DETERMINANTS OF LIFESTYLE CONTRIBUTING TO RISK OF CORONARY HEART DISEASE AMONG JUNIOR HIGH SCHOOL STUDENTS IN PHUKET PROVINCE

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KEY WORDS : LIFE STYLE / ADOLESCENCE IN SCHOOL / CORONARY HEART DISEASE / RISK FACTORS / HEALTH PROMOTION / LISREL.

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The major purpose of this study is to analyze a causal model that relates lifestyles to the risk of coronary heart disease (CHD) among adolescents. The CHD risk factors include lack of exercise, excessive consumption of saturated fat and high calories, cigarette smoking, and alcohol and caffeine intake. The proposed model examines the interaction effects on the CHD-related lifestyles of four causal variables, namely:- 1) Demographic characteristics (sex, birth order, personality, academic achievement). 2) Family characteristics (size, income, level of mother's education, and family structure). 3) Enabling factors (time spent watching TV, vulnerability to high-risk lifestyles, family lifestyle, peer pressure, social support). 4) Social psychological factors (perception of risking opportunity to CHD, perception of barrier to healthy lifestyle, self-efficacy, the attitude toward high-risk lifestyle, and values concerning food and health).

Data were collected from 648 junior high school students at mathayom1-3 levels in the Phuket province. This data were collected using questionnaire and group interviews. To analyze the collected data, the SPSS/PC$^+$ PRELIS, LISREL programs were employed.

The findings demonstrated that the majority of the students under study have lifestyles that places them at high risk for CHD. Over 50 percent of the high risk group and 40 percent of the moderate risk group. Approximately 93 percent of them regularly drink refreshments containing caffeine and 73 percent consume high saturated fat and high calory food while about 60 percent lack sufficient exercise. The data also showed that about one-third of them smoke and about 10 percent drink alcohol. According to the data analysis, 32 percent of the variance in the CHD risk lifestyles can be accounted for the proposed model. (χ^2 = 57.03, P-value = 0.85, FGI = 0.99, AGFI = 0.97, RMR = 0.02). The variables that are statistically significant are self-efficacy, health-related values, peer pressure, social support, academic achievement, and level of mother's education.

In conclusion, the findings suggest that most of the adolescents in Phuket have lifestyles that are at high risk for CHD. It is recommended that a holistic health promotion program based on the cooperation between school, family, and community be urgently established for these students. The program should give major emphasis on providing health promotion information and making social, psychological, and educational support accessible to them to assure that they will develop self-efficacy and health-related values to protect them against the CHD risk lifestyles.

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ประพรศรี นรินทร์รักษ์ : ปัจจัยกำหนดแบบแผนการดำเนินชีวิต ที่เสี่ยงต่อการเกิดโรคหลอดเลือดหัวใจของนักเรียนมัธยมศึกษาตอนต้น จังหวัดภูเก็ต (DETERMINANTS OF LIFESTYLE CONTRIBUTING TO RISK OF CORONARY HEART DISASE AMONG JUNIOR HIGH SCHOOL STUDENTS IN PHUKET PROVINCE) คณะกรรมการควบคุมวิทยานิพนธ์ : ศุภวัลย์ พลายน้อย, Ed. D., บุญยง เกี่ยวการค้า, Dr.P.H., ธวัชชัย วรพงศธร, Ph.D. 247 หน้า. ISBN 974 - 664 - 448 - 3

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษา รูปแบบเชิงสาเหตุของแบบแผนการดำเนินชีวิต ที่เสี่ยงต่อโรคหลอดเลือดหัวใจของวัยรุ่น ด้าน การขาดการออกกำลังกาย การรับประทานอาหารไขมันสูง การสูบบุหรี่ การดื่มแอลกอฮอล์ การดื่มคาแฟอีน ประกอบด้วยปัจจัยกำหนด 4 ประการ ได้แก่ 1) ปัจจัยคุณลักษณะทางประชากร (เพศ ลำดับที่การเกิด บุคลิกภาพ ผลสัมฤทธิ์ทางการเรียน) 2) ปัจจัยคุณลักษณะทางครอบครัว (ขนาดของครอบครัว รายได้ของครอบครัว การศึกษาของมารดา การอยู่ร่วมกันในครอบครัว) 3) ปัจจัยเอื้ออำนวย (เวลาดูโทรทัศน์ต่อวัน ความสะดวกต่อแบบแผนการดำเนินชีวิตที่เสี่ยง แบบแผนการดำเนินชีวิตที่เสี่ยงของครอบครัว แรงกดดันจากกลุ่มเพื่อน และการสนับสนุนทางสังคม) 4) ปัจจัยจิตวิทยาสังคม (การรับรู้โอกาสเสี่ยงต่อการเกิดโรคหลอดเลือดหัวใจ การรับรู้อุปสรรคต่อการป้องกันแบบแผนการดำเนินชีวิตที่เสี่ยง การยอมรับนับถือตนเอง ทัศนคติต่อแบบแผนการดำเนินชีวิตที่เสี่ยง การให้คุณค่าต่อสุขภาพ ค่านิยมในการรับประทานอาหาร) ศึกษาในปี 2542 กลุ่มตัวอย่างเป็นนักเรียนมัธยมศึกษา ปีที่ 1 - 3 จังหวัดภูเก็ต จำนวน 648 คน วิธีการศึกษาเชิงปริมาณโดยใช้แบบสอบถาม และ เชิงคุณภาพโดยการสัมภาษณ์กลุ่ม วิเคราะห์ข้อมูลโดยโปรแกรม SPSS/PC$^+$ PRELIS และ LISREL

ผลการวิจัยพบว่า นักเรียนมัธยมศึกษาตอนต้น มีแบบแผนการดำเนินชีวิตที่เสี่ยงต่อโรคหลอดเลือดหัวใจ โดยรวมในระดับสูง โดยมากกว่าร้อยละ 50 มีความเสี่ยงในระดับสูง และร้อยละ 40 มีความเสี่ยงปานกลาง และพบว่า เกือบร้อยละ 93 เสี่ยงต่อการดื่มเครื่องดื่มที่มีส่วนผสมของคาแฟอีน ร้อยละ 73 เสี่ยงต่อการรับประทานอาหารไขมันสูง ร้อยละ 60 ขาดการออกกำลังกาย ร้อยละ 30 สูบบุหรี่ และร้อยละ 10 ดื่มแอลกอฮอล์ ปัจจัยกำหนดทั้งสี่ร่วมกันอธิบาย แบบแผนการดำเนินชีวิตที่เสี่ยงได้ ร้อยละ 32.5 ($\chi^2 = 57.03$, P-value = 0.85, FGI = 0.99, AGFI = 0.97, RMR = 0.02) ปัจจัยที่มีอิทธิพลทางตรงในทิศทางลบ ได้แก่ ปัจจัยจิตวิทยาสังคม และปัจจัยเอื้ออำนวย ปัจจัยที่มีอิทธิพลทางอ้อมในทิศทางบวก ผ่านปัจจัยจิตวิทยาสังคมคือ ปัจจัยด้านคุณลักษณะทางประชากร คุณลักษณะทางครอบครัว และปัจจัยเอื้ออำนวย ตัวแปรสังเกตได้ที่มีค่าอิทธิพลมาก และมีนัยสำคัญ คือ การรับรู้ความสามารถของตน การให้คุณค่าต่อสุขภาพ การรับรู้แรงกดดันจากเพื่อน การสนับสนุนทางสังคม ผลสัมฤทธิ์ทางการเรียน และการศึกษาของมารดา

วัยรุ่น มีแบบแผนการดำเนินชีวิตที่เสี่ยงต่อโรคหลอดเลือดหัวใจในระดับสูง ดังนั้น จึงมีความจำเป็นต้องปรับแก้แบบแผนดังกล่าว โดยโรงเรียนควรมีโครงการส่งเสริมสุขภาพแบบองค์รวม คำนึงถึงปัจจัยกำหนดแบบแผนการดำเนินชีวิต ทั้ง 4 ประการ เน้นการสนับสนุนทางสังคม การกำหนดนโยบาย กฎระเบียบต่างๆ ที่ส่งเสริมให้วัยรุ่น เห็นคุณค่าต่อสุขภาพ และมีการรับรู้ความสามารถของตนอย่างเพียงพอ จนไม่คล้อยตามแรงกดดันจากกลุ่มเพื่อน ในการดำเนินชีวิตที่เสี่ยง ทั้งนี้ ด้วยความร่วมมือจาก ครอบครัว และชุมชน

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CHAPTER I

INTRODUCTION

1.1 RATIONALE

In the era of the capitalistic world which has opened the door of countries up to now. They make the world abbreviate from the great size and remain only a global village. The people who live in opposite spherical section of the world can hear the movement with one another within a few minutes or it is as quick as the speed of light and sound wave by the technology of the communication from urgent technology information, internet network to the electronic mail and so on.

The consequence is that it makes the world harmonize more and more, can relate with and dominate the knowledge of technology of cultural arts, values, economics and marketing including the lifestyle to earn human being' living whose behaviors have been changed rapidly because of demonstration effect especially the context of Thai society which most of them have not been improved how to make their livings under the conditions above.

The phenomenon has been taken place up to the present, is that the overview imaging of the Thai society tends to the style of earning western people's livings which is dominated more strongly and is based upon the standard of civilization of the western (Wongkul, 1998: 128). For example: the cultural of a rich diet, smoking and making Thai people's comfortable living in the sedentary lifestyle. We have extensive

studies and correspondingly concluded that the modern culture is the main cause of the epidemic of the arteriosclerosis (WHO, 1995a: 10). The developed countries have already campaigned to halt this risky lifestyle. Even though Thailand more realizes this solution, we haven't expanded the boundaries widely. Most of the Thai people are still earning their lifestyle which are fully risk from any complexity of various conditions and contexts in Thai.

The importance cause of the alternation is not only the condition of the current globalization but also the condition of the inside country. These are the main points to push this alternation. That is a policy to emphasize the economical development which is not balanced. To take up value of the currency as the indicator of the growth level of economy (Jamarik, 1998: 12). From the era of the modern alternation of the era of the accelerate development in accordance with the plan of the development of economical structure of Thailand change from the formal agricultural section into the more industrial and service sections.

When the structure of the occupation was altered, the lifestyles and the values would be altered too. For example: the former production used for the consumption, but now for trade and exports. The people have migration to the city for finding the jobs, making the money more and more and living in the comfortable places where have more facilities. Earning their living such as: the electricity, entertainment places whether the department stores. Entertainment and education in high level (Samakkarn & Chai-umporn, 1995: 6) which affect to the formality of lifestyle. They make more competitive than before, more passing working against time. These are the results of making their living in successfully instant action.

The type of the consumption has been changed since then, the people have had fast food or food processing. Everything is comfortable and also reduces the time for cooking (Lacholwyarn, 1985: 25-31). When the type of having breakfast or lunch or dinner was changed, it would affect to limit of some kinds of substance and might over limit of some kinds instead. They consume meat, fat and more sugar, but reduce taking the fiber. Earning their comfortable livings make them use less energy, there affect to pattern of the illness and pattern of death which are similar to the western's death.

In the past, the type of Thai's death, people died from infectious diseases. Since 1984, the Thai people have died from the cardio vascular disease. From the statistic, we founded that the first leading caused of death of Thai people is heart disease which trend to gradually increase every year from 54.7 persons per 100,000 in 1991. They increase 69.2 persons per 100,000 in 1995 (The Office of the National Statistic, 1997: 79). The people who died from this heart disease group were found that CHD is the most important cause of death. The data of the statistic of the ministry of public health reported that the rates of the sickness of CHD are rising up in every region of Thailand, now especially in the middle region where is the first, in the southern region where is the second and the north eastern region where is the least (Leangkobkul & Mahanon, 1997: 999).

The violence of the CHD is not only the rates of rising death but also the young people can get CHD. From Chaiyateerapan's studies (1989: 1-6) were found the sick people of CHD started at age of 22 and it trends to find this disease in the group of people who are lower 40 years of age. The nature of the CHD is chronic

disease, one who gets this disease, he should have been cured by the doctor continually for a long time. Instead of using their extremely strong potentials to make their country productivity. The government must pay a lot of money to cure and take care of these sick people. It is necessary for the government to try to find the technology costs high. We can see that the multiplication of the treatment expenses are rising up more than other expenses which concern with the basic factors of earning their livings.

The average of the expenses for the Thai people's health was 462 bath in 1980 to 3,048 bath (almost seven times). In 1994 the percentage was 5.01 of gross domestic product (Tungchareonsatean, et al., 1998: 3). Besides, the government has to pay a lot of budgets to increase the doctors and the medical technology. The preparation of undertaking with the problems which may be happened, it is the perception of solving them in the end. Therefore, the more solving the problem, the more expanding which are all related. This is because we haven't considered the real cause yet.

In reality, we are the things we eat, the things we think and the things we do. The phenomenon of the sickness has been happening since then, it come from the various holistic, factors, and each of them is related to each lifestyle that has been proceeding for a long time. According to the basic philosophy of holistic view of health, saying that one who has well being as the combining composition, saying that one who has good health, he will compose of the various readiness whether the food, the formality of earning one's lifestyle, thinking, treating which commit with oneself and surroundings including the society for public (Chunhasawadikul, 1997: 36).

The CHD is the main problem and occurs the tremendous loss until now. When we consider the cause of problem from the revision of the seen researches, work correspondingly indicated that the main cause came from the formality of earning one's lifestyle which has not been appropriately collected since he was been. Eating the food, lacking of exercise, smoking and drinking alcohol and whisky (WHO, 1992: 1-50). These behavior occurs the collections of fat and cholesterol at the partition of coronary blood vessel. And it makes the blood vessel be thin, small and hard and at least it conducts to the death of the muscle heart disease. And then, we should solve the original cause of the problems.

World Health Organization identifies that the most important of strategy is the protection of CHD by cutting the chains that link with its cause. The following are there are three formalities of earning one's lifestyle (WHO, 1995a: 10). That is: a rich diet, sedentary lifestyle, smoking. It is the best strategy to protect the disease effectively. We have the target group to be the most worth of proceeding is children and youth group, especially in the adolescents because they are in the age to society and having a lot of rapid changes including the physical health, mind, emotion, society, thinking and intellect.

These make them have risks for their formality of earning, whether smoking, drinking alcohol and caffeine. These are because the changing from youth to adult, it makes them wish to try on, like combining the groups and enjoying the activities, getting the influences from their friends. These make them have thoughts, believe, treat which resemble with one another. For example: getting dressed imitated or having the taste of eating including consuming drug in the short and long period.

