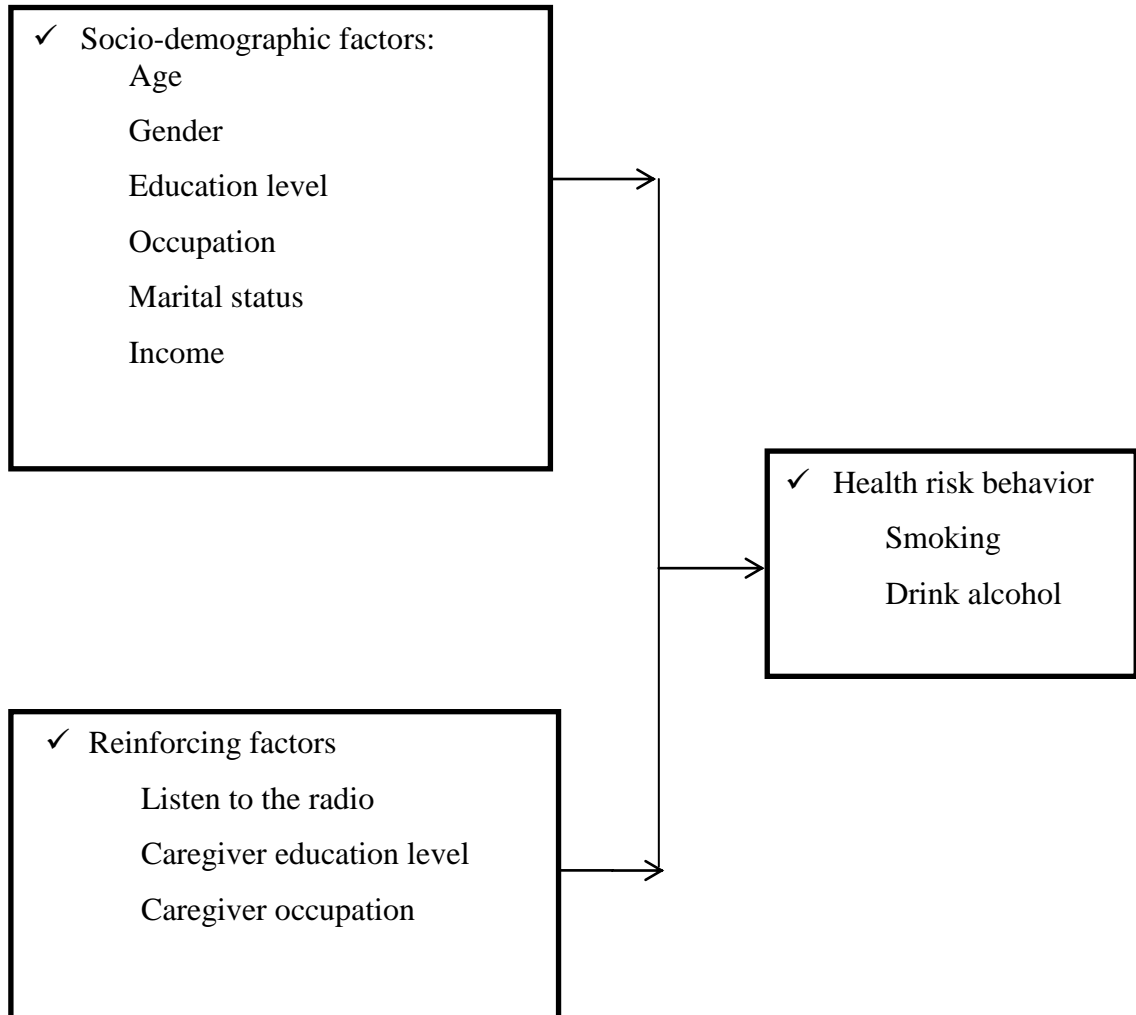


Figure 2.3 Conceptual framework

2.4 Research Hypothesis

Among Raglai people:

- (1) Old people are more likely to have health risk behavior than younger.
- (2) Males are more likely to have health risk behavior than females.
- (3) People with low levels of education are more likely to have health risk behavior than those who have high levels of education.
- (4) Farmers are more likely to have health risk behavior than who are not farmers.
- (5) People who are married are more likely to have health risk behavior than unmarried ones.
- (6) People who have high income are more likely to have health risk behavior than who have low income.
- (7) People who never listen to the radio are more likely to have health risk behavior than those who listen to the radio.
- (8) People whose caregiver during childhood had low levels of education are more likely to have health risk behavior than who had a high educated caregiver.
- (9) People whose caregiver during childhood was a farmer is more likely to have health risk behavior than who had not-farmer caregiver.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Description of data

3.1.1 Source of data

This study used secondary data from cross-sectional research “Surveying anthropometric index of Raglai people under 51 ages in two mountainous districts: Khanh Son and Khanh Vinh”, studied by researcher group of Khanh Hoa Department of Health. They have been studying for 3 years, from 10/2012 to 10/2014 (Thiet & Thu, 2013).

This study survey factors related to health: population - sociological, behavioral factors, health, environmental sanitation, disease situation; determine the correlation between anthropometric index with the related factors. In addition, the study also find out relevant factors affecting the physical health behaviors of each age groups, specifically as living environment, nutrient conditions, customs and practices, education level, average income, nutrition knowledge. Research results of the project will open up opportunities to improve, enhance quality of population for this ethnic community (Thiet & Thu, 2013).

3.1.2 Sampling design

Simple random sampling design was used to select a total of 818 Raglai ethnic citizens who lived in a mountain district of Khanh Hoa province. All 818 Raglai citizens were contacted directly for answering the questionnaire and health officers.

3.1.3 Sample size

Study by Khanh Hoa Department of Health focused on two districts (Khanh Son and Khanh Vinh) in age groups 20-50 years. But my research will use only data from one district (Khanh Vinh) because the original survey has not finished in Khanh Son district at the time that I need it. The sample size of this study is 818

Railai people. The duration of data collection is on March 2013 and the survey used quantitative questionnaire.