Most of the adolescents tends to accept the culture, values, the formalities of western of earning one's living to treat in one's society. It makes the way of life, the conditions of the society and the values be changes, the incorrect of behaviors of eating, especially adolescents in the city who like using the modern furnishing places, the strange food and drinks which are promoted by advertisement, such as: fast food and drinks that mixed with a lot of sugar. These make them lack of the significant substances which are useful for their bodies. One thing is obvious: there are many more fat children, they are not the behaviors of using the fast food service.

In 1988, The food habit survey in Bangkok indicated that age group of 15-20 eating fast food in the high level (52.27 per cent) and age of 21-25 eating fast food about 51.84 per cent. It is said that the students eating fast food slightly high about 61.7 per cent. Besides, breakfast meal for the adolescents is only coffee with biscuits, lunch meal is substituted with nectar water and dessert or hors-d'oeuvre which are composed of flour, fat and sugar in the high quantities. The adolescents like drinking aerated water instead of milk. It makes them get high calories and also the value of the nutrition is not perfect but feeling full not want to eat the main food. They often like eating to compensate in dinner. The factors of the environment of the society facilitate to the risky behaviors, for example: the food shop where sells food with fat and high calories advertising of cigarettes and whiskies, smoking at the public, the believable advertisement of the produces and so on (Sithiamorn & Chuncharoon, 1998: 42).

Besides, the food which is full of fat and high sugar can be bought from the supermarket or the food shops at school. Whenever they buy this food to eat often, it

will be led to the collecting of over calories and nutrition afterwards (Kaplan, et al., 1993: 375). From any conditions, we can see that the adolescents are the group of risking to the lifestyle contributing to risk of CHD they are: eating high fat, lacking of exercise and drinking alcohol which influence to various chronic diseases. It is not only CHD. Although these behavior haven't been affected to their health up to now, they might be occurred in the next age both the adults and the elderly. Therefore, it must have the researches to get the answers that at present, the adolescents of Thailand have the formalities of earning their livings which are risked whether obtain the CHD or not and what factors to determine those formalities under the contexts of the Thai society, especially in Phuket.

Phuket, where is the tourists province. There are a large number of Thai and foreign tourists, making a trip to Phuket enclosing their formalities of earning their livings. These make the adolescents of Phuket face to direct experiences by touching their formalities of earning western's living. It might be encouraged for them in Phuket to have imitated formalities easily. In addition, the population of Phuket died from CHD which is the first cause of the death of Phuket. That was: the rates of the death per 100,000 of population in 1996 were 52.62 (The Office of the National Statistic, 1997: 620).

Since last decades, the foreign countries have been stimulated and focused on educating in the dimension of promotional health in order to prevent the risk of the CHD in adolescents more and more. But in Thailand, we have few research in the dimension of promotional health in order to prevent this diseases in adolescents. And most of them lack of multidisciplinary dimension model enable the perception of

understanding or explaining the conditions of the problem are in the limited standard. In this research, the researcher have applied to the maximum philosophy of the population education which focuses on using methods of educating and solving the problems which have been taking place from the population or the consequence from the population's problems.

These make the learners have awareness and good attitude which lead to make one's decision suitably for the situations of the population at that time so as to have the good quality of life. These are the compositions of knowledge of various subjects model to apply to design the research work for studying of the process of the sickness and death. To get the composition of knowledge in subjective and various factors. Not only in the individual and family factors but also in the environment factors are able to explain the formality of earning the adolescents' livings, especially in the junior high school students level, having risked occurring to CHD. Then, taking the composition of the subjective knowledge which was obtained from the research to offer the divisions concerned in order to make a program for the education or the strategy that proceeds with other divisions for modifying the cause factors. It should be protected from the first stage before being this disease which is the proactive concept more than following to solve the problems at crisis management (Watheesatokkit & Buasai, 1998: 11). This concepts corresponds with the dimension of promotional health, it is worth investing and paying less expenses.

From the cause above, the researcher is interested in studying the determinants of lifestyle risky to CHD of the junior high school student in Phuket by using multidisciplinary approach and using the basic theory of psycho-social theory to be

the limited standard to see phenomenon. To find the answers whether the junior high school students in Phuket have the lifestyle contributing to risk of CHD or not. What factors and how to modify their formalities in the long term.

1.2 THE RESEARCH OBJECTIVE

The research objective of this research was to study 4 part as follows:

1. The lifestyle contributing to risk of CHD of junior high school student. These are lacking of exercise, eating high saturated fat and high carory, cigarette smoking, drinking alcohol and caffeine intake.
2. The influence of the demographic characteristics, psycho-social characteristics, and enabling characteristics factors affect directly to their lifestyle contributing to risk of CHD.
3. The influence of the demographic characteristics, family characteristics and enabling factors affect indirectly to their lifestyle contributing to risk of CHD through the psycho-social factors..
4. The way to modify their lifestyle contributing to risk of CHD.

1.3 THE RESEARCH QUESTION

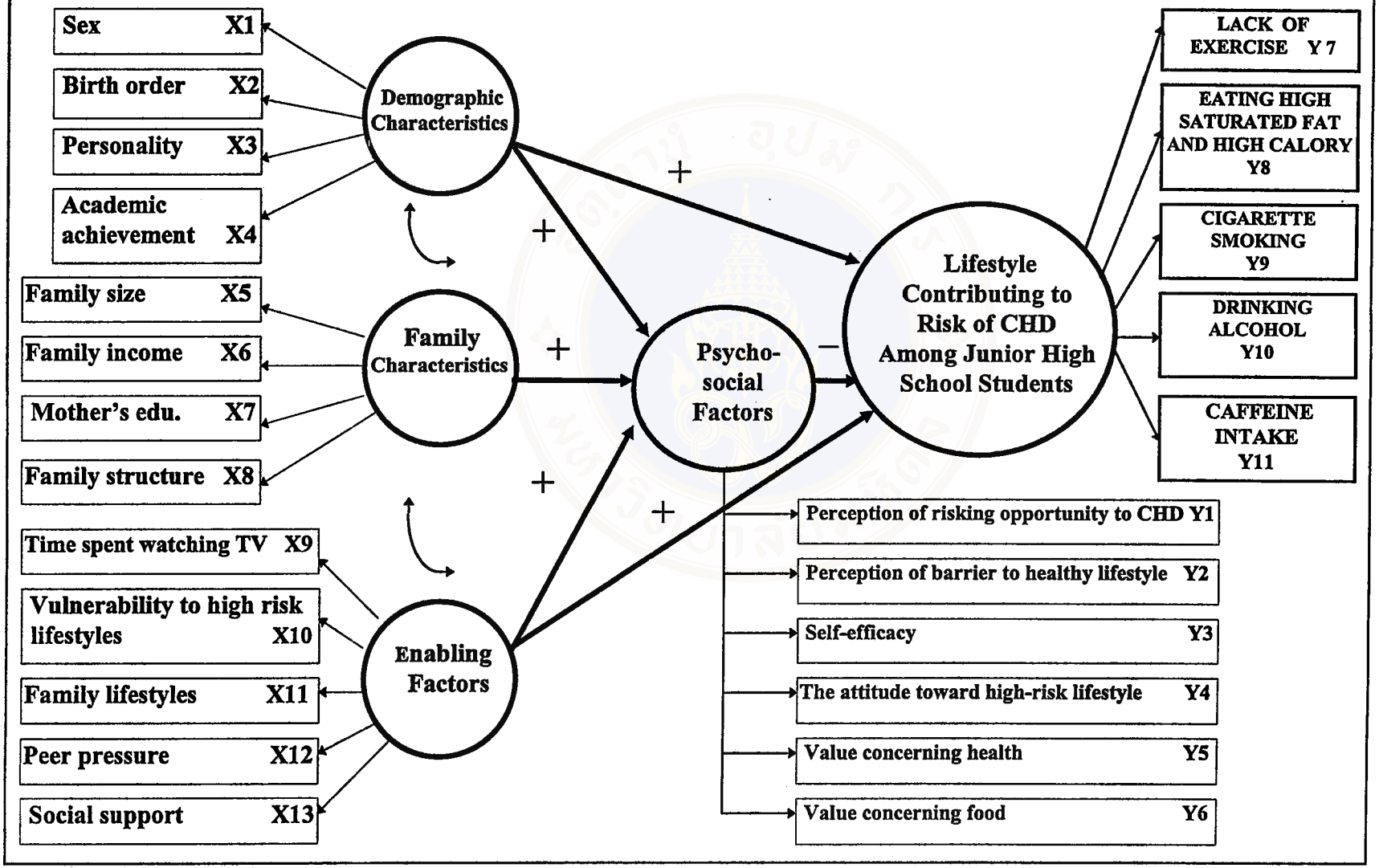
1. How are the characteristics of the lifestyle contributing to risk of CHD of the junior high school students in part of lacking of exercise, eating high saturated fat and high carory, cigarette smoking, drinking alcohol and caffeine intake?.
2. How are the characteristics of demographic factor which composed of sex, birth order, personality, academic achievement among the junior high school students in Phuket?.

3. How are the characteristics of family factor which composed of family size, family income, level of mother's education, family structure?.
4. How are the characteristics of psycho-social factors which composed of perception of risking opportunity to CHD, perception of barrier to healthy lifestyle, self-efficacy, the attitude toward high-risk lifestyle, value concerning health, value concerning food?.
5. How are the characteristics of the families factor (family size, family income, level of mother's education, family structure) related with their formalities?.
6. How are the characteristics of the enabling factor which composed of times spent watching TV per day, vulnerability to high risk lifestyle, family life style, peer pressure, social support?.
7. How do the demographic characteristics, the family characteristics, the enabling factor and the psycho-social influence to their lifestyle contributing to risk of CHD?.
8. How are the way to modify their formalities?

1.4 CONCEPTURE FRAMEWORK OF THE RESEARCH

The conceptual framework of this research composed of 5 latent variables and 24 observe variables namely: 1) Demographic characteristics (sex, birth order, personality, academic achievement). 2) Family characteristics (family size, family income, level of mother's education, and family structure). 3) Enabling factors (time spent watching TV, vulnerability to high-risk lifestyles, family lifestyle, peer pressure, social support). 4) Psycho-social factors (perception of risking opportunity to CHD, perception of barrier to healthy lifestyle, self-efficacy, the attitude toward high-risk lifestyle, values concerning health, values concerning food). As showed in figure 1.

Figure 1. Conceptual framework of the study



1.5 HYPOTHESIS OF STUDY

1) The demographic characteristics factor was positive directly influence on lifestyle contributing to risk of CHD among adolescence.
2) The demographic characteristics factor was indirectly influence on lifestyle contributing to risk of CHD among adolescence through the psycho-social factor.
3) The family characteristics factor was indirectly influence on lifestyle contributing to risk of CHD among adolescence through the psycho-social factor.
4) The enabling factor was directly influence on lifestyle contributing to risk of CHD.
5) The enabling factor was indirectly influence on lifestyle contributing to risk of CHD through the psycho-social factor.

1.6 THE BOUNDARIES OF THE RESEARCH

This research is the study the lifestyle contributing to risk of CHD of adolescents who are only in the formal education. Owing to the researchers want to control the variation of the complexity variables not to occur the differences in the lifestyle contributing to risk of CHD of the working men and the students who have the different formalities. As a result of the limitation which is able to collect the data profoundly cover the context of the adolescents in the formal education, but there will be the limited items in the application of the researcher, that is: this research uses for predicting the lifestyle contributing to risk of CHD of adolescents in the formal education only which can not predict in all adolescents.

1.7 TERM DEFINITIONS

Lifestyle contributing to risk of CHD means the behaviors or the characteristics of earning one's living that treat regularly and affect to the risk occurring the CHD in many ways. These are lacking of exercise, eating high saturated fat and high calories, cigarettes smoking, drinking alcohol and caffeine intake.

Lacking of exercise means one month ago, they lacked doing of the movement of big muscle, lack of continuous exercises. For example, rapid walking, running, riding the bicycle, swimming. The sport categories to play football, basketball, Ping-Pong with have the period of time less than 20 minutes per time and the frequency of exercise was less than three times per week. This criteria according to the measurement model of having the physical exercise in accordance with the method of Paffenbarger, et al., (1986: 605-613) and Pothiban (1993).

Eating high saturated fat and high calory means the frequency of eating the food of the quantitative category of saturated fat and high calories. The measurement which indicated the amount of time of eating (the amount of meal per day and the quantity of eating per meal). For example the category of meat with oil of fat, hide, the category of fresh milk that contains full ingredients, sea food except the fish as crab, shrimp, oyster, shell, the category of egg yolk, curry with coconut milk, the category of cooked fast food such as: cooked pork rice with sauce, cooked duck rice with sauce, cooked chicken rice with sauce, baked pork rice with sauce, every fried rice, the categories of noodle, such as: Thai noodles with vegetables and sauce, noodles fast food such as: hamburger, pizza, hotdog, french fries, sandwich fried

ridge of the roof, fried chicken's calf. The fried category such as: fried rolled fish, fried shell, fried chicken, fried fish, fried sausage, fried high fat soba. Fried sweet meats such as; fried pairs of flour, fried Thai bananas, French fries dessert, sirup, potato with coconut milk dessert, dessert into pieces, sweet meats with coconut. Hors-d'oeuore such as roasted corns with butter, sweet meats biscuits cakes Donuts, cookies, ice-creams, fruits with sweet taste.

Cigarette smoking means one month ago, whether were they smoking. Smoking were composed of two structure factors, the behavior of smoking and passive smoking. (Rose, et al., 1982: 178). The behavior of smoking were composed of smoking in one month ago, type of cigarettes, duration of smoking, the amount of smoke, frequency of smoking. Passive smoking composed of living in smoking area, time per day living in smoking areas, frequency of living in smoking areas and years living in smoking areas.

Drinking alcohol means one month ago, whether were they drinking alcohol, whiskey and wine, beer and other drink with the mixture of alcohol which has alcohol quantity more than 60 milliliters per day or not. The category of drinking alcohol includes type of drinking, dilution, volume and frequency of drinking.

Caffeine intake means one mouth ago, whether were they drinking tea, coffee, chocolate, drink giving the energy or aerated water which has caffeine quantity more than 100 milligram per day or not. (Phothisiri, 1984: 581-585) The category of drinks includes the quantity of drinking (the number of glass per time) and the frequency of drinking (time per week).

The adolescents mean the students who study in the junior high school which is subject to the department of elementary and adult education in educational year of 1998 in Phuket.

Sex means male and female.

Birth order means the order of birth of brother and sister with the same parent of junior high school students.

Type A personality means the characteristics of the secondary industrious and engrossed student in his work in order to be finished in time He is hurried, competitive, ambitious quite sporting and likes to overdone all the time (Jenkins, el al., 1968: 1740) evaluated be Jenkins activities survey of Jenkins and his group which had got the marks form the evaluation more than 20.

Academic achievement means the GPA of the last semester of junior high school students in Phuket in year 1998.

Family size means the total number of person living in the same house.

Family income means the average income gained per month by the person in family. The average income includes main income and supplement income range from the minimum to the maximum rate.

The level of mother's education means the highest level of education of junior high school student's mother.

Family structure means type of living in family of junior high school such as single family or nuclear family or living only parent and children, living with their relative, living with many families, living in dormitory.

Time spent watching TV per day means junior high school spent time for watching TV per day, count in hours.

Vulnerability to high risk lifestyles means the availability to earn formalities of lifestyle contributing to risk of CHD of junior high school students in part of exercise, eating the food with high fat, smoking, drinking alcohol, caffeine intake.

Family lifestyle means the family lifestyle of closed person in the family of junior high school student. The lifestyle that risk of CHD composed of lacking of exercise, eat the food with high fat, smoking, drink alcohol, caffeine intake.

Peer pressure means the tendency to agree or follow the opinions of friend's group and perceive whether the friend's group will agree to his commitment or not in the subject of the formalities of earning one's living in eating the food with fat and high calories, drinking alcohol and caffeine, smoking and exercising.

Social support means the level of the junior high school students who get the social support from the families in proceeding their formalities which avoid risking being CHD by supporting with information and material.

Perception of risking opportunity to CHD means the sentimental evaluation how much or less of junior high school students are proceeding to their formalities for the opportunity of being CHD.

Perception of barrier to healthy lifestyle means the perception of barrier to do exercise, eating the food with low fat, not to smoke, not to drinking alcohol and not caffeine intake.

Self-efficacy means to hear and evaluate the abilities in proceeding their formalities in order to avoid risking being CHD. In these subjects composed of doing exercise, stop eating the food with high fat and high calories, stop smoking, stop drinking alcohol and caffeine.

The attitude toward high-risk lifestyle means the attitude toward inactivity, eat the food with high fat, smoking, drinking alcohol, drinking caffeine intake.

Value concerning health means order of important thing in junior's high school students life. By ranking of 10 items composed of the comfortable life, the exciting life, the successful feeling, freedom, the happiness, healthy in physical and mental, no conflict in mind, funny in life, self efficacy, social support. If they choose healthy in physical and mental in the important order by determining that 1-4 order were shown as the highest level of health, 5-8 order where shown as the medium level of health, 9-10 order were shown as the lowest level of health.

The importance of health means the junior high school students pays attention to his health measured by the measurement model of health value. According to the development the concept Walston & Wallston (1978: 160-170), adds pictures, the features of the device as the sheet of picture an the articles under its sheet.

Value concerning food means the answer of junior high school students about their opinion of food consumption taste, social status, body condition and price.

The demographic characteristics factor means the factors that seem to have both direct and indirect impact on the lifestyle contributing to risk of CHD, indirect impact through psycho-social factor. It consisted of four variables: sex, birth order, personality, average grade point.

The family characteristics factor means the factors that seem to have direct impact on the lifestyle contributing to risk of CHD. It consisted of four variables: family size, family income, the level education of mother, living together in family.

The enabling factor means the factors that seem to have both direct and indirect impact on the lifestyle contributing to risk of CHD, indirect impact through psycho-social factor. It consisted of five variables: hours watching TV, available to risk of CHD, family lifestyle, peer pressure, social support.

The psycho-social factor means the factors that seem to have direct impact on the lifestyle contributing to risk of CHD. It consisted of six variables; perception of risking opportunity, perception of barrier preventing lifestyle, perception of self efficacy, the attitude of lifestyle, giving the health value, the consumption value.

CHAPTER II

LITERATURE REVIEW

This chapter contains literature review of major 5 part as flowers:

Part I Concept and knowledge of Coronary Heart Disease (CHD)

Part II Behavior theories, concept and theories of adolescence

Part III Development of theoretical framework

- Synthesis of theories and concept
- Developing theoretical framework of this study

Part IV Relevant research finding to prevent risks of CHD

Part V Conceptual framework of this study

- Variables in this study
- Conceptual framework

2.1 CONCEPT AND KNOWLEDGE OF CHD

2.1.1 Meaning of CHD

WHO: defined that "Coronary Heart Disease (CHD) is a narrowing or blockage of one or both of the coronary arteries causing decreased blood and oxygen supply to the heart muscle." Lack of oxygen may cause damage to the heart, sometimes called CHD, Coronary Artery Disease, and Arteriosclerosis Heart Disease (Lojaya, et al., 1981: 430-432) or the other word that common current use that Ischemic Heart Disease. In this research used CHD in meaning of CHD.

2.1.2 Etiology

CHD is the leading cause of premature adult mortality in developed countries. The mechanism of CHD is unknown but believed that was the reaction against endothelial injury there are two hypothesis, one is response in injury hypothesis and the other is lipogenic hypothesis:

1. Response in injury hypothesis, could be summarized the important reason that made endothelial would is hyper cholesterolemia, hypertension and smoking. When endothelium is tear, there is acute reaction from macrocyte, monocyte and platelets. They aggregated action and release substance from the granule and there is reaction from the tissue. In the same time connective tissue Matrix is much increase. The accumulated lipid is change to foam cells LDL. (Low-density lipoprotein) and growth factor hormone stimulates the growth of smooth muscle to be fatty streak. The emphasis of these actions made the lesion large and necrosis. It will be plague finally obstruct of blood vessel (Sukmakchan, 1981: 293: Jutha, 1988: 69; Lojaya &Thanpichit, 1991: 1-2).

2. Lipogenic hypothesis, information that support this hypothesis is

a) It found that there is cholesterol at the innerwall of blood vessel in the stage of artheroscrosis.

b) In vivo study found that more cholesterol increase in food, artheroscrosis happen exactly. If cholesterol in food decrease, fatty streak will decrease too.

c) In the study of Framingham and MRFIT (Multirisk Factor Intervention Trial) there is the relation trial between the level of cholesterol and CHD clearly. If cholesterol increase 1 per cent there will be CHD 2 per cent. In the other side if cholesterol decrease 2 per cent there will be decrease CHD 2 per cent (Castelli, 1986: 20-26).

The etiology of CHD can be examined at many different stages in the natural history of CHD The final common pathway for most CHD events is the obstruction of the blood supply to the heart muscle or brain by a blood clot forming on the surface of arterial wall plaques. The development of CHD involves two main stages. Firstly, the long-term formation of atherosclerosis of the artery wall, which may begin as early as adolescence. Secondly, the acute occlusive event, often due to a formation of a blood clot, which leads to the clinical event. The factors precipitating the acute clinical event are not necessarily the same as those responsible for the underling aterosclerotic process.

2.1.3 Risk factors of CHD

There are many epidemiological studies of CHD risk factors in United State and Europe. Extensive clinical and statistical studies have identified several factors that increase the risk of CHD.

Male sex: Men have a greater risk of heart attack than women, and they have attacks earlier in life. Even after menopause, when women's death rate from heart disease increases, it's not as great as men's. The study of CHD between sex is widely. Dalan (1991: 889) Luckmann & Sorensen (1993: 927) found that, male have a risk

than women 4 times. Women 40-50 years of age who are in the stage of menopause have a risk than other women 3 times. By this research, belief that estrogen and progesterone which synthesis from cholesterol in the period 30-40 years of age, women has both estrogen and progesterone hormones than man, so that cholesterol uses more. But when year of age more than 40, the level of two hormones decrease so cholesterol use lesser so the probability of the disease just the same as male.

Heredity and race: Children of parents with CHD are more probability to be CHD than the family who haven't 2.7 times (Sukumarnchan, Y. & Sukumarnchan, I., 1981: 293). African-Americans have more severe hypertension than whites. People who have CHD history in family are more

Cigarette smoking: Cigarette smoking was shown to be a powerful risk factor for CHD (Kannel, 1990: 206-211). Cigarette smoking is the biggest risk factor for sudden cardiac death, smokers have two to four times the risk of nonsmokers. Smokers who have a heart attack are more likely to die and die suddenly (within an hour) than nonsmokers. Available evidence also indicates that chronic exposure to environmental tobacco smoke (second-hand smoke, passive smoking) may increase the risk of heart disease. By follow up, men 35-59 years of age about 3,000 for 4 years since 1960-1965 (Jenkins, et al., 1968: 1140-1156) found in group 39-46 year smoking cigarette have incidence rate more 5 times than non-smoking, in groups age 50-59 years relative risk is 3 time by finding incidence rate variable dose response relationships. People who smoke cigarette more than 20 rolls a day more risk to be CHD than non-smoking. 3-4 times. (The Coronary Drug Project Research Group, 1979: 415-425; Sukumarnchan, Y. & Sukumarnchan, I., 1981: 294). Nicotine is

stimulate Cathecholamine in serum increase rapidly effect to heart vessel stenosis, inconvenient blood flow, tachycardia, high blood pressure, carbonmonoxide will catch hemoglobin in blood instead of oxygen, so the tissue lack of oxygen and to be therosclerosis.

High blood pressure: High blood pressure increases the heart workload, causing the heart to enlarge and weaken over time. It also increases the risk of stroke, heart attack, kidney failure and congestive heart failure. There have the study that relative risk of CHD increase 1.4-2.3 times in the people diastolic blood pressure more than 80 mmHg (Pooling Project Group, 1978: 201-206). The Framingham study find middle-age whose blood pressure more than 160/90 mmHg have the probability of CHD more than blood pressure 140/90 mmHg or less than 3 times just from hypertension make the vessel wall less elasticity occur blood flow can't supply cardiac muscle raise from systolic blood pressure. When high blood pressure exists with obesity, smoking, high blood cholesterol levels or diabetes, the risk of heart attack or stroke increases several times.

Obesity: People who have an excessive accumulation of body fat are more likely to develop heart disease and stroke even if they have no other risk factors. Obesity is linked with CHD mainly because it influences blood pressure and blood cholesterol and can lead to diabetes. Obesity risk for CHD more than 2 times (Kaplan, et al.,1993: 397-400). WHO Expert Committee on Physical Status recognize Body Mass Index (BMI) as an indicator to evaluate obesity follow by Garrow who set up 3 levels of BMI, the normal weight has BMI between 20.0-24.99 kg/M^2 (WHO, 1995b :1- 452).

It has evaluated that every 1 kg/M^2 of increase BMI which relate to the level of cholesterol in circulation 7.7 milligrams per deciliters (Prateepasen, 1995: 101) and people who have index of body thickening more than 25 kg/M^2 and lack of exercise have probability of CHD more than who have normal index of body thickening and have exercise (Tanphaichitr, 1991: 191).

Blood lipids: Research establishing a causal link between serum cholesterol and CHD seems convincing. Longitudinal within population studies, cross culture studies, and migration studies support a causal relation, although some critics are still doubtful. The one-way causal relationship between dietary total fat and cholesterol intake and CHD has been questioned. A causal link between saturated fat intake and CHD mortality however, likely substituting saturated fat with marine unsaturated fat seems in particular advantageous. An inverse relation between HDL-cholesterol and CHD has been demonstrated, the ratio of total cholesterol / HDL-cholesterol seems a more valid predictor that total cholesterol especially in elderly and in women.

Hypercholesterolemia: High blood cholesterol levels. The risk of CHD rises as blood cholesterol levels increase. When other risk factors (such as: high blood pressure and cigarette smoke) are present, this risk increases even more. A person's cholesterol level is also affected by age, sex, heredity and diet. When the level of cholesterol is more than 200 milligram per deciliter and the triglyceride more than 150 milligram per deciliter which to be CHD In present, we use the blood lipid to indicate the risky of CHD as shown below:

Type of blood lipid	Level of Blood lipid (mg/dl)
Total cholesterol	≥ 200
LDL-C	≥ 135
HDL-C	< 35 (Male) or < 43 (Female)
Triglyceride	≥ 200

Type A personality: Although type A personality is not include among the classical risk factors, in earlier prospective studies type A behavior was found to be strongly associate with CHD in men. Synder (1989: 122) indicated that people with type A personality risk for CHD, the characteristic of type A personality such as exercise drive, aggressive, ambition, competitive, activities, vocational deadline, urgency, restless, staccato verbal style.

Physical Inactivity: Physical inactivity is an independence risk factor for cardiovascular disease. Regular aerobic exercise plays a significant role in preventing heart and blood vessel disease. Even modest levels of low-intensity physical activity are beneficial if done regularly and long term. Exercise of moderate degree was found to have a protective effect against CHD in young and old men in Framingham cohort at any level of other risk factors (Kannel, 1990: 206-211). Exercise can help control blood cholesterol, diabetes and obesity as well as help to lower blood pressure. Synder (1989: 129-130) summarized the risk of CHD as shown in Table1

Table 1 The risk factors to CHD: characteristics and level of risk

	Characteristics	Level of Risk
1. Age	> 65 years	High
	45-65 years	Moderate
2. Sex	male	High
3. Family history	heart attack before 55 years	High
	heart attack before 65 years	Moderate
	Other heart disease	Moderate
4. Cholesterol (mg per cent)	> 270	High
	240 – 269	Moderate
	221-239	Low
	> 220	Not significance
5. Triglyceride (mg per cent)	> 200	High
	151 – 199	Moderate
	< 150	Not significant
6. Blood pressure (mm.Hg.)	> 160/100	High
	140/90–159-99	High
	100/69–139/89	Not significant
7. Cigarette smoking	> 20 cigars per day	High
	< 20 cigars per day	Moderate
	Stop smoking for 5 years	Low
8. Personality	Type A (Symptomatic)	High
	Type A (Asymptomatic)	Moderate
	Type B (Symptomatic)	Low
9. Exercise	Not Regular exercise	Moderate
	Regular exercise	Low
10. Obesity	Heavy obesity	High
	Moderate obesity	Moderate
	No obesity	Not significant

2.1.4 Epidemic of CHD: The disturbance of human culture

The literature review above shown the now acknowledge that CHD is a multifactorial phenomenon process with no one factor strictly determinative, essential, or sufficient alone to produce the disease. In every instance, the risk associated with any factor has been found to vary according to the constellation of other risk factors present (Epstein, et al., 1965: 1170-1187; Kannel, 1990: 206-211; Michael & Donald, 1995: 1). So that the risk factor of CHD was the sufficient, but not only the necessary cause. Decades of research, have conclusively indicated that the cause of CHD come from living habits or lifestyle. The detrimental lifestyle is characterized by unrestrained weight gain, cigarette smoking, and lack of exercise Type A behavior (Kannel, 1990: 206-211). There are certain risk factors for cardiovascular disease, and they often have their roots in childhood, major risk factors that can be changed include smoking, high blood cholesterol, hypertension, and physical inactivity. The major lifestyle and amenable factors associated with CHD in adult include high blood pressure, high blood cholesterol, cigarette smoking, obesity, and physical inactivity.