3.1.4 Steps for data collection

Step 1: collecting data from the reports about Raglai ethnic group's status of Khanh Vinh district health center.

Step 2: collecting quantitative data from questionnaire answered by Raglai ethnic group from 20-50 years. In addition, investigators look at the record of each respondent to obtain information such as year of birth, weight, height.

The questionnaire included 3 parts:

Part 1: General information

Part 2: Information about family

Part 3: Information about the social environment

Step 3: talking to the medical staff to examine the state of management and health service.

3.2 Ethical aspect

Respondents participated anonymously, voluntarily, and willingly in the survey. Before the interview, the interviewer introduced the purpose and meaning of the interviews, and asked respondents' permission. The interviewer received the respondents' signature to confirm their permission.

3.3 Definition of terms and operationalization of variables

3.3.1 Definition of terms

In this research, health risk behaviors include smoking and drinking alcohol.

3.3.2 Operational definition of dependent variable

Smoking: divided into 2 categories [i] Yes, [ii] No

Drinking alcohol: divided into 2 categories [i] Yes, [ii] No

3.3.3 Operational definition of independent variables

Base on the conceptual framework. The independent variables that are used consist of:

Age: In this study refers to respondent's age at the time of the survey from 20 to 50 years, which were classified into 6 categories: [i] 20-25, [ii] 26-30, [iii] 31-35, [iv] 36-40, [v] 41-45, [vi] 46-50.

Gender: In this study refers to male and female, which were classified into 2 categories: [i] male, [ii] female.

Education level: In Vietnam, education system is divided into 4 levels: [i] primary school (grade 1 to 5) [ii] secondary school (grade 6 to 9) [iii] high school (grade 10 to 12) and [iv] Higher than high school. Education level in this study refers to the highest level of education that finished by Raglai people, which were classified into 4 categories: [i] Illiterate, [ii] Primary school (grade 0-5), [iii] Secondary school (grade 6-9), [iv] High school (grade 10 -12) and higher.

Occupation: In this study refers to occupation of Raglai people, which is divided into 2 categories: [i] Not farmer, [ii] Farmer.

Marital status: Refers to the current marital status of Raglai people, and was classified into 2 categories: [i] Not married, [ii] Married.

Average monthly income: Refers to the total money that Raglai people earned every month, currency by Vietnam dong (VND). Average monthly income was classified into 4 categories: [i] Less than 800,000 VND, [ii] From 800,000 to

1,000,000 VND, [iii] More than 1,000.000 to 1,200,000 VND, [iv] More than 1,200,000 VND.

Listen to the radio: In this study refers to ever listen to programs of communes' radio of respondents, which divided into 2 categories: [i] Yes, [ii] No.

Caregiver education level: In this study refers to education level of respondent's caregiver when respondent was a child, which divided into 4 categories: [i] Illiterate, [ii] Primary school (grade 0-5), [iii] Secondary school (grade 6-9), [iv] High school (grade 10 -12) and higher.

Caregiver occupation: In this study refers to occupation of respondent's caregiver when respondent was a child, which divided into 2 categories: [i] Not farmer, [ii] Farmer.

Table 3.1 Operational definition of variables

Independent variables	Categories	Measurement
Age	Respondent's age at the time of the survey. Age was divided into 6 groups: 0= 20-25 1= 26-30 2= 31-35 3= 36-40 4= 41-45 5= 46-50	Ordinal
Gender	Gender of Raglai people. Gender is used as a categorical variable: 0= Female 1= Male	Nominal

Table 3.1 Operational definition of variables (cont.)

Independent variables	Categories	Measurement
Education level	Education level of Raglai people at the time of the survey Education was divided into 4 groups: 0= High school (grade 10 -12) and higher 1= Secondary school (grade 6-9) 2= Primary school (grade 0-5) 3= Illiterate	Ordinal
Occupation	Occupation of Raglai people at the time of the survey. Occupation divided into 2 groups: 0= Not farmer 1= Farmer	Nominal
Marital status	Marital status of Raglai people at the time of the survey. Marital status divided into 2 groups: 0= Not married 1= Married	Nominal
Average monthly income	Average monthly income of Raglai people earned every month at the time of the survey. Daily income was divided into 4 group based on average income in Khanh Hoa: 0= Less than 800,000 VND 1= From 800,000 to 1,000,000 VND 2= More than 1,000.000 to 1,200,000 VND 3= More than 1,200,000 VND	Ordinal

Table 3.1 Operational definition of variables (cont.)

Independent variables	Categories	Measurement
Listen to the radio	Respondents ever listen to programs of communes' radio up to the time of survey. 0= Yes 1= No	Dichotomous
Caregiver education level	Education level of caregiver when they took care of respondent. Caregiver's education level was divided into 2 groups: 0= Literate 1= Illiterate	Ordinal
Caregiver occupation	Occupation of caregiver when they took care of respondent. Occupation was divided into 2 groups: 0= Not farmer 1= Farmer	Nominal
Dependent variable	Categories	Measurement
Smoking	Smoking status of respondents at the time of the survey. 0= No 1= Yes	Dichotomous
Drink alcohol	Drink alcohol status of respondents at the time of the survey. 0= No 1= Yes	Dichotomous

3.4 Data analysis

Univariate analysis

First, descriptive statistics are used to show the frequency of dependent variable and each independent variable. Almost demographic characteristics of respondents and factors related to health risk behaviors are described also.

Bivariate analysis

Second, to explore the differences of the factors effect health risk behaviors, bivariate analyses are conducted by chi-squared test.

Multivariate analysis

Finally, the relationship between factors and health risk behaviors could be revealed by using logistics regressions analysis.

3.5 Limitation of the study

This study uses secondary data by a cross-sectional survey. Hence, it is difficult to interpret more detail about cause – effect relationship between independent and dependent variables. In this study, there is only one ethnic group is Raglai and all respondents have to know Vietnamese national language.