This requires the use of multivariate risk assessments to determine the net and joint effect of risk factors. Use of a constellation of risk factors provides a substantially better prediction than single factor (Kannel, 1992: 67). CHD can be prevented by breaking the links in chain of causation of severe atherosclerosis and its complications. Decades of research, involving all the major types of biomedical investigation, have conclusively shown that **"disturbance of human culture"** operating from early childhood, are responsible for the epidemic of CHD.

These disturbance include: a) rich diet, associated with elevated levels of blood pressure, serum cholesterol, and body weight, as well as a high prevalence of diabetics b) cigarette smoking c) sedentary life style.

a) Rich Diet

Rich diet or high intake of eating was both direct and indirect effect on blood cholesterol, this habitual high intakes such as:

1) total fats, saturated fats, and cholesterol
2) refined and processed sugars and other foodstuffs low in fiber
3) foods of high caloric density, with a high ratio of calories to essential nutrients
4) total calories in relation to caloric expenditure (physical activity)
5) salt and other high-sodium compounds
6) for some populations, alcohol. The widespread adoption of these eating habits has contributed to the epidemic of CHD and other Atherosclerotic diseases in several ways.

High intake of saturated fat and cholesterol, together with caloric imbalance and consequent obesity, as well as fiber intakes, lead to high mean levels of total serum cholesterol and its atherogenic subfractions, and to high prevalence and incidence rates of hypercholesterolaemia from childhood and youth onwards. The risk of CHD rises progressively with increases in serum total cholesterol from 150 mg/dl, thus for many countries the whole population may be described as being at high risk. High serum cholesterol is one of the major etiologically significant risk factors for CHD and others atherosclerotic disease. High intakes of saturated fat and cholesterol

also have an unfavorable influence on components of the clotting system involved in thrombogenesis and CHD risk. Caloric imbalance with consequent obesity, high dietary intake of sodium, and heavy consumption, leads to high mean levels of systolic and diastolic blood pressure, and to high prevalence and incidence rates of elevated blood pressure from youth onwards.

For all of above reasons, the "rich dietary pattern" that have become common in this century among the populations of many counties are major factors that contribute decisively to the development of the epidemic of CHD and other artherosclerotic diseases (WHO, 1995b: 11).

b) Caffeine Intake

Caffeine is mostly found in many types of drinks such as: tea, coffee, coca, chocolate, aerated water in the category of coca including drinks giving the power. The caffeine substance can express and motivate the operation of the heart blood vessel by having the rate of the quick heart beating, heart staking, wrong heart beating, high blood pressure, expanding the blood vessel and strengthening the blood vessel in the slow level. Besides, it can motivate and accelerate burning the nutrient, it can get the quantity of free fat acid and glucose in the blood current added. It should be got the energy of the quantity of caffeine for the body which should be get not over 100 milligrams per day (Phothsiri, 1984: 581-585). If it is got in the high quantity, it will be made the person not sleep well, change the mental condition, jerk the muscle, have wrong and quick heart beating and the sugar in the high blood. The person who drinks coffee for 6-9 glasses per day can risk occurring heart disease.

The conclusion is that drinking caffeine more than 100-150 milligrams per day is disadvantageous to one's heart (Groisser, 1978: 1727-1731). The analyzed the quality of caffeine in some various drinks in Thailand by using the method of "Gas Chromatography" finding that some drinker having rather high quantity of caffeine were nutritious drinks. Drinking nutritious drinks for 1 bottle per day can make the consumer get caffeine for 67-283.7 milligrams which are the similar quantity with the dose for using in the treatment (100-150 milligrams per day). If the person drinks more than 3 bottle, he will get caffeine more than 85.1 milligrams which will be dangerous to health and make him addicted. The subordinate is coffee powder for 100 milligrams consists of the caffeine for 6.5-134.0 milligrams. Tea powder and tea leaf consist of the quantity of caffeine for 0.45.5 milligrams. Aerated water consists of the quantity of caffeine for 10.6-14.8 milligrams. UHT milk adding with chocolate, coca and coffee consist of the quantity of caffeine for 0.6-14.5 milligrams.

c) Cigarette Smoking

Cigarette smoking is one of the major modifiable risk factors for cardiovascular disease. Although the person does not smoke, he is in the area of passive smoking or environmental tobacco smoke, he risks being this disease approximately 30 per cent (Glantz & Parmley, 1991: 1-12). If any persons are always in the area of smoke or more than 60 minutes per day, they will get nicotine substance equalized to the smoker. So these persons risk being this disease the same as the smoker (Kaplan, 1993: 370).

From one cigarette, it is composed of nicotine substance for 1-2.7 milligrams and tar for 25-34 milligrams. When it is burnt, it will be got same nicotine substances out of smoke for 0.6 milligram and tar for 30 milligrams including carbonmonoxide. It can take by force and catch with the red corpuscle, it can make the body weak and lack of oxygen. Most of tar and nicotine substances catch at the lipid and the lung. Some nicotine substances can be absorbed into the blood vessel, they can make other substances including cholesterol and fat intervene into endothelium.

This is the main cause of strengthening the red blood vessel. Besides, nicotine substance is the motivator of following cathecholamine more and more. It is the result of shrinking the blood vessel. making it thinner and smaller, having high blood pressure, making quick heart beating and affecting to fibrin-platelet thrombus which is the main factor occurred strengthening the blood vessel (Chaiyateerapan, 1987: 789).

The observational data on the CHD risk of cigarette smoking are conclusive. There is increasing evidence that passive smoking also contributes to the occurrence of CHD in non-smokers (WHO, 1995b: 12). There is mounting evidence that passive smoking is associated with increased risk of heart disease (Glantz and Parmley, 1991: 1-12; Steenland, 1992: 94-99). The excess risk of heart disease for non-smokers living with smokers has been estimated to be about 30 per cent (Glantz and Parmley, 1991: 1-12).

d) Drinking Alcohol

Alcohol is the motivator for the wrong quick heart beating and can be pumped the blood out of the heart in the high quantity. So, it is occurred the high power and can be affected to high blood pressure. This pressure will be crashed to the blood vessel of the whole body. It is made hard and narrow blood vessel. Besides, alcohol is an addition of the synthesis of triglycerine, especially in the persons who drink alcohol in the high quantity and the persons who drink routinely. They can find that they get higher fat in the blood (Kojchasenee, 1988: 339). Drinking alcohol only a little or approximately 30 grams per day will be affected very well to the system of the heart blood vessel. (WHO, 1992: 1-50) and the suggestion of the American Heart Association, allowing to drink the alcohol not over 1.75 oz per day (approximately 53 cc). It equalizes to drink beer for 3 glasses per day, drink with the mixture of alcohol for 2 glasses per day, wine for 3.5 glasses per day. The condition is heart drinking alcohol more than 30 grams per day in the long period can be risked occurring blood vessel heart disease (CHD).

e) Sedentary Lifestyles

Sedentary lifestyle is used for high technology as the tool by making person lack of exercise and affected him to be CHD because physical activity is useful for the fat level in the blood, the pressure and the weight, it can make the system of the operation of one's body better and affect to the mental and social way. Exercising in much enough quantity and regular quantity can control the weight, reduce the fat accumulated in one's body, reduce the quantity of cholesterol and low density

lipoprotein cholesterol, and reduce the risking rate of being heart disease. At the same time, it can add the quantity of high density lipoprotein cholesterol, it can reduce the risking rate too. The mechanic of reducing cholesterol may be made the displacement of the fat from the periphery to the liver more and more, The addition of following the gall can reduce the quantity of cholesterol and LDL cholesterol. (Thamamitra, et al., 1989: 41).

In general, physical activity should be at least 3 times a week, each time must be continually at least 30 minuets long and not over 1 hour Suitable physical activity is to exercise quicker heart beating approximately 70-85 per cent, for the rate maximum of fat in of one's heart. Any ages is full advantageous from exercising. IT heart beating is slower than 70 per cent of the maximum rate of heart beating, it will be affected to have less practices. If heart beating is quicker than 85 per cent of the maximum rate of heart beating it will be risked being dangerous easily. So the rate of suitable heart beating for exorcising is approximately 75 per cent of the maximum rate of one's heart beating (Srisaengnarm, 1994: 86).

f) Aerobic Exercise

The most useful exercising for the heart is aerobic exercise which is the exercise using oxygen for moving every part of body at the regular speed, the motivates the operation of the lung and the heart very efficiently. The rate of heart beating which can be calculated from the formula of the target rate of heart beating equalized to 220 age (year). Aerobic exercise must be practiced continually in the long period of 20-40 minutes, regularly or at least 3-4 times a week.

Aerobic exercise is divided into 3 groups (Hiranrat & Juangpanich, 1996: 33-34):

1) The light group, it is used for one's body strength completely within 1 minute or used in part for one's body strength and having a full rest or nearly rest. It consists of the rate of heart beating less than 100 times per minute, it is used for the energy of 2-3 calories per minute, such as: shooting, athletics and playing patong.

2) The moderate group, it is the moderate exercise continually not over 30 minutes or less than 1 hour and having a time for the rest or nearly rest. It consists of the rate of heart beating of 100-124 times per minute, it is used for the energy of 4-5 calories per minute, such as: Table tennis, Judo, Swimming race, quick walking, takrow aerobic dance Chinese boxing dance, exercising and skating.

3) The heavy group, it is the moderate exercise continually in the long period over 1 hour, consists of the rate of heart beating of 125 times per more one minute, is used for the energy of 8 calories per minute such as: tennis badminton, volleyball, basketball, rugby, football, boxing, rowing. The condition is that lacking of regular exercise can be led to be CHD, For the protection and reduction of being CHD, it should be the regular aerobic exercise at least 3 time per week and have the continuous time not less than 20 minutes.

A Sedentary life style, from childhood and youth onwards, probably contributes to risk of CHD and other artherosclerotic disease, in variety of ways. It has repeatedly been shown to be importance in the genesis of caloric imbalance, the resulting obesity, and all the consequences noted above.

It has also been demonstrated that regular physical activity increase insulin sensitivity and improves glucose tolerance. Recent studies examining exercise outside work have show that physical inactivity, whether occupational or recreational, is associated with increased risk of CHD, independent of other risk factors (WHO, 1995b: 12). Physical activity has beneficial effects on blood lipids, blood pressure, and body weight/fat distribution so that it may also prevent cardio-vascular disease (Zimmet, 1991: 862-875). Within-country variations in the distribution of risk factors are also apparent, the most striking variation is in cigarette smoking. An inverse gradient of cigarettes smoking by social class has been documented in many countries (Marmot and McDowall, 1986: 274-276).

2.1.5 Prevention CHD in Childhood and adolescent: the best strategy

CHD can be prevented by braking the links in chain of causation of severe atherosclerotic disease and its complication. Decades of research, involving all the major types of biomedical investigation, have conclusively shown that modern *"disturbance of human culture"* operating from childhood onwards, are responsible for the epidemic of CHD this disturbance include 1) a rich diet, associated with elevated levels of blood pressure, serumcholesterol, and body weight, as well as a high prevalence of diabetics 2) cigarette smoking 3) a sedentary life style (WHO, 1995b: 10).

Cutting the 3 chain above, it was the best strategy of protecting CHD The target group which was most worth proceeding was the children and youth group (WHO, 1990: 16-17) from the following reasons:

1) The procedure of being CHD was commenced in the children teenagers and adults in the primary period.

2) The average age for the commencement was faced with various risking factors of CHD, for example: eating the food with the fat and high saturated fat, smoking. Increasing the index of the body thickness and lacking of exercise were found in the children and youths group before the age of 20.

3) The teenagers risked to the formality of earning their living smoking, drinking alcohol, drinking caffeine more than the childhood this was because they had many changes in the physical, mental, emotional, social, intellectual way rapidly from childhood to adult. They wanted to try out, liked to combine their grouped and participate with the activities enjoyable. They got the influence from their friends, it made them have the similar beliefs, thoughts and practices. For example: the imitation of getting dressed, eating the food with the same taste including the behavior of using the drugs.

Teenagers could choose the formality of earning their living by themselves more than childhood whose family would be the most influence for the social institution the parents were the ones who took care of the children and made a decision for them. It made the risks high for the loss of life, being disabled and disadvantageous of health. Owing to teenagers had no exercise, the development of thought, intellect which were not good enough for understanding the follow in disadvantages in the short and long run from these behaviors.

From the cause mentioned *"the modification of the risking factors in teenagers will be affected to reduce the risking factors of CHD in the future more than the method of having the adult in the late period study hygiene"* Besides, Kompayak, et al. (1992: 1) gave the point of view that *"the change of hygiene habit or behavior of health for having the accuracy could easily do in the childhood than the adult and the elderly"*.

2.1.6 Thai teenagers with the lifestyle of a rich diet

A rich diet was directly and indirectly affected to blood cholesterol (WHO, 1995(b): 11). From the era of the modern change being continuous to the era of the expeditious development, it made the structure of Thai economy change into the industrial section and more services. When the economic structure was changed, the formality of earning one's living and the values were also changed. For examples: the way to make a production originally for the consumption was changed to make a production for more trade and exportation.

The population had displaced from the rural residence to live in the city more and more, especially in the city. It was commenced in the development of the civilization for seeking better job and income and living in the region which consisted of the facilities in earning one's living. For example: the electricity, the entertainment places, such as: the department stores, entertainment and the study for the knowledge in the high level (Samakkarn & Chai-umporn, 1995: 6).

They would be affected the way of lifestyle which was more competitive, pressing working against time, they made the population choose to do instant everything affected to change the behavior of the consumption by buying the food in plastic bags, eating the food with cooking at once. The result was that getting the proportion of the food and the variation of the type of the food were decreased. Beside, there was the values of buying the expensive food product in teenagers who could choose to eat the food more freely than childhood. So, they chose to eat the specific food which they favored, especially in the food with the sweet taste. This favored would be followed to adult or having the selection of buying as their friends and the advertisement.

From survey the behaviors of using the fast food service of Bangkokians, finding that 58.4 per cent of the age of 21-25 for the percentage rate of the age period in the most eating fast food. The subordinate was 15-20 years old (52.27 per cent). The most profession of using the fast food service was the students and pupils (61.7 per cent), showing that most of teenagers got the western cultures, values and formality of earning their practiced in the society. They made their lifestyle, social condition and values change having the behavior of the strange food and drinks for advertising as the media of sale especially in fast food and drinks having the sugar. They made teenagers lack of the important and useful food for their bodies.

The obvious things was there were a lot of the fat children who were not strong, had the fat in the blood in the abnormal high level. If they could examine the wall of the blood vessel at the heart, it would be found that the scarf skin of the remained fat was clung at the blood vessel. If they had been at the age of 40-50 without changing the formality or how to eat the food, their heart, blood vessel, blood pressure, the blood sugar and uric acid would have been rising up.

According to the study of the average of blood cholesterol level from the children group of the rural and urban countries, it was founded that the average of blood cholesterol level was not different between the children and early adults especially in the development countries, which were related to the formality of a rich diet, saturated fat, eating the food with cholesterol and high energy. The average of blood cholesterol level for the children at the age of 12, the male were at 149.2 mg/dl in Jerusalem and 184.8 mg/dl in Oslo, the female children were litter lower than the male children (Berenson & Epatein, 1983: 741-797).

Teenagers breakfast had only sweet drinks and sweet meats or hors-d'oeuvre which was composed of the high quantity of flour, fat and sugar. It was found that teenagers drank aerated water instead of milk. This made them get the food with high energy but they got less nutrition, at the same time they felt full and did not want to eat the main food they often had dinner much to substitute other meals. Furthermore, the food from supermarket and other shops were most full of fat and high sugar. When they bought these, and often ate them, it would be led to accumulate with the energy and over nutrition afterwards (Kaplan, 1993: 375).

The Research Institute of Public Health System (1996: 48-61), surveyed the nutrition condition by the measurement of body mass index (BMI) from the people at the age of 20 up, 13,300 people, finding that the people with BMI were normal lower at 27.8 per cent normal at 49.6 per cent, over normal at 16.7 per cent and the fat condition at 4 per cent. The male people with BMI were lower than the conscript which were higher than the female people. The female people with BMI were over more than the male people.

The people who lived outside municipality had over the rate of BMI and the fat condition was lived in rural area was lower than the people who lived in municipality, especially in the female people who lived in urban area. approximately 1/3 would have the problem about over weighted condition. Besides, the factors of surroundings in the society which were facilitated to the formality of earning their lifestyle contributing to risk of CHD in eating the food with fat and high calories were having the food shops which were sold with fat and mineral salt, high sales promotion (Sithiamorn & Chancharoen, 1998: 42). And buying the food in these categories could be conveniently done from supermarket and the food shops in schools.

2.1.7 Thai teenagers with the lifestyle in smoking

The behavior of smoking were mostly commenced in teenagers because they were the joint period between being adult and children. They wanted to try out and be persuaded easily, present their behaviors like adult and be accepted in peer group including the values of smoking which was the smart thing. From the statistic of the office of national statistic in 1986-1996, finding that the amount of the smokers who

were at the age of 10 up smoked mostly for 8.6 millions of the smokers (30.1 per cent). It was 11.2 millions of the smokers (23.4 per cent) in 1986.

By the survey in 1996, it was found that the southern part, the proportion of the population who were at the age of 11 up frequently smoked in 1996, at 24.8 per cent and at the age of 10-14 frequently smoked at 8.9 per cent (The Office of National Statistic, 1997: 94). Supawongse, et al. (1998: 1-4) surveyed the behavior of smoking of Thai youth from making random sampling in 16 provinces of every region by using the systematic sampling in order to study the formality of the development of the behavior and the attitude for Thai youth. It was concerned with smoking in the personnel, family and environment factors by studying the youths both in and out system of school, at the age of 15-17, about 510 persons for male youths and 1,862 persons for the female youths, at the age of 20-24, 529 persons for male youths and 2,533 persons for the female youths who made the identity cards in 1995 of the period of April.

The result of the study was found that the youths who were at the age of 15 practiced smoking at 35.7 per cent m the female youths who were at the age of 15 practiced smoking at 9.3 per cent. Thai youth tried out smoking the first cigarette at the age of 13-14, Thai youths smoked at the average of 22.5 per cent.

The Office of Public Health in Phuket surveyed smoking of the students in the secondary level (Matayom1-5) being subject students to the development of elementary and adult education in amount of 640 students in 1996, finding that 11.5 per cent for smoking of the students in every level, 18.8 per cent for the male students,

2.2 per cent for the female students, and the students in Matayom3 at 14.3 per cent for smoking, 20.9 per cent for the male students in 5.6 per cent for the female students (The Office of Public Health in Phuket, 1996: 17).

2.1.8 Thai teenagers with sedentary lifestyle.

The way to earn their livings at the present time is more comfortable because of using a lot of facilities, such as: lifts, cars, telephones, computers, showing that teenagers at present have the way of sedentary lifestyle more and more. From the surveying the behavior of playing sport and being the spectators of the sports in 1987 and 1992, finding that there was the high proportion of the population who played sports.

In 1992, the children and the youth played sport almost half. The proportion of playing sport for both the male children and youth was higher than the female children and youths. Any person in the urban region played sports more than any persons in the rural region The Children and youth in Bangkok Metropolitan mostly played sports at 60.7 per cent. The subordinate was the southern part lacked of plying sports at 48.4 per cent (The Office of National Statistic, 1998: 1-4.)

Researched in the surveying way of the risking behaviors, making their living in the risking surroundings the behaviors of the perception of the healthy information of the population in Thailand, in the amount of 8,085 persons by the method of clustered or area sampling. The instrument was used for gathering the data as the questioner model, 8 section for the treatment of hygiene and health, the characteristics of the questionable items were the multiple choices, the scales, approximately values

and opening at the end which were gathered the data in January 1998, by using the method, The persons who gathered the data were the professors and student from Ratchapat Suandusit Institute, 20 persons analyzed by well-made program of questionnaire, 44 per cent for the female respondent, 42 per cent at the age if 31-40, 25 per cent at the age of age 41-20, 40 per cent for being employed, 22 per cent for agriculture and fishing, 57 per cent for the income per month lower than 5,000 baht, 20 per cent for 5,000-10,000 baht, 77 per cent for getting married with 2-3 children, 83 per cent for living in the rural area.

The result of the survey was founded that the risk behavior was driving vehicles, 57.62 per cent 25.54 per cent for the risk of smoking, 13.25 per cent for the risk of drinking whisky or alcohol, 36.93 per cent for the most of the sample group of exercising by playing sports, 36.93 per cent for jogging, 42.56 per cent for exercise before going out to work 69.70 per cent for exercising at home, 40.63 per cent for the perception of useful exercising by making their bodies strong and reduce the tense 46.01 per cent for the obstacle of exercising by having no time, 13.64 per cent for lacking of facilities 12.21 per cent for lacking of the promotion..

There were the suggestion for the research as followed: a) it should have been studied in some specific target group, such as the regular smoking group in order to study other information concerned including earning one's living in the risking condition of the individual b) it should have been studied or classified into groups, such as: the regular exercising group with no exercising group c) it should have been studied with other interesting variables, such as the income, which region they lived, by studying among the groups.

2.2 BEHAVIOR THEORIES AND CONCEPT OF ADOLESCENCE

In this Part contains of a) the theory of demographic change and response b) concept of health behavior c) theories of health behavior and modification of behavior d) concept of adolescent.

Some theories may not explain the lifestyle contributing to risk of CHD but they are useful to make clear the concept of this study and forming a starting point for later studies. For example, the theory of demographic change and response, theory of epidemiological transition are helpful for understanding the change in demographic and pattern of health and disease. Concept of population education is helpful to make clear the concept of this study. Thus it is importance to consider this theory first.

2.2.1 The theory of demographic change and response

The theory of demographic change and response was put forward by Kingsley Davis in 1963 as an adjunct, not really an alternative, to the demographic transition theory. Davis's concern is also with the cause of population growth, on the assumption that in order to do anything about the consequences, you have to know the causes. The Basic problem Davis attempts to deal with is the central issues of the demographic transition theory .People respond to the demographic change, but their response will be in term of personal goals, not national goals. Indeed, that was a major argument made by neo-Malthusian against moral restraint. In all events, Davis argued that the response that individuals make to the population pressure created by more members joining their ranks is determined by the means available to them.

A first response, non demographic in nature, is to try to increase resources by working harder-longer hours perhaps, a second job, and so on. If their is not sufficient, then migration of some family members (typically unmarried or daughters) is the easiest demographic response. Davis argues that if (and this is a big if) there is in fact a chance for social or economic improvement, then people will try to take advantage of those opportunities by avoiding the large families that cause problems for their parent. The theory of demographic change and response considers the kind of individual decision making that has to take place before fertility will decline from previous high levels. Davis concluded that the process of demographic response and demographic change was a continuous process, multiphasic response. One of Davis's most important contributions to our demographic perspective is, he "seems to rely on an implicit model of the actor who makes everyday interpretations of perceived environmental changes". For example, people will respond to a decline in mortality only if they notice it, and then their response will be determined by the social situation in which they find themselves. Davis's analysis was one of the first to suggest the important link between the everyday lives of individuals and the kinds of population changes that take place in society (John, 1994: 84).

2.2.2 The Concept of Health Behavior

Health behaviors are behavior that a person engages in, while still healthy, for the purpose of preventing disease (Bishop, 1994: 79). These include a wide rang of behaviors from stopping smoking, physical activity and losing comprise both efforts at reducing behavioral pathogens and the practice of behaviors that act as behavioral immunogens.

Determinants of Health Behavior

1) Social and demographic determinants: Health researchers have long noted that health behaviors differ significantly between social group such as socioeconomic status, gender, family size, etc.

2) Situational determinants: In addition to those broad social factors, health behaviors are also considerably influenced by social situations. Family members and peers can exert considerable influenced on the health habits a person develops.

3) Symptom perception: A person's health behaviors are also often influenced by perceived symptoms. A man who considers himself healthy, but finds that he is winded after climbing only one or two flights of stairs, may decide that he really needs to begin an exercise program.

4) Psychological determinants: A person's health behaviors are likely to be influenced by psychological factors, both emotional and cognitive. Emotional needs and state can have a potent effect on health practices. Beyond these emotional factors, the practice of health behaviors is a function of a person's thoughts and beliefs. One set of cognition that seem to be particularly important in motivating people to practice good health habits are those relating to perceived vulnerability (Bishop, 1994: 79-81).

2.2.3 Theories of Health behavior and Modification of behavior

There are a lot of concepts and theories about behavior that have been developed to explain people's health behavior and recommend possible methods for

helping people adopt more positive health habits. We can group them in to 3 categories that: Group 1. Intra individual causal assumption, Group 2. Extra individual causal assumption, and Group 3. Multiple causal assumption, as follows:

Group 1. Intra Individual Casual Assumption

Basic assumption of this group came from the assumption that casual of behaviors or factors influence person's behavior. It does deride from intraindividual such as: knowledge, attitude, belief, value, and intention. It contains of 2 theories in these groups.

a) The Health Belief Model (HBM)

The Health Belief Model which was first developed in an effort to understand why some people fail to take measures known to prevent disease. This model has been applied to a wide range of health behaviors. It has some capacity to predict behavior. HBM which assumes that individuals are likely to change when they believed that they are at risk to develop a problem, that the recommended changes will improve their condition or reduce their risk, and that the changes are within their ability and resources to accomplish. Behavioral interventions often begin after the person has decide to make changes. HBM provides insight into factors that need to be considered in helping to motivate patients to change. Ajzen and Fishbein (1980) have emphasized the importance of expectation and activities as precursors of behavior change. The stage of change model posits that change occurs through stages that progress from pre-contemplation to contemplation, action, and maintenance.

In this model, different strategies may be needed to move a patient from one stage to another. For instance, individuals still only contemplating behavior change may need interventions designed to change their beliefs, to clarify the advantages of change, or to improve their efficacy (Nancy, 1995: 162).

The Health Belief Model was developed in the early 1950s by Rosenstock, Hochbaum, and Kegeles to provide a framework for exploring why some people who are illness free take actions to avid illness, while others fail to take such protective actions. Pender (1987: 43). The Model is derived from social-psychological theory, primarily the work of Lewin. In his writing, Lewin conceptualized that the life space in which an individual exists is composed of regions, some having negative valence (negatively valued), some having positive valence (Positive valued), and other being relatively neutral .Disease are conceived to be regions of negative valence that can be expected to exert a force moving the person away from the region. Prevention behaviors are strategies for avoiding the negative valued regions of illness and disease (Pender,1987: 44).

The Health Belief Model (Rosenstock, et al., 1988: 176) hypothesizes that the health related action depends upon the simultaneous occurrence of three classes of factors:

1) The existence of sufficient motivation (or health concern) to make health issues salient or relevant.
2) The belief that one is susceptible (vulnerable) to a serious health problem or to the sequelae of that illness or condition. This is often termed perceived threat.

3) The belief that following a particular health recommendation would be beneficial in reducing the perceived threat, and at a subjectively acceptable cost. Cost refer to perceived barriers that must be overcome in order to follow the health recommendation: it includes. But is not restricted to, financial outlays.

In addition there was also the requirement that the individual believes he could have the disease even in the absence of symptoms Rosenstock (1974: 328-335). Perceived Susceptibility, Perceived Seriousness, and Perceived Benefit of taking action and barriers to taking action.

The model as modified by Becker is presented in Figure1. Components of the model are divided into individual perceptions, modifying factors, and variables affecting the likelihood of initiating action. Individual perceptions directly affect predisposition to tale action, while demographic, socio-psychological, and structural variables act as modifying factors that only indirectly affect action tendencies. It should be noted that the critical individual perceptions in the model are beliefs about the seriousness of a specific disease and personal susceptibility. These factors combine to provide a measure of the threat or negative valence of the life-space region designating a particular disease (Pender, 1987: 44).

If the person perceived the violence of CHD and perceived how the formality of earning his living was affected to him, he would tend to follow the non risk taking formality by having other factors, such as: the individual factor and the motive factor from the friends and the data information in order to have the various from this

formality explained the formality of earning his living more and more. Then, the researcher added the variable of self efficacy therefore, the researcher applied this theory to explain the boundary of the conception of this research, when the person perceived this risk taking he tended to have the non risk taking formality such that. Besides, the facilitating factor was positively effected to the psycho-social factor.