CHAPTER IV

RESULTS AND DISCUSSION

Overall, this chapter has five sections. The first one describes characteristics of the socio-demographic, reinforcing factors and health risk behaviors of Raglai people in this study (univariate analysis). The second section mentions about frequencies of health risk behaviors by gender (smoking and drink alcohol) of Raglai people. The third highline shows the differences between the socio-demographic and reinforcing factors on how they affect health risk behaviors by using chi-squared test (bivariate analysis). The fourth section draws relationship between health risk behaviors with related factors while controlling socio-demographic factors by using binary logistic regression analysis (multivariate analysis). Lastly, the fifth topic discuss about the results of analyses.

4.1 Univariate analysis

4.1.1 Descriptive characteristic of variables

Table 4.1 indicates characteristics of socio-demographic and reinforcing factors of 818 Raglai people in Khanh Vinh district in this study. The age of Raglai people ranged from 20 to 50 years and the most is 25-29 age groups. What a surprise, there are more female than male in the study. The reason for a big gap in the gender was said that it was hard for interviewers to go to the farm to have a talk with the males, instead of seeing the majority of females be home.

About one-third of Raglai residents are illiterate. Only 13% go for high school and higher education in Raglai community. There are 8 out of 10 Raglai people in this study are farmers, and 2 out of 10 them are in other occupations. This study also pointed out that most Raglai residents are married, and their income range from 20,000 to 5,000,000 VND per month. Among 818 Raglai people, 8 out of 10 people can

access to listen to the radio and had illiterate- caregiver during their childhood; while 9 out of 10 people were taken care by a farmer-caregiver.

Table 4.1 Percentage distribution of Socio-demographic and reinforcing factors

Socio-demographic and Reinforcing (independent) variables	Percent
N=818	
Age group	
20-24	20.7
25-29	23.2
30-34	21.8
35-39	14.2
40-50	20.2
Mean= 32.1; SD= 7.9 ; Min= 20; Max= 50	
Gender	
Female	63.4
Male	36.6
Education level	
High school and higher	13.0
Secondary school	23.3
Primary school	29.0
Illiterate	34.7
Occupation	
Not farmer	20.7
- Government officer	4.0
- Worker	1.8
- Trading	0.5
- Homemaker	6.5
- Others	7.8
Farmer	79.3

Table 4.1 Percentage distribution of Socio-demographic and reinforcing factors (cont.)

Socio-demographic and Reinforcing (independent) variables	Percent
N=818	
Marital status	
Not married	16.1
Married	83.9
Income	
<= 1,265,000	73.7
1,265,001 - 2,510,000	22.7
2,510,001 - 3,755,000	2.6
> 3,755,000	1.0
Mean= 1,063,789; SD 680022.4; Min= 20000; Max= 5000000	
Listen to the radio	
Yes	82.6
No	17.4
Caregiver education level	
Literate	17.1
Illiterate	82.9
Caregiver occupation	
Not farmer	9.2
Farmer	90.8
Total of each variable	100

Base on the report from Table 4.2, there are 4 out of 10 (40%) Raglai people smoke tobacco and about 3 out of 10 (30%) of them who consume alcohol up to date which is too high to compare to the majority ethnic group such as Kinh with only 20% smokers who are 15 and older (Khue & Minh, 2011).

Table 4.2 Percentage distribution of health risk behaviors

Health risk behaviors (dependent) variables	N=818	Percent
Smoking		
No		57.3
Yes		42.7
Drink alcohol		
No		65.5
Yes		34.5
Total of each variable		100.0

4.1.2 Health risk behaviors by gender

Table 4.3 shows how often female and male smokes daily. Just like my expectation, men smoke more than women. There are 70 percent male smokers; 60 percent of the male smokers consume from 5 to 20 cigarettes per day. Let see, there are 30 percent are women smokers; with 20 percent of them have less than 10 cigarettes per day.

According to Khue & Minh, 2011, male smokers consumed more cigarettes daily than female smokers did in Kinh ethnic group (Khue & Minh, 2011).

Table 4.3 Percentage distribution of smoking frequency by gender

Gender	How often smoking (cigarettes per day)					Total
	Never smoking	Less than 5	5 to 10	11 to 20	More than 20	
Female	72.8%	7.7%	11.4%	6.6%	1.5%	100.0%
Male	30.4%	3.7%	32.8%	30.8%	2.3%	100.0%
Total	57.3%	6.2%	19.2%	15.4%	1.8%	100.0%

Table 4.4 indicates how often men and women drink daily. There are 7 out of 10 men who drink alcohol; 6 out of 10 drink from 1 to 4 times per week. What about female Raglai you may wonder, there is only 1 out of 10 drinks alcohol only 1 or 2 times weekly.

Table 4.4 Percentage distribution of drink alcohol frequency by gender

Gender	How often drink alcohol (times per week)					Total
	Never drink alcohol	1 to 2	3 to 4	5 to 6	>= 7	
Female	86.9%	7.7%	2.7%	1.3%	1.3%	100.0%
Male	28.4%	33.8%	28.1%	3.3%	6.4%	100.0%
Total	65.5%	17.2%	12.0%	2.1%	3.2%	100.0%

4.2 Bivariate analysis

The Pearson's Chi-square test (χ^2) is used to examine if there is a significant difference between each category of the independent variables measuring socio-demographic characteristics and reinforcing factors and the dependent variable which is health risk behaviors of Raglai people. From Table 4.5, the Chi-Squared test indicates that eight variables out of nine had a significant relationship with smoking behaviors that include age group, gender, education level, occupation, marital status, income, caregiver's education level and caregiver's occupation. The findings are significant at $p < 0.001$ for age group, gender, education level, income and caregiver education level with smoking behavior; at $p < 0.01$ for occupation with smoking behavior; at $p < 0.05$ for marital status and caregiver occupation with smoking behavior.

We can see from table 4.5, older people are more likely to smoke than youngers ; males are more likely to smoke than females; lower educated people are more likely to smoke than higher educators; farmers are more likely to smoke than not farmers; married people are more likely to smoke than single ones; high income people are more likely to smoke than low incomers; one who had an illiterate caregiver is more likely to smoke than who had a literate caregiver; and finally, who

had a farmer-caregiver is more likely to smoke than one was with un-farmer-caregiver.

Also viewing from Table 4.5, we can see clearly that highest smoking rate 61.2% go for the range of age 35-39. The smoking ratio ascends among the first fourth age groups, then slightly descends in the last range (40-50 years old). The report shows that the percentage of smokers decrease tremendously base on how higher they go for education. I'm excited to know that farmers smoke much more than non-farmers. Such a surprise when I figure out that the higher incomes, the more smokers. However, I can see the third group with higher income than the second group, but the smokers in the third group is 6.2% lower to compare to the second group. I guess there is a bias as I mentioned earlier in my thesis that the interviewers rather to stay in town to interview Raglai residents instead of going to the farm.

It totally makes sense to me when people who received the literate-caregiver have the lower smoking percentage to compare to whom with the illiterate-caregiver. Lastly, not farmer –caregiver that the children had are showed with lower smoking rate to compare to whom with farmer-caregiver.

Table 4.5 Percentage distribution of smoking behavior by socio-demographic and reinforcing factors

All factors		Smoking (%) (N=818)			
		No	Yes	Total	Chi- Square
Age group	20-24	78.1	21.9	100	61.2***
	25-29	56.3	34.7	100	
	30-34	50.6	49.4	100	
	35-39	38.8	61.2	100	
	40-50	47.3	52.7	100	
Gender	Female	72.6	27.4	100	136.0***
	Male	30.8	69.2	100	

Table 4.5 Percentage distribution of smoking behavior by socio-demographic and reinforcing factors (cont.)

All factors		Smoking (%) (N=818)			
		No	Yes	Total	Chi- Square
Education level	High school and higher	80.2	19.8	100	49.4***
	Secondary school	68.6	31.4	100	
	Primary school	50.2	49.8	100	
	Illiterate	47.2	52.8	100	
Occupation	Not farmer	66.9	33.1	100	7.9**
	Farmer	54.9	45.1	100	
Marital status	Not married	65.9	34.1	100	4.7*
	Married	55.7	44.3	100	
Income	<= 1,265,000	62.9	37.1	100	28.9***
	1,265,001 - 2,510,000	41.4	58.6	100	
	2,510,001 - 3,755,000	47.6	52.4	100	
	> 3,755,000	37.5	62.5	100	
Listen to the radio	Yes	57.5	42.5	100	0.1
	No	56.3	43.7	100	
Caregiver education level	Literate	74.3	25.7	100	19.8***
	Illiterate	53.8	46.2	100	
Caregiver occupation	Not farmer	69.3	30.7	100	4.9*
	Farmer	56.1	43.9	100	

Note: *p<0.05; **p<0.01; ***p<0.001

Table 4.6 shows that after being tested by Chi-Squared test, there are six variables out of nine variables were found to have significant relationship with drinking alcohol in order listed Age group, Gender, Occupation, Income, Caregiver education level and Caregiver occupation. The findings are significant at $p < 0.001$ for age group, gender and income; at $p < 0.01$ for caregiver occupation with smoking behavior; at $p < 0.05$ for occupation and caregiver education level with drink alcohol behavior.

We can see, older people are more likely to drink alcohol than younger, males are more likely to drink alcohol than females, farmers are more likely to drink alcohol than non-farmers, high income people are more likely to drink alcohol than low income people, those who had an illiterate caregiver are more likely to drink alcohol than those who have a literate caregiver, and those whose caregiver was a farmer are more likely to drink alcohol than those who had a non-farmer caregiver.

Table 4.6 shows significant relationship among age group and drinking alcohol behavior. The highest drink alcohol ratio is among Raglai people from 35-39 years with percentage is 51.7%. The drink alcohol ratio ascending among four first age groups and reduce in the last age group (40-50 years) but it's not very much. Percentage of Raglai people who have been drinking alcohol among farmer is higher than among not farmer and the drink alcohol ratio ascending from the lowest to the highest income group and the highest income group is the group has highest drink alcohol ratio.

Caregiver education level and caregiver occupation also have significant relationship with drinking alcohol. The result shows that the ratio of drinking alcohol among those who had an illiterate caregiver during their childhood is higher than those who had a literate caregiver and among people who have caregiver was a farmer is also higher than those who have caregiver was not a farmer.

Table 4.6 Percentage distribution of drink alcohol behavior by socio-demographic and reinforcing factors

All factors		Drink alcohol (%) (N=818)			
		No	Yes	Total	Chi- Square
Age group	20-24	79.3	20.7	100	34.8***
	25-29	71.1	28.9	100	
	30-34	60.1	39.9	100	
	35-39	48.3	51.7	100	
	40-50	63.0	37.0	100	
Gender	Female	86.7	13.3	100	282***
	Male	28.8	71.2	100	
Education level	High school and higher	74.5	25.5	100	5.8
	Secondary school	67.5	32.5	100	
	Primary school	62.0	38.0	100	
	Illiterate	63.7	36.3	100	
Occupation	Not farmer	72.2	27.8	100	4.2*
	Farmer	63.8	36.2	100	
Marital status	Not married	72.7	27.3	100	3.6
	Married	64.1	35.9	100	
Income	<= 1,265,000	72.5	27.5	100	51.4***
	1,265,001 - 2,510,000	47.8	52.2	100	
	2,510,001 - 3,755,000	38.1	61.9	100	
	> 3,755,000	25.0	75.0	100	
Listen to the radio	Yes	66.4	33.6	100	1.4
	No	61.3	38.7	100	
Caregiver education level	Literate	73.6	26.4	100	4.8*
	Illiterate	63.9	36.1	100	
Caregiver occupation	Not farmer	81.3	18.7	100	9.1**
	Farmer	63.9	36.1	100	

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

4.3 Multivariate analysis

To examine and compare the effects of socio-demographic and reinforcing factors on health risk behaviors of Raglai people, binary logistic regression models were used because health risk behaviors (smoking and drinking alcohol) which is the dependent variable has two categories (Yes and No).