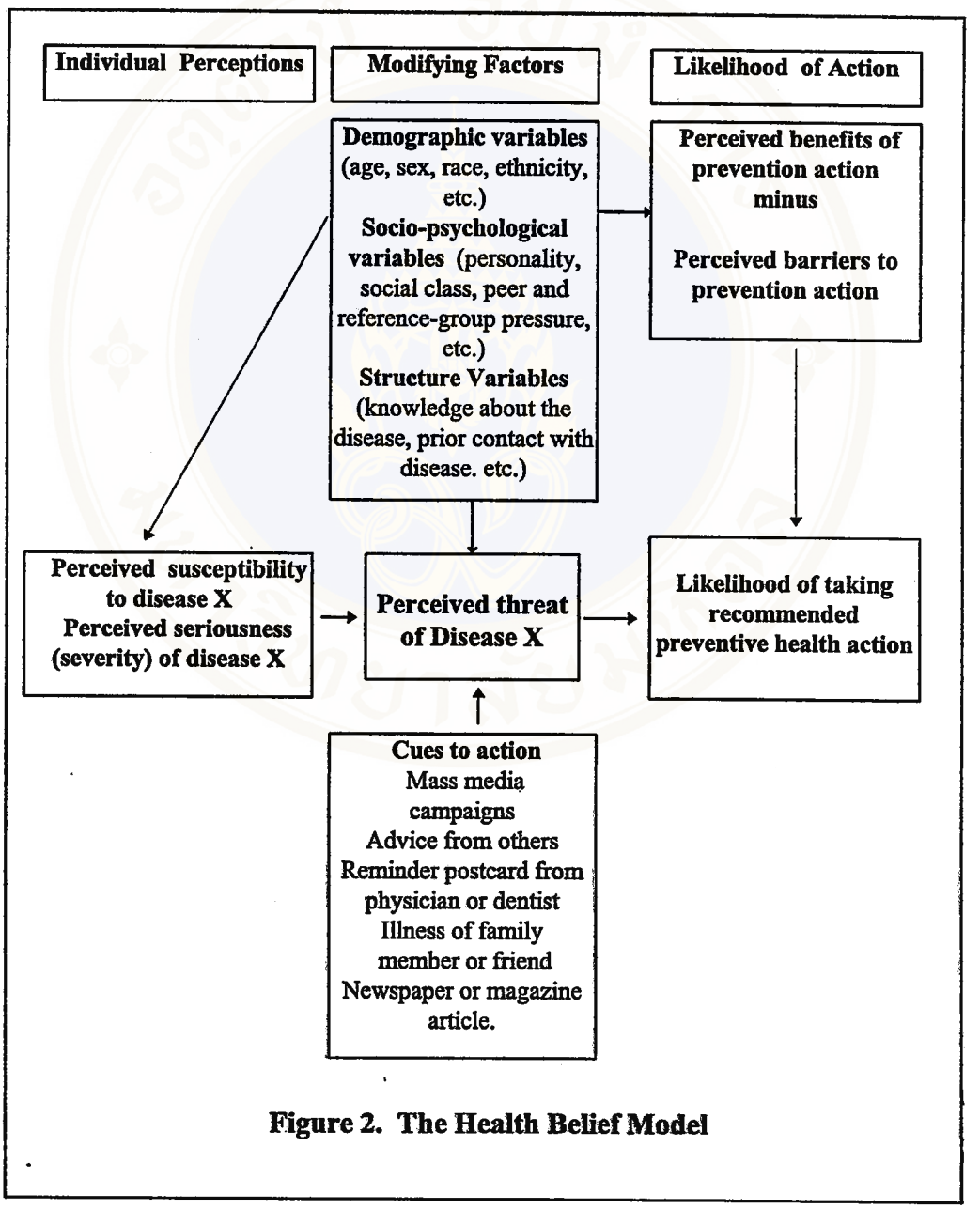


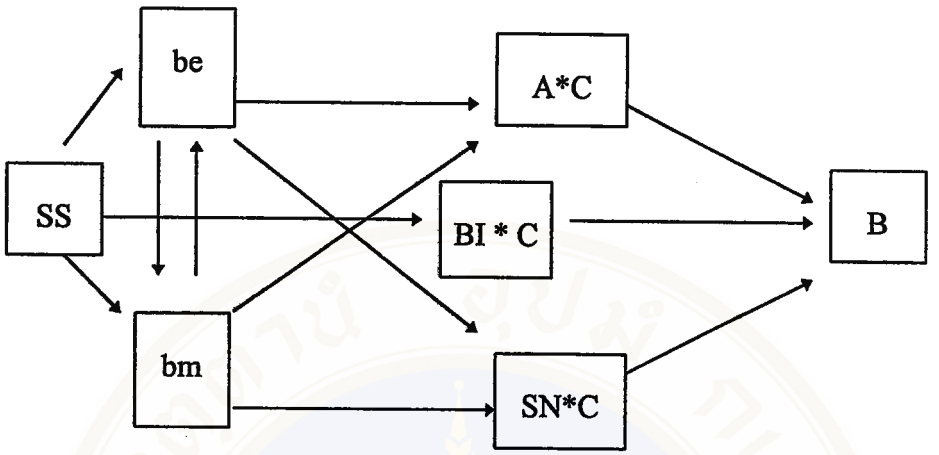
Figure 2. The Health Belief Model

b) Liska's Revision Model

Liska (1984: 61-74) believed that behaviors did not come from the intention and the attitude including psycho-norm in the mental range not only had no influence behaviors through the intention but also had direct influence on behaviors. This direct influence was higher than the indirect influence.

Besides, Liska viewed that the social structure was highly influenced on the peoples' behaviors. So, various types of the people's behaviors were not under controlled by the people's intentions entirely. Liska viewed that some behaviors were relevant to the basic feature called *"resources"* or some behavior which were occurred, had to be relevant to some social conditions. This conditions had the people get the opportunity to show off their behaviors. There conditions were called *"opportunities"* by Liska.

From Liska's model, it could be explained the boundary of the conception of this research that the attitude had the direct influence on the formality of learning one's living in risk taking. Not passing the intention and attitude came from the belief of the social expectation, other persons multiplying with the inspiration to follow that expectation. The attitude factor was arranged in the group of the psycho-social factor and was negatively affected to the formality of earning one's living in risk taking to CHD It meant that the person who had the negative attitude of earning one's loving in risk taking to CHD, would have the negative attitude of earning one's living in non risk-taking to CHD.



B = Behavior

BI = Intention to do behavior

A = Attitude

SN = Psycho-norm

bm = Belief of social expectation * intention to do with the expectation

be = Belief of output from behavior * value of the output

SS = Social structure

C = Condition variables

Figure 3. Liska's Revision Model

Group 2. Extra Individual Causal Assumption

Social Support

Social support had defined by different aspects, the nurture and specificity of each definition of social support depends on the study for which it was designed: Cobb (1976: 300) defined social support as: information belongings to one or more of the following three classes: 1) Information leading the subject to believe that he is cared for and loved 2) Information leading the subject to believe that he is esteemed and valued 3) Information leading the subject to believe that he is belongs to a network of communication and mutual obligation.

Cobb (1976: 300-301) refers to these three aspects of social support as: a) "emotional support," b) "esteem support," c) "network support." In his later paper, Cobb (1976: 93-94) explicitly distinguishes social support from: a) "instrumental" support or counseling, b) "active" support or mothering, and c) "material" support or goods and service. Although Cobb is correctly distinguishing among different types of support and focusing attention on the most important, labeling only one type as social support is unduly restrictive.

Types of Social Support

Social support is the resources that are provided to one by other people. Various taxonomies have been proposed of the different typed and functions of social support. Social support seem to include some mention of tangible or instrumental aid, emotional support, informational support and appraisal support. Types of social support component can be define in below:

1) Emotional support is included in one form or another in all schemes. When individuals think of people being "supportive" toward them, they think mainly of emotional support.

2) Instrumental support is the most clearly distinguished from emotional support, at least in theory, involving instrumental behaviors that directly help the person in need. Individuals give instrumental support when they help other people do their work, take care of them, or help them pay their bills. It is important to recognize, however, that a purely instrumental act also has psychological consequences. Thus, giving a person money can be s sigh of caring or source of information and appraisal.

3) Information support, means providing a person with information that the person can use in coping with personal and environmental problems. In contrast to instrumental support, such information is not in and of itself helpful, rather it helps people to help themselves.

4) Appraisal support, like informational support, involves only transmissions of information, rather than the affect involved in emotional support or the aid involved in instrumental support. However, the information involved in appraisal support is relevant to self-evaluation- what social psychologists have termed social comparison.

Group 3. Multiple Casual Assumption

Pender Health Promotion Model

The Health Promotion Model is derived from social learning theory, which emphasizes the importance of cognitive mediating process in the regulation of behavior. Structurally, the Health Promotion Model is organized similarly to health Belief Model. That is, determinants of health-promotion behavior are categorized into cognitive-perceptual factors (individual perceptions), modifying factors. And variables, additive or multiplicative, will be tested in the research program currently underway (Pender, 1987: 57-69).

1 . Cognitive-Perceptual Factors

Cognitive-Perceptual Factors are identified within the model as the primary motivational mechanisms for acquisition and maintenance of health promoting behaviors. Each factor is proposed as exerting a direct influence on the likelihood of engaging in health promoting actions. Cognitive-perceptual factors that influence health promoting behavior have been identified within the model as: a) importance of health b) perceived control of health c) perceived self-efficacy d) definition of health e) perceived health status f) perceived benefits of health promoting behavior and g) perceived barriers to health promoting behavior Pender (1987: 60).

The importance of health: Pender (1987: 61) concluded that individuals, who held a high health value, chose more health-related pamphleteers to read when they were made available to them than did individuals with a low health value. The perceived importance of physical exercise press rather than the value of health was the most powerful variable in explaining exercise behavior (Laffrey & Isenberg, 1983: 187-196).

Perceived control of health: Perceiving oneself to be in control as well as having a strong desire for control should result in overt health-promoting behaviors. However, having a strong desire for control but little perceived probability of control may result in helplessness, frustration, and behavioral inhibition (Pender, 1987: 61).

Perceived self-efficacy: Within the revised Health Promotion Model, *desire for competence* has been replace by *perceived self-efficacy*. While competence represents the generalized ability of an individual to interact or transact effectively with the environment, perceived self-efficacy is a more specific concepts that refers to individuals convictions that they can successfully execute the required behavior necessary to produce a desired outcome (Bendura, 1977: 119-215).

Definition of health: The definition of health to which individuals subscribe may influence the extent to which they engage in health-promoting behaviors (Pender 1987: 63).

Perceived health status. Individual who perceived their health status to be good reported a higher frequency of health-promoting behaviors than individuals who perceived their health status to be poor (Pender, 1987: 64).

Perceived benefits of health promoting behavior: High frequency participants ranked keeping fit physically as the most importance benefit, while low frequency participants ranked keeping physically fit fifth in importance. The perception of long-term benefits rather than short-term benefits from health-promoting behavior may determine frequency of participation and predisposition to continue health-enhancing behaviors.

Perceived barriers to health promoting behavior: Barriers to health promotion behaviors may be imagined or real and consist of perceptions concerning the unavailability, inconvenience, or difficulty of a particular health promotion option (Pender, 1987: 65).

2. Modifying Factors

Modifying Factors that indirect influence health promoting behavior through cognitive-perceptual factors have been identified within the model as: a) demographic factors b) biological characteristics 3) interpersonal influences, d) situation factors and e) behavioral factors (Pender,1987 : 66-68).

Demographic factors: Characteristics such as age, sex, race, ethnicity, education, and income are proposed within the model as affecting patterns of health promoting behavior indirectly through their impact on cognitive-perceptual mechanisms.

Biological Characteristics: A number of biological factors such weight, height, percent body fat, total body weight have been found to be related to exercise adherence (Pender, 1987: 6).

Interpersonal Influences: Expectations of significant others, family patterns of health care, and interactions with health professionals are the interpersonal influences.

Situation factors: Importance situational or environmental determinants of health promotion behavior.

Behavioral factors: Previous experience with health promoting actions in crease the ability of people to carry out various behaviors to promote well being.

Cues to action: The likelihood of taking health promoting action is hypothesized also to depend on activating cues either of internal origin or emanating from the environment. Personnel awareness of the potential for growth or increased feelings of well-being from beginning health promotion efforts may serve as important internal cues. Conversations with others regarding their patterns of exercise, nutrition, habits, rest and relaxation, management of stress, and interpersonal relationships can serve as external cues for health promotion (Pender, 1987: 67-68).

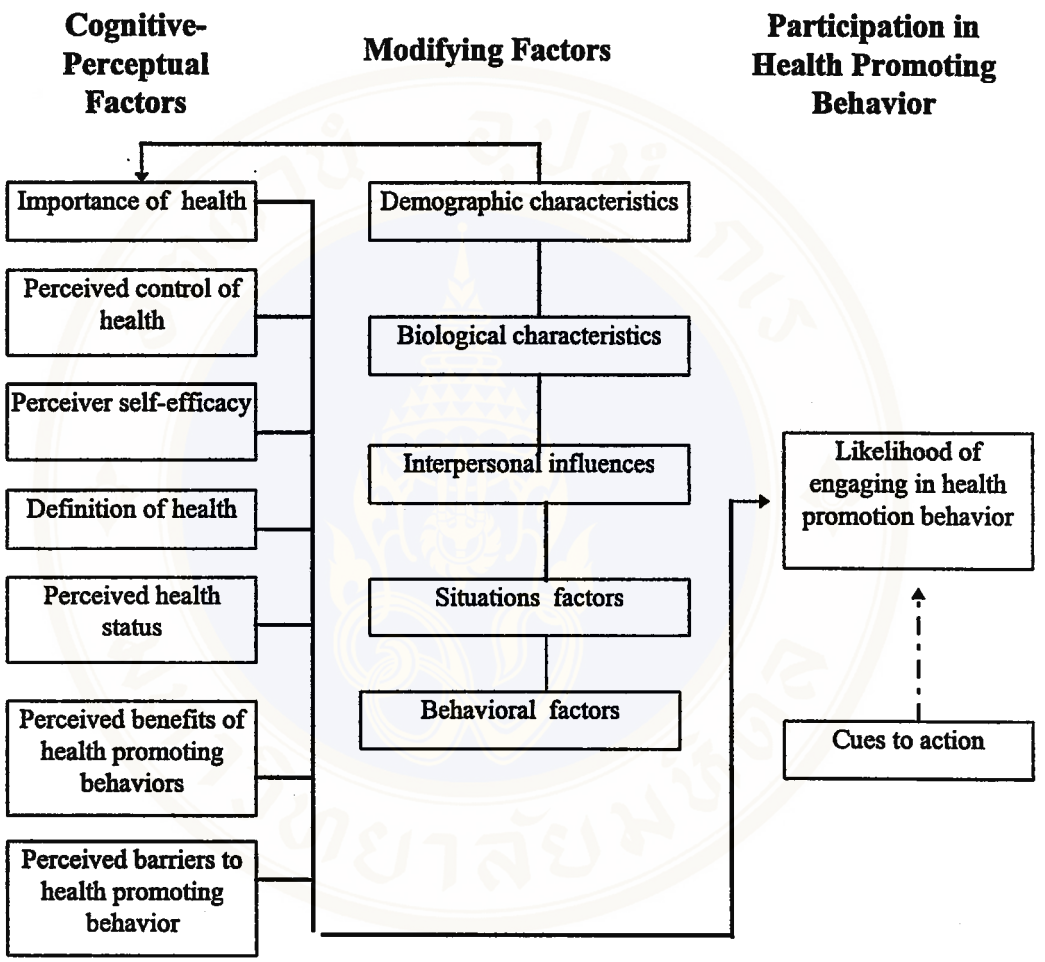


Figure 4. Health Promotion Model

2.2.4 Concept and theory of adolescence

2.2.4.1 Causal model of adolescent risk-taking behavior

Adolescent is period of transition between childhood and adulthood in which the body develops in size, strength and reproductive capability, the mind becomes capable of more abstract thinking, future orientation and ethical conviction, and social relationships more from a family base to a wider horizon in which peers and other adults come to play more significant roles (Friedman, et al., 1995: 608). Adolescence is a time of dramatic psychological, social, biological, and environmental change (Elkind, 1967: 1025-1034: Marshall & Tanner, 1969: 291-303: Marshall & Tanner, 1970: 13-23).