The results of the logistic regression model on smoking behavior are presented in Table 4.7. Among studied factors, only Age group, Gender, Education level and Income are significantly associated with smoking behaviors.

Raglai people aged 35-39 years old are the most likely to smoke when compared to those aged 20-24, which is significant at $p < 0.01$. Raglai people from 30-34 or 40-50 years old are the same likely to smoke and more likely than who are in 20-24 age group with statistical significant at 0.05 level. Moreover, male Raglai are more likely to smoke than females with statistical significance at the 0.001 level. Raglai people who have secondary school level or lower are more likely to have been smoking when compare to those who have high school and higher level, with statistical significant at 0.001 and 0.05 level. And people who have monthly income from 1,265,001 to 2,510,000 VND are more likely to smoke than those who earn less than 1,265,000 VND monthly income, with statistical significant at 0.001 level.

Other factor is Listen to the radio was not significantly associated with smoking behaviors. Occupation, Marital status, Caregiver education level and Caregiver occupation factors were significant in the bivariate table, but they are not significant in the multivariate model. This is probably because Age group, Gender, Education level and Income factors are more important toward smoking behaviors of Raglai people.

Table 4.7 Odds ratio of smoking behaviors, controlling for socio-demographic and reinforcing factors

All factors		Smoking (N= 818)	
		Odds Ratio	Standard error
Age group	20-24 (ref)		
	25-29	1.43	0.41
	30-34	1.87*	0.55
	35-39	2.64**	0.87
	40-50	1.89*	0.58
Gender	Female (ref)		
	Male	8.03***	1.58
Education level	High school and higher (ref)		
	Secondary school	1.97*	0.67
	Primary school	4.83***	1.65
	Illiterate	6.62***	2.38
Occupation	Not farmer (ref)		
	Farmer	1.34	0.31
Marital status	Not married (ref)		
	Married	1.08	0.26
Income	<= 1,265,000 (ref)		
	1,265,001 - 2,510,000	2.24***	0.47
	2,510,001 - 3,755,000	1.51	0.85
	> 3,755,000	2.52	2.28
Listen to the radio	Yes (ref)		
	No	1.11	0.24
Caregiver education level	Literate (ref)	1.54	0.39
	Illiterate		
Caregiver occupation	Not farmer (ref)		
	Farmer	1.55	0.51
LR Chi-square =	264.22***	Pseudo R square =	0.24
<i>Note: *p<0.05; **p<0.01; ***p<0.001</i>		Degree of freedom =16	

The results of the logistical regression model on drinking alcohol behaviors are presented in Table 4.8. It shows that among studied factors, only Age group, Gender, Education level and Income are significantly associated with drinking alcohol.

Among Raglai people, who are 35-39 years old are the most likely to drink alcohol when compare each age groups to 20-24 age group, which is significant at $p < 0.01$.

Moreover, male Raglai are more likely to drink alcohol than females with statistical significance at the 0.001 level. Raglai people who have secondary school level or lower are more likely to have been drinking alcohol when compare to those who have high school and higher level, with statistical significant at 0.01 and 0.05 level. People who have monthly income from 1,265,001 to 3,755,000 VND are more likely to have been drinking alcohol than who have less than 1,265,000 VND monthly income, with statistical significant at 0.001 and 0.05 level; and the most likely to drink alcohol is 2,510,001 - 3,755,000 VND income group.

When income is included in the model, occupation is not significant. As shown in Table 4.8 below, there is a strong relationship between occupation and income. The percentages among farmers in two highest income groups are lower than among not farmers. And there are 80% among famers have monthly income in the lowest group.

Table 4.8 Percentage distribution of income frequency by occupation

Occupation	Income (VND)				Total
	$\leq 1,265,000$	1,265,001 - 2,510,000	2,510,001 - 3,755,000	More than 3,755,000	
Not farmer	58%	31.4%	5.9%	4.7%	100.00%
Farmer	77.8%	20.5%	1.7%	0%	100.00%

Other factors such as listen to the radio and marital status were not significantly associated with drink alcohol behaviors. Occupation, caregiver education level and caregiver occupation factors were significant in the bivariate table, but they are not significant in the multivariate model while education level is not significant in

bivariate table but it is significant in the multivariate model. This is probably because age group, gender, education level and income factors are more important toward drink alcohol behaviors of Raglai people.

Table 4.9 Odds ratio of drink alcohol behaviors, controlling for socio-demographic and reinforcing factors

All factors		Drink alcohol (N= 818)	
		Odds Ratio	Standard error
Age group	20-24 (ref)		
	25-29	1.12	0.36
	30-34	1.71	0.58
	35-39	2.90**	1.09
	40-50	1.46	0.52
Gender	Female (ref)		
	Male	19.42***	4.16
Education level	High school and higher (ref)		
	Secondary school	1.59	0.58
	Primary school	2.11*	0.77
	Illiterate	3.20**	1.25
Occupation	Not farmer (ref)		
	Farmer	1.42	0.40
Marital status	Not married (ref)		
	Married	1.34	0.38
Income	<= 1,265,000 (ref)		
	1,265,001 - 2,510,000	2.56***	0.58
	2,510,001 - 3,755,000	3.98*	2.69
	> 3,755,000	6.97	7.41
Listen to the radio	Yes (ref)		
	No	1.54	0.39
Caregiver education level	Literate (ref)		
	Illiterate	1.04	0.30

Table 4.9 Odds ratio of drink alcohol behaviors, controlling for socio-demographic and reinforcing factors (cont.)