Charles, et al. (1990: 345-351) depicts a proposed model of adolescent risk-taking behavior that illustrates how biological maturation may affect psychosocial changes and the onset of risk-taking behavior. Their model proposed that timing of biological maturation directly influences four psychosocial factor: cognitive scope, self-perceptions, perceptions of the social environment, and personal values. These four factors are hypothesized to predict adolescent risk-taking behavior, via the mediating effects of risk perception and peer group characteristics. For example, the experience of an early developing female, her early development is manifested as a young age, about 10 years of age. Because of her age she is likely to be cognitively immature (cognitive scope). She is likely to have a poor self-image because she is out of synchrony with her peers (self- perception), and she may also feel that she has to act older than she is because of perceptions of adults who often make errors regarding her age (perceptions of social environment).

These factors may influence her peer-group selection and encourage her to select an older group of friends (characteristics of peer group) who have difference values than her age-related peers. Her immaturity and related egocentrism may also affect her ability to perceived risk realistically (risk perception). Her egocentrism may obscure potential negative outcome, resulting in a belief of invulnerability to harm. These bio psychosocial factors all provide her with a strong push to engage in a risk-taking behavior. Even though this pathway makes good theoretical sense and certain components of the model have been verified empirically, the entire model remains hypothetical. This model is offered as a way for the reader to integrate the complex nature of adolescence with the risk-taking behaviors that have serious negative health outcomes.

It is simplistic to take the position that all risk-taking behaviors in adolescence should be eliminated. Interventions that attempt to meet the developmental needs, delay the age of onset of specific risky behaviors, and minimize their most negative consequences are not only more realistic, they are preferable for the development of the necessary social, psychological, and development of necessary social, psychological, and physiological skills in adolescence. Charles, et al. (1990: 349). Our current lack of knowledge about mechanisms that drive risk taking is reflected in our progress in understanding or affecting adolescent risk-taking behavior. Research correlates of single behaviors has been used to develop intervention programs and guide clinicians who often fail to address the underlying issues.

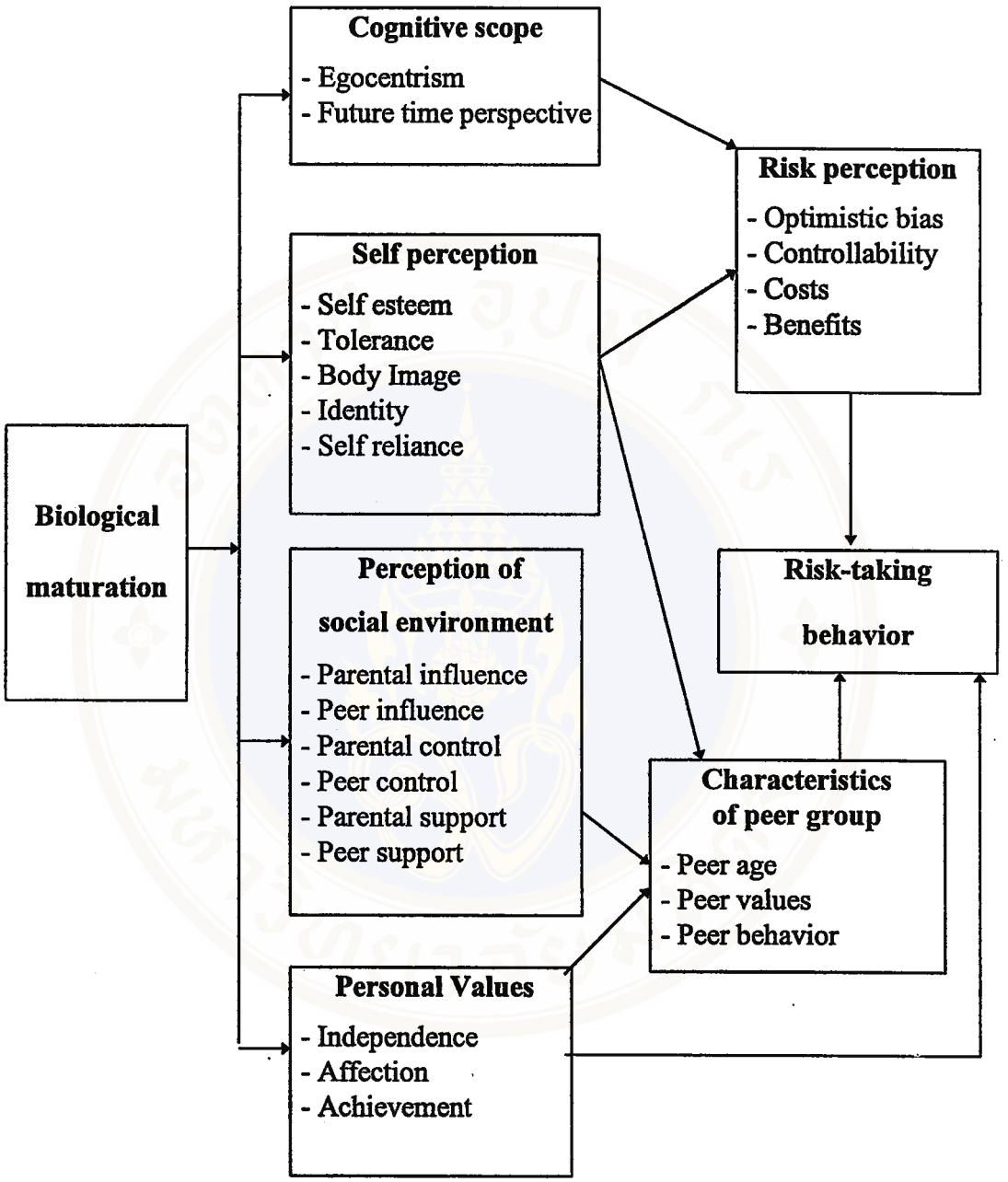


Figure 5. Causal Model of Adolescent Risk-taking Behavior

2.2.4.2 Model of Multiple Risk Factor Behavior

The Model of Multiple Risk Factor Behavior proposed by Kar, et al. (1983: 29-37) is a multidimensional, Psychosocial model of determinants of risk taking behavior. The model proposes that in population with comparable ethnicity, socioeconomic, and biological status, risk-taking behavior is a function of the following categories of variables: a) behavioral intentions b) social support from significant others c) accessibility of information and services d) personnel autonomy and e) action situation.

The model is based on a systems approach that integrates elements of Lewin's field theory and Fishbein's theory of reasoned action. Behavioral intentions and personal autonomy are internal determinants of behavior, while the other variables exert external influence on action (Pender, 1987: 52-53).

A strength of the model is its potential trans-culture applicability. The validity of the model across cultures is often given little attention in attempts to understand preventive behavior (Pender, 1987: 53). Youth groups provide a point of transition from family life to full adult status and an environment for learning new social skills. By the time the child is twelve years old he needs to be resocialised because the values he has acquired through identification with his parent are no longer relevant and central in a changed society.

The social group which provides the necessary resocialisation for most individuals in the urban setting is the adolescent peer group. Youth's tendency to coalesce in such groups in rooted in the fact that participation in the family become

insufficient for developing full identity or full social maturity, and that the roles learned in the family did not constitute an adequate basis for developing such an identity and participation. In youth groups the adolescent seeks some framework for the attainment of personal autonomy, and for his effective transition into the adult world.

Removes from childhood by their physical maturation, denied adulthood by their exclusion from the adult occupational, communal and familial spheres, adolescents create a subculture of their own. This subculture is marginal and transitional, but vital in providing role playing opportunities and personality of the child to the stage where he is ready to occupy a mature adult position in society. Adolescent culture often flourishes independently and escapes central control.

2.2.4.3 Peer Group Socialization

Peers and Family play an important role in the onset of adolescence's risk-taking behavior (Brook, et. al., 1978: 261-271; Billy & Udry, 1985: 21-32).

An importance predictor of substance use, including cigarettes, is the behavior of peer (Kendel, 1975: 253-285; Brook, et al., 1977: 1095-1102). A youth subculture is one of the most distinctive features of modern urban life and fundamentally affects the personal development of modern urban man. The Peer groups of adolescence have an impact on the individual's socialization second only to that of the family and the progressively replace the family in controlling the life and ways of the adolescent and modifying his personality (Eisenstadt, 1968). Youth groups tend to develop in all societies in which a division of labour exits. Youth's tendency to coalesce in such

groups is rooted in the fact that participation in the family become insufficient for developing full identity or full social maturity, and that the roles learned in the family did not constitute an adequate basis for developing such an identity and participation. In youth groups the adolescent seeks some framework for development and crystallization of his identity, for the attainment of personal autonomy, and for his effective transition into the adult world.

Principle of intervention for adolescent health (Friedman, et al., 1995: 619) is follow:

1) Provide a supportive environment helping young people to achieve greater autonomy, self esteem, competence and health promoting behaviors.
2) Help meet the need for positive and mutually satisfactory relationships with people their own age and key adults.
3) Continually monitor adolescent development.
4) Respond to reality of young people's behavior, beliefs and values.
5) Respect young people as individuals and demonstrate through effective listening behavior.
6) Make use of established principles of counseling and behavior change in intervention programs.
7) Use broad based approaches to interrelated behaviors rather than focus on dingle issues.
8) Ensure an intersectional approach in which the key groups who interact with the young are involved, including the school, the family, the health system, religious and community leaders, and community organizations.
9) Maintain close links between the health sector and community, school-based, and outreach programs.
10) Involve adolescent themselves in the planning, implementation and evaluation of programs.

2.3 DEVELOPMENT OF THEORETICAL FRAMEWORK

2.3.1 Synthesis of theory and concept

From the revision of the conception and the theory concerned with the psycho-social and behaviors in the second section with are composed of social learning theory, the health belief model, Liska's revision model, social support, Pender health promotion model and the conception to analyze the cause of risking behaviors of teenagers. The researcher analyze each theory by using the procedure of the deduction of concept, proposition to analyze the reaction of the concept and those proposition postulating. By analyze the similarity, the difference nd the correspondence with this research. And then, identify as the concept or the theoretical variable which could apply to this research (Panchapong, 1991: 8).

The result of the education of the conception and theory concerned with the lifestyle contributing to risk of CHD, can concluded that most of the theories and the conception were believed of the behaviors of the individualism which are determined by the two main compositions of the environmental theories which have difference ideas to give the importance of each different composition, for example, the conception of health belief model (HBM) which is crucial to psychological factors and the composition of the individuals as the factors of modifying factors. Furthermore, we should consider the environmental factors that stimulate to occur the behaviors of cue to action, For Liska's revision model, it is added by the social structure and the opportunity of the access of resources. For the social support concept emphasizes on the factors of outward individuals which support the factors of the inward individuals. The model of health promotion of Pender (1996) has given the

importance to the individual factors which are classified to cognitive perceptual factors by having the modifying factors. These are the environmental conditions that enable to occur the behaviors. They can conclude in details of various concepts of each theory as shown in Table 2.

Table 2 Imported theoretical concept related with this study

Related theory	Importance concept from the theory
1. The Health Belief Model	- Perceive opportunity to risk of CHD
	- Demographic variable
	- Psycho-social variable
2. Liska's revision Model	- Conditional variables
	- Attitude
	- Belief of other's expectation
	- Intention to do with expectation
	- Belief of outcome of behavior
	- The evaluated of value outcome
3. Social Support	- Emotional support
	- Information support
	- Material support
4. Pender Health Promotion Model	- Cognitive perceptual factors
	- Perceiver self efficacy
	- Perceiver barrier
	- Modification faction
	- Demographic variable
5. Pender's revised Health Model	- Perceive self efficacy
	- Perceive barrier
	- Pressure of reference group
6. Causal Model of Adolescent	- Characteristic of peer
	- Perceive self efficacy

2.3.2 Developing theoretical framework of this study

From the concept of each theory, we can conclude two big factors. They are: the individual factors and the supportive environment factors. The individual factor are composed of two group factors, the group factor of the demographic characteristics and the psycho-social characteristics. The supportive environment factors are composed of the group factor of the characteristics of family and the group factor of the enabling factor. So, in this research at this time, the researcher have to study both of the factors by setting up the new variables group from analyzing the concept and five theories above. They are closed to Kingm, et al. (1997: 380-389) who collected the research work and have a measurement the important factors to the behaviors of the health promotion in exercising which are divided into three groups: 1) The group factors of the population 2) The biological factors 3) The psycho-social factors. For this research, we added two groups more: The characteristics of the family and The enabling factors. The total groups are five groups now, as the following details:

2.3.2.1 Individual factors

From the similarity, the difference and the correspondence of the concept and the theories in explaining those behaviors above can classified and set up the individual factors into 2 groups. They are: the groups factors of psycho-social and the demographic characteristics which will affect to the psycho-social factor.

a) Psycho-social factors

1. The perceived variable group is studied extensively both in HBM of health and the model of health promotion of Pender. It is the psycho-social factors which influences on the individual behaviors through the collection of learning experiences underneath the HBM. It can be explained to the lifestyle contributing to risk of CHD. It was found that if anyone had perceived the risk of himself to the CHD and also good support, he would have had the lifestyle contributing to risk of CHD less than before. In the same way, when we brought model of the health promotion of Pender and re improve in 1996 especially, the factor of perception or the new model, is called **"The factors of behavior specific cognitive and affect"** in order to explain the formalities. We can see that the factor of the perception of barriers to action, the perception of self efficacy are the most important factors to determinants lifestyle contributing risk of CHD. So, in this research, it is given the importance of perceived factors by having four theoretical variables. They are the perception of risk of CHD, the perception of self efficacy, and the perception of health values. All of these are affected directly in the positive way to the behavior of this health promotion but in the opposite way to lifestyle contributing risk of CHD.

2. The attitude factors is the important individual factor to determine the behaviors. In the theory of Liska's revision model proposed that the attitude factors is the most important with influence on showing off the individual's behaviors. In this research, we took one variable in this attitude factor which affects to the formalities to be the boundary of theoretical conception. It is factor of the psycho-social factors which affects to the formalities in the negative way.

b) The demographic factors

The variable factor of demographic characteristics The theory of the health promotion model of Pender and HBM is said that the variables factors of demographic characteristics in the outward factor which is concerned with the individual behaviors indirectly. But it is the factor behind which may be influenced on the attitude factor to the behaviors and the agreement factor of the reference group. Then, we need to cover the boundary conception of the research more and more, the researchers take 5 demographic characteristics factor to be the theoretical boundary of conception. It is composed of the variables which affect positively to the psycho-social they are sex, type A personality, the academic achievement (GPA), and birth order.