All factors		Drink alcohol (N= 818)	
		Odds Ratio	Standard error
Caregiver	Not farmer (ref)		
occupation	Farmer	3.32	1.36
LR Chi-square =	364.41***	Pseudo R square =	0.35
<i>Note: *p<0.05; **p<0.01; ***p<0.001</i>		Degree of freedom =16	

4.4 Discussion

This study aims to identify among socio-demographic characteristics and reinforcing factors, which factors affect to health risk behaviors of the Raglai ethnic group in Khanh Vinh district - Khanh Hoa province, Vietnam. Several socio-demographic factors and reinforcing factors are used as independent variables while health risk behavior is used as the dependent variable (smoking and drinking alcohol).

The results of this study show that some socio-demographic factors affecting health risk behaviors among Raglai people in Khanh Vinh district - Khanh Hoa province, Vietnam. For example, 27.4% females were found to have the significant relationship with smoking behaviors. Male Raglai are 8.03 times more likely to have been smoking than female. There are 13.3% female who was found to have the significant relationship with drink alcohol behaviors. Male Raglai are 19.4 times more likely to have been drinking alcohol than females. This is certainly in Vietnamese culture and Raglai culture in particular; there is a limitation in using alcohol and tobacco toward women. This may suggest that lots of work should be done to reduce smoking and drink alcohol behaviors of male Raglai in Khanh Vinh district of Khanh Hoa province. The finding confirmed previous conclusions in 2000 of Corrao et al. that around the world, males use tobacco more than females (Corrao et al., 2000) and conclusion of WHO that in Viet Nam, males smoke more than females (WHO, 2014b). In addition, numerous studies in the field of alcohol use have shown that males drink more frequently and in higher quantities than females (Kaplan, 1979; Snodgrass & Wright, 1983); (Meilman, Stone, Gaylor, & Turco, 1990).

This study shows that age was found to have a positive relationship with smoking and drink alcohol behaviors. This finding is same with Kinh ethnic which is the proportion of people who have been drinking alcohol and smoking increase with age (SAVY, 2009). Raglai people who are in 30-34 age group are 1.87 times more likely to have been smoking, 35-39 age group are 2.64 times more likely to have been smoking and 40-50 age group are 1.89 times more likely to have been smoking. Raglai people who are in 35-39 age groups are 2.90 times more likely to have been drinking alcohol. People in 35-39 ages are mostly married and had children; they have quite much pressure from work and family. Therefore, they give them the right to socialize with friends, neighbors or even cousins. To excuse for why they stick with drinking/smoking, they pointed out that they have a stable income, and a strong and healthy body. Moreover, they added in drinking/smoking which is not only helping them in releasing their stress, but also recharge their energy for tomorrow working day. The 30-34 years old range, people also have the same excuses to addict to alcohol and tobacco, but their income is not that really high to spend. At age of 50, people will start to have some signs of diseases; therefore they should limit the take in amount of alcohol and tobacco. The 20-24 years old range, they do not earn a stable income; they are completely stress free with marital that can explain why they are less likely to contact with drinking/smoking. This study suggests that the government should find the way to reduce smoking/ drinking for Raglai people from 35 to 39 years old in Khanh Vinh District of Khanh Hoa Province.

I'm belong to Kinh ethnic, so it does not shock me to know that smoking/drinking rate is up along with your higher education, (SAVY, 2009). Allow me to bring up some data to convince readers that Raglai people who have secondary and primary school are 1.97 which is 4.83 times more likely to have been smoking; on the other hand, people who are illiterate are 6.62 times more likely to have been smoking. The truth has been told that people who have primary school level are 2.11 times more likely to have been drinking, and people who are illiterate are 3.2 times more likely addict to drinking as well. For my understating, the higher education that one can get, the change for them to drink/smoke is very low or a zero. Human being are deserve to live a healthy life, and no one else can give them that benefit, but themselves. I truly believe that deep down in each person's mind, he/she all knows

that being healthy is the key to all doors. With what being said, the more education he/she received, the healthier life he/she wants to fix in. Therefore, improving education for Raglai residents is a must task to complete.

Income was also found to have positive the relationship with smoking and drink behaviors. Raglai people who earn from 1,265,001 to 2,510,000 VND monthly (approximately 50 to 100 U.S dollars) are 2.24 times more likely to have been smoking and 2.56 times more likely to have been drinking. With 2,510,001 to 3,755,000 VND monthly (approximately 100 to 150 U.S dollars) are 3.98 times more likely to go for drinking which sound similar to Kinh ethnic people. According to SAVY, 2009, Kinh people with higher-income, have higher percentage of alcohol and cigarette abusing (SAVY, 2009). Yes, it is all about money. You can't be an alcoholic or a smoker if you cannot pay for the supplies.

These results confirmed again the results of previous study such as: in Thailand, working age people drink more alcohol than teenager and the elderly (NSOT, 2002). Among current smokers in Japan, who have junior high school and high school graduated level were smoking more than those have college or university graduated level (Nishi et al., 2014). The result of a study in Chiangmai – Thailand showed that there are opposite relationship between education level and alcohol dependence ratio (Chokkurd, 2002).

There are some unexpected results were also found. Some of the socio-demographic characteristics and reinforcing factors are not associated with health risk behaviors. Occupation, marital status, listen to the radio, caregiver education level, caregiver occupation do not have significant relationship with smoking and drink alcohol behaviors in multivariate analysis model.

Raglai people who are farmers, government officers, workers, businessmen or homemakers, different occupation has its own way to stress human being. There are so many ways to release the stress. Some plays sport, some goes for a good sleep, some chooses of sharing with others, some seeks for smoking/drinking. According to drinkers/smokers, alcohol and cigarette totally make them feel better. It could be the reason why alcohol/cigarette is always served in the parties, as my witness. Alcohol/cigarette is known to create and maintain business relationship as well. The more important thing is income. They can buy cigarettes and alcohol when

they have enough money. Hence, occupation variable is not significant while income variable is significant in multivariate analysis model. The findings were inconsistent with some previous studies, which found that: using data from the World Health Survey, the poorest people are more likely to smoke tobacco than the richest people (Hosseinpoor et al., 2012).

Marital status variable is not significant in multivariate analysis model. This can be explained because different marital status has different reasons to cause health risk behaviors. For singles, they are mostly young and they like to follow their friends' behavior, they want to do whatever they are prohibited to show their personality. For married people, they get problems with their husband/wife/children or other family members that lead them to drink and smoke. For divorced, separated and widowed ones, they tend to use alcohol and cigarettes as well. Moreover, Vietnamese culture in general and Raglai culture in particular, drinking alcohol is a common culture. They can drink alcohol when they have free time, in party, meeting, after the celebration or even some of them drink during breakfast, lunch or dinner like a habit. In contrast, the findings show that marital status does not determine drinking or smoking of the Raglai people. This infers that habit of drinking or smoking is not increase or decrease if a person is married or not.

Listening to the radio is not significant in multivariate analysis model as well. Raglai people are not fluently in Vietnamese, too sad to be true. They can answer the questionnaire with the supporting from interviewers, but in the radio program have more complicated fields and speaking speed is faster. In the questionnaire of this study, there are only question about can or cannot listen, do not have question about understand or not. That is the reason we cannot find the significant relationship between listen to the radio variable and health risk behaviors. In addition, the respondent's caregivers are almost farmers and illiterate, so they do not have much knowledge and education to teach or train the respondents. Caregivers also don't spend much time with the respondents because farming is a very busy job. Caregiver education level and caregiver occupation are not significant in multivariate analysis model neither.

The study based on self-reporting of Raglai people rather than based on observation. These types of data can have subjective bias. The appropriate example of

subjective bias is occasional drinkers and smokers during fest and traditions can report themselves as non-smoker or non-drinker which is underestimated data. Similarly, women may feel stigmatized to report them as smokers and drinkers. It will also lead to underestimation of the health behaviors.

Let take a look back on the hypothesis in Chapter II and results in Chapter IV whether the findings support or do not support the following hypothesis.

Table 4.10 Summary comparison of the findings with the research hypothesis

Hypotheses	Findings	
	Support	Not support
(1) Old people are more likely to have health risk behavior than younger.	✓	
(2) Males are more likely to have health risk behavior than females.	✓	
(3) People with low levels of education are more likely to have health risk behavior than those who have high levels of education.	✓	
(4) Farmers are more likely to have health risk behavior than who are not farmers.		X
(5) People who are married are more likely to have health risk behavior than unmarried ones.		X
(6) People who have high income are more likely to have health risk behavior than who have low income.	✓	
(7) People who never listen to the radio are more likely to have health risk behavior than those who listen to the radio.		X
(8) People whose caregiver during childhood had low levels of education are more likely to have health risk behavior than who had a high educated caregiver.		X

Table 4.10 Summary comparison of the findings with the research hypothesis (cont.)

Hypotheses	Findings	
	Support	Not support
(9) People whose caregiver during childhood was a farmer is more likely to have health risk behavior than who had not-farmer caregiver.		X

✓: Support hypothesis; X: Not support hypothesis

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

Along with my thesis, as I mentioned in the acknowledgement part, I'm thankful to earn the permission to use the secondary data from cross-sectional research "Surveying Anthropometric Index of Raglai People under 51 ages in two mountainous districts, Khanh Son and Khanh Vinh", a continuously 2 years study since 10/2012 to October of this year (10/2014) by a group of researchers from Khanh Hoa Department of Health. Eventually, my understanding goes for the heart of this study is identifying which one among socio-demographic characteristics and reinforcing factors can affect health risk behaviors of the Raglai ethnic group in Khanh Vinh District of Khanh Hoa Province, Vietnam.

The dependent variable in this study is health risk behaviors; on the other hand, smoking, alcoholic consumption, some socio-demographic characteristics and reinforcing factors are used as independent variables. Socio-demographic characteristics include age, gender, education level, occupation, marital status, and income; how often the Raglai residents listen to the radio, caregiver's education level and occupation are in the list of reinforcing variables. In this research, the respondents are Raglai ethnic people from 20 to 50 years old, 6 out of 10 are female, 3 out of 10 are illiterate, 8 out of 10 are farmer, 8 out of 10 are married, 8 out of 10 can access to listen to the radio, 9 out of 10 have farmer-caregiver during their childhood, and 8 out of 10 have illiterate-caregiver.

Raglai residents in the group of 30-50 years old more likely have been smoking/drinking than those in the 20-24 years old group; female less likely smokes/drinks than male; secondary school or higher educators use lesser the amount of cigarettes/alcohols to compare to the illiterate group.

With the income from 1,265,001 to 2,510,000 VND (estimated around 50 to 100 U.S Dollars) monthly, Raglai residents tend to hook up with cigarettes/alcohols

than who has less than 1,265,000 VND. By the way, VND is short for Vietnamese Dong, Vietnamese currency.

5.2 Recommendations

The outcomes from this research led to the recommendation that socio-demographic characteristics such as age group, gender, education level and income have significantly relationship with health risk behaviors of Raglai people. Therefore, The Population Policy Program should strictly focus on males and low-educated residents to reduce the ratio of smoking/drinking instead of key-center on the Raglai population.

The communication programs about how to change the behavior to prevent drinking/smoking should be promoted in schools and communities. Moreover, the Local Authority Department should dig deeper into the causes and effects of smoking/drinking; from there they will develop appropriate intervention programs and policies to educate Raglai residents. They should focus intervention program to prevent of alcohol use and smoking also for young people and not currently smokers. The methods can be via newspapers, magazines, radio, media, volunteers, health staffs or school, etc. The most important thing that don't forget to use Raglai's language, therefore we can transform 100 percent our message to them. To those who smoke in the public area or bad attitudes after drinking, warning for the first time, fine-collection for the second time, heavy and heavier punishment for the third time and so on, would be applied strictly with no exception. I strongly believe that with our best investing in time and cares for Raglai ethnic group by encouraging them must go for higher education, training them the good, bad, ugly of drinking/alcohol which is not damage to their own health, but also how they bother to their neighborhood, and worse than that they are not good examples for their next generation to follow. Time pass on and on, how the Raglai ethnic be bad and collapse. No one wants to see their ethnic be bad reputation among others. To me, whatever ethnic group you belong to, majority or minority be healthy and wealthy are the goal for every single human being. Nothing is impossible, I'm sure that Raglai ethnic will lower the ratio of smoking/drinking, but level up their education and incomes and healthy life.

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APPENDIX

QUESTIONNAIRE

ANTHROPOMETRIC INDEX OF RAGLAI PEOPLE UNDER 51 AGES IN KHANH SON AND KHANH VINH DISTRICT, KHANH HOA PROVINCE, 2013

001. QUESTIONNAIRE IDENTIFICATION NUMBER

002. Place of interview:

003. Date of interview:/...../..... Start time:.....

004. Interviewer:

005. Supervisor:

Introduction: “My name is... I’m working for... We’re interviewing people here in [name of city, region or site] in order to find out about...[describe purpose of study].

Confidentiality and consent: “I’m going to ask you some very personal questions that some people find difficult to answer. Your answers are completely confidential. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. However, your honest answers to these questions will help us better understand what people think, say and do about certain kinds of behaviors.

Part I Personal information

No	Questions	Code	Skip to
A1	Your ethnic	Confirm that you are Raglai	
A2	In what year were you born?	Year:	
A3	Gender	Male 1 Female 2	
A4	Your weight	..... kg	
A5	Your height	.....cm	
A6	Your heart girth	.....cm	
A7	Your belly ring	.....cm	
A8	Your hip circumference	.....cm	
A9	Your sequence among your sibling	First 1 Middle 2 Last 3	
A10	Your education level	High school (grade 10 -12) or higher 1 Secondary school (grade 6-9) 2 Primary school (grade 0-5) 3 Illiterate 4	
A11	Your occupation	Government officer 1 Worker 2 Farmer 3 Trading 4 Homemaker 5 Others (specify)...	
A12	Your average income monthly	.....VND	
A13	Your marital status	Single 1 Married 2 Divorce 3	

No	Questions	Code	Skip to
		Separate 4 Widow 5	
A14	Your age when you married	..... Skip if you are single	→ C A15
A15	How do you feel about your current health?	Totally healthy 1 Healthy 2 Normal 3 Not so good 4 Absolutely not healthy 5	
A16	How is your current eating?	Normal 1 Dieting 2	
A17	What are your daily foods? (select multiple answers)	Rice 1 Meat 2 Fish 3 Vegetables 4 Eggs 5 Milk 6	
A18	Do you smoke cigarettes?	Yes 1 Ever smoked but stop current 2 Never 3	→ C A20
A19	How often do you smoke? (cigarettes per day)	Less than 5 1 5- 10 2 11-20 3 More than 20 4 Other (specify)...	
A20	Do you drink alcohol?	Yes 1 No 2	→ C A22
A21	How often do you drink alcohol? (time / per week)	7 or more than 1 5-6 2 3-4 3 1-2 4	
A22	How is your exercise routine?	Everyday 1 Very less 2 Never 3	→ C B1
A23	What kind of exercise that you use to do?	Walking 1 Running 2 Swimming 3 Others (specify)...	
A24	What kind of sport that you use to join?	Football 1 Volleyball 2 Football table 3 Badminton 4 Others (specify)...	

Part II Family information

No	Questions	Code	Skip to
B1	When you were young, who takes care of you directly in your family?	Father 1 Mother 2 Sibling 3 Relatives 4 Do not know/ do not remember 5 Others (specify)...	→ C B4
B2	How is your caregiver education level?	High school (grade 10 -12) or higher 1 Secondary school (grade 6-9) 2 Primary school (grade 0-5) 3 Illiterate 4	
B3	What is occupation of your caregiver?	Government officer 1 Worker 2 Farmer 3 Trading 4 Homemaker 5 Others (specify)...	
B4	How is your father's physique?	Thin 1 Medium 2 Fatty, obesity 3 Do not know, do not remember 4	
B5	How is your mother's physique?	Thin 1 Medium 2 Fatty, obesity 3 Do not know, do not remember 4	
B6	What is the type of your house?	Permanent house 1 Level Ranch 2 Shanty houses 3	
B7	What is the type of your family toilet?	Septic 1 Two compartment 2 No have 3	
B8	What is the source of water that your family is using now?	Wells 1 Dug wells 2 Tap water 3 Spring water 4 Others 5	
B9	How much is your whole family average monthly income?	.....VND	
B10	How far from your home to the nearest medical facility?	.....km	
B11	How often do your family do exercise?	Everyday 1 Very less 2 Never 3	
B12	What does your family do when you were sick?	Taken to the district hospital 1 Take to commune health center 2 Take to private health service 3 Self-buy medicine 4 Others 5	

Part III Society environment information

No	Questions	Code	Skip to
C1	Are there any sport play areas in your place?	Yes	1
		No	2
C2	In your place, can you listen to programs of communes' radio?	Yes	1
		No	2
C3	Have you ever been guided about eating?	Yes	1
		No	2

Part IV Blood relationship information

No	Questions	Code	Skip to
D1	Are your mother and father sibling or relative?	Yes	1
		No	2
		No answer	3
D2	How is your parents' relation?	Specify.....	

SUPERVISOR
(Sign and write full name)

INTERVIEWER
(Sign and write full name)

BIOGRAPHY

FULL NAME	Lam Nguyen Thuc Quyen
DATE OF BIRTH	November 05, 1987
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