2.3.2.2 The supportive environment factors

a) Family factors

The model of analyzing the health factors is given the importance of the factors of the family characteristics that they are reinforcing factors. They are influenced on the individual behaviors showing that the family factors are the influential source. So the education of the formalities is brought the family characteristics factors with 4 variables: 1) The average income of the family 2) The factor of level of mother's education 3) The family size 4) The family structure.

b) The enabling factors

1. The supportive force of individual emotional

Anyone who is supported by the emotional society, he will have good health better than who is not. From the psycho-social theory, it is said that the peer group are influenced on the lifestyle contributing to risk of CHD by the imitation of the imitator. We use the variable of the perception of peer pressure.

2. The supportive force of the data information

The person who commits the behaviors when he get the supportive force of the data information. So, we use the variable of the social support (data information factors).

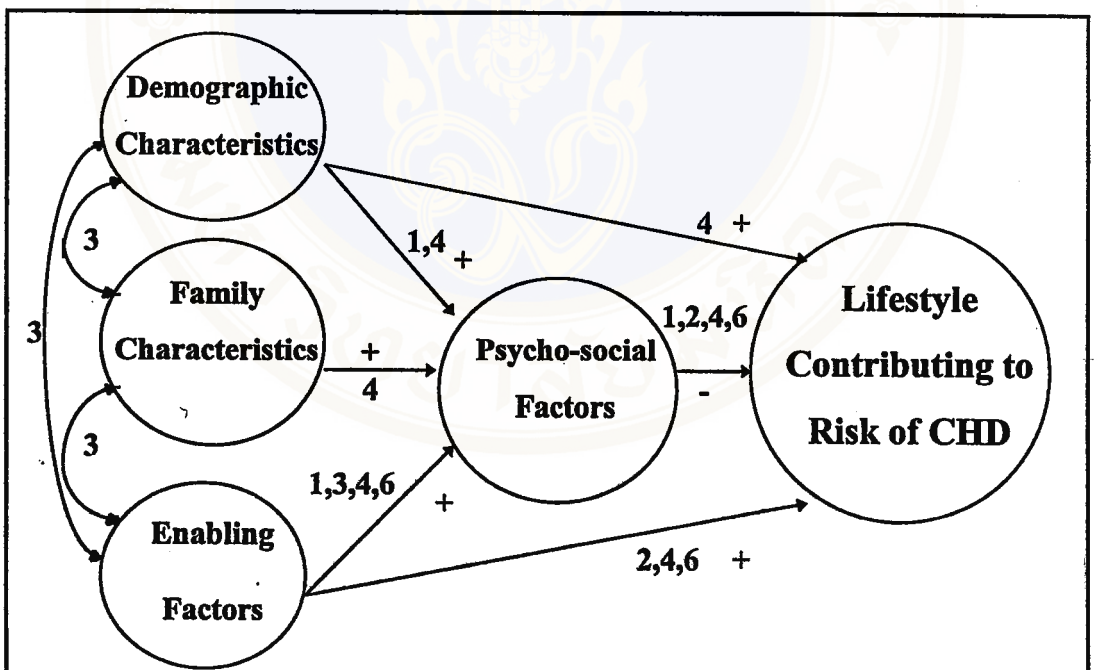
3. The availability of resources

According to Liska, believing that the behaviors are not occurred by the intention and related with the basic characteristic which is called "resources" they are corresponded with the social support in the factor of objects. We use the variable of the vulnerability to high risk lifestyles.

4. Cutes to action

According to Pender, explaining that anyone who has behaviors will have the cues to action, so we use the variable of family lifestyles that risk to any families in each section for this research.

The development of theoretical boundary of conception for this research. The researcher harmonized the theory, the psycho-social conception and the modification of the healthy to set up the theoretical boundary conception for explaining and predicting the lifestyle contributing risk of CHD in Phuket. According to the researcher, saying that the individual behavior are occurred by 2 factors: 1) the individual 2) the supportive environment. The first factor is composed of the individual characteristics, the psycho-social and the biological. The second factor is composed of the family characteristics and the enabling. The individual characteristics and the facilitator are affected directly to the formalities but indirectly through the psycho-social.



1. The Health Belief Model
2. Liska's Revision Model
3. Social Support
4. Pender Health Promotion Model
5. Revised Health Promotion Model
6. Causal Model of Adolescent Risk-taking Behavior

Figure 6. Theoretical framework: Determinants of lifestyle contributing to risk of CHD among junior high school students in Phuket province

2.4 RELEVANT RESEARCHS FINDING TO PREVENT RISK OF CHD

2.4.1 Individual Factor

Sex: From the epidemic study indicated that sex was the important variable of being CHD, difference sex make difference concept, difference socialization, and difference the way of lifestyle. The society accepted drinking with alcohol, smoking, in male higher than female. The male sex was more risk of CHD than the female for 3 times (Gochman, 1988: 195-199). In Thai society, Visuthikul (1997: 75) found that male persons contributed significantly relation to smoking, drinking with alcohol and drinking with caffeine. ($r = -.2860$, $p<0.001$; $r = -.2778$, $p <0.001$; $r = -.0257$, $p<0.001$). Controversy with the study of Anukoolwithipong (1997: 93), who studied the risk behavior of CHD among adolescence in Bangkok, found that the risk behavior of CHD was in moderate rate and had not difference between sex. ($t = 0.80$).

Personality: Sabol (1995: 2564) studied the relationship of psychosocial and behavioral to physiological risk factors for CHD in children and adolescents. CHD risk factors are classified as: psychosocial (Type A behavior pattern and components), behavioral (physical activity, cigarette smoking), and physiological (blood pressure, lipoproteins, obesity). The results of study was impatience-aggression, one component of the Type A behavior pattern, contributed significantly ($t = 3.6$, $p = 0.001$) to the regression equation for body mass index.

Birth order: The parents might have the manner and attitude of each child-rearing practices in the different way in accordance with the birth order. The child who was been the only one in the family, had the opportunity to have the adaptable problem more than the child who had more brothers and sisters. The child without brothers and sisters would occupy his parents' love, he was often well taken care of and, made him think that he was the important and egoistic person. When facing with the adaptable situation, he was harassed easily, discouraged, fearful, anxious, trying to escape from others, hiding himself or have the deviation behaviors (Suamphun & Soramance, 1985: 586). The middle child would have the problems more than other children.

Vorakitpokathorn (1990: 23) found that the eldest got the attention, interest and love from his parents more than other children. The relation of his parents to the eldest and vice versa were the special relations. When his parents had the new child, the mentionable relations were affected and changes to the eldest who necessary for adapting to many things, this made him have the changeable behaviors.

Gecas & Pasley (1983: 521-533) found a relation between birth order and self efficacy, other related factor were, the total of child, the length of each child, and the relationship between the parent and their child (Steelman, 1985: 117-124).

Academic achievement: Humphrey (1959: 125-131) found that the student who had different average grade point (GPA) would take different in the activities, the same as Boonsom (1992: 1) found that the students who had the poor **academic achievement** GPA, took the time in doing the entertaining activities more than other students' groups. Rojanalert (1990: 115) found that teenager students who had the high GPA, had self control higher than teenagers students who had the poor GPA. Controversy with the study of Moombanchao (1994: 65) who studied teenagers' behaviors, finding that GPA had no relations which the problem of behaviors.

Viriyapramote (1996: 130) found that the variable of GPA was influenced or the adaptable problem of physical health school, house, money, job and future including the relation with the friends, general people and self anxiety. Supapak (1997: 61-73) found the difference of doing the learning activities among the students who had the different GPA obviously, finding that the students who had the accumulated GPA from 3.00 up, did the learning activities more than other groups. The students who had the accumulated GPA of 2.00 or lower, did the activities of the recreation more than other groups obviously and found the relation significantly. Boonyanun (1972: 1) compared with the needs of the accomplishment of the secondary students who followed to the society, needed to accomplish higher than the students who controverts with the society, but he did not find the difference of sex in the need of the accomplishment by each students group.

Vithayawongseruji (1983:1) studied and compared with the relationship in the family of the different teenager students in accordance with the variables behind, in Bangkok and the other provinces. The result of the research was found that teenagers had the relationship with their mothers better than their fathers. Female teenagers had the relationship better than male. Female teenagers who had the high GPA, had the relationship in the family better than male, Teenagers who had the high GPA, had the relationship in the family better than who had the low GPA. But they did not find the difference of teenagers who the different economic status and family size.

Thumma & Kerdkiatpong (1973: 1) studied Thai teenagers' behavior which were controversial with the society in 3 ways: they were the relations between students and teachers, the relations between students and parents or guardians and the relations between students and friends. The result of the research was concluded that the teacher had the corresponding opinion in the behaviors which were controversial with the whether dividing into the variable of sex, the category of schooling, the society duration of schooling, finding that teachers and students had the corresponding opinion in the behaviors which were controversial with the society. But some controversial subject matters were not found the difference of students' opinions in these behaviors whether dividing into the comparison with the age, sex or the category of school.

From the findings of the research work mentioned, indicating that the variable of GPA was affected to the formality of earning one's living.

2.4.2 The family characteristics

The family size and family structure: The family was the greatest social unit in various surroundings which might had the influence on the members in the family, especially in the formality of earning one's living because the family was the social unit which had the culture and specific life style of its own including transferring that culture to the new members of the family all the time.

The institution of the children who were at the age not over 12 and entering be teenagers, was very important for them. The progress of feelings and intellects of the children in the future depended with the commencement of life in the house (Minisota University the institution of the children welfare, 1968: 12). Thai families at present has the obvious change, that is: the family size is smaller. From having more than 6 persons 50 years ago remained 4.8 persons only in 1991 and remained 4 persons in 1998, that was: the father, the mother and 2 children (Samakkarn & Chai-umporn, 1995: 8).

The total rate of the fertilization was reduced quickly from approximate 6.42 per women during 1960-1965 to 2.21 per woman who was born in the level for substituting on her own during 1990-1995 Liaeprapai (1996: 65) was the idealistic condition of the nuclear family or the elementary family which was widely available in the developed society, especially in the western world, meaning that the extended family which was the family with a big amount of relatives composed of 3 generations and once had 30 per cent of Thai families in the past, may reduce a lot in the future.

This was because the success of population policy in the past was successful model for reducing the fertilization efficiency. The population had few children while the economy in the family was better. This made the children get the opportunity of more education because their parents could take care of them including their health. On the other hand, the size was smaller, it made the relations among the members in the family change. The care of the members with one another was reduces (Sithiamorn & Junccharoen, 1998: 41). This was because both of the parents worked more and more, the women had the role for earning her family's living more and more. Most women went out to work and this made the child-rearing practices decrease. As a result, the children who needed love and warmth from their parents were abandoned and finally get many problems (Samakkarn &Chai-umporn, 1995:8).

The child rearing practices which had ever been the maternal duty, was changed. It was the problem of the poor who abandoned their children to work in the different regions. This made them lack of love and led to the social problem. On the other hand, the parents who were very rich much more work, had no time to take care of their children, gave the money and materials to them. Even if these children did not lack of materials, they lacked of warmth. This because the social problem also.

Chanaem (1970: 191) identified that children in the family with few members have no friends in the house, the children were alone. This made them make friends outside home. On the other hand, the house with many more members or having many families the same house had made them sensitive, inferior and thoughtful. When they were persuaded to commit the crime, they were pleased to operate easily.

Chuchom & Sukarom (1989: 55-59) found that teenager student who lived in the family with their parents and relative had abilities for self adaptation better than teenagers students who lived with their parents in particular. The variable of the family size was positively related to the behavior of drinking with alcohol. From the research work mentions, the researcher believed that the variable of the family size was positively and directly effected to the psycho-social factor and the formality of earning lifestyle contributing to risk of CHD.

The family income: Income was the important factor to the formality of earning one's living. Pender (1987: 161-162) said that the person who had the good economic status, had the opportunity of seeking for the useful things to take acre of his own, facilitating the person to take care of his own. This made him get enough food including suitable services and provide a lot of instruments for facilitating and encouraging self care. Palank (1991: 823) identified that the economic status was positively corresponded and related to the health behavior very much. The family income was the thing which identified the economic status of the family.

Schor (1995: 93) said that the family which underwent the poverty, it was affected to occur the deficiency of seeking for the resources in order to encourage for taking care of the children. The family which had the moderate economic status, had the time of taking care of the children, conducted the behavior of encouraging more intellectual development.

Moombarnchao (1994: 65) studied the problem of teenagers' behaviors. It was corresponded with Rojanalert (1990: 115) finding that teenager student who had different economic status were not different in self control.

The maternal education: The education level was influenced on the formality of earning one's living differently. The person who had higher education, had the opportunity of searching for the knowledge of health treatment better than the person who had lower education (Suwan, 1983: 182).

Tenconi, et al. (1992: 763-769) analyzed of epidemic course from 9 communities in order to find the relations between the educational level and the risk taking factor of being CHD, concluding that the education level had the relations with the formality of earning lifestyle in smoking, drinking with alcohol, eating the food with fat and sedentary lifestyle. They indicted that the educational level had the important role of determining the formality of lifestyle contributing to risk of CHD and was affected to risk of CHD both directly and indirectly. It was different in each region which had different economic and social conditions.

Unden, et al. (1995: 915-922) analyzed the effect of the psycho social factor and behavior to the fat level from 46 male students 47 female students and the average age of 23. The result of the study was found the relations significantly of the blood, parents' education, having breakfast regularly, eating supplementary food, social support, sad feeling and quality of life. Nevertheless, it had no constant models in their relations both of the male and female persons. The female persons who had their parents in high education, would have lower cholesterol in the blood than who had

their parents in lower education. When controlling relations from the factor of the disturbing variables, such as: age, BMI, exercising, drinking coffee, drinking alcohol, the smoking behavior, eating supplementary food and quality of life, it was found that there were a lot of relations. But it was not found there relations in the male persons.

The male persons who had the level of the social support, perceived of quality of life in the low level, had fairly high relations with fat in the blood when comparing with the good social support and quality of life groups. Eating the food regularly was found that there was the relation with fat in the blood of male persons and highly found the relations with the behaviors of having breakfast and fat in the blood. There were plenty of relations significantly in the statistical way when analyzing by regression and controlling the confounding variables.

Fagerlind & Saha (1983: 97) identified that the variables of education was influenced on values, attitudes and behaviors. The mother who had high education, had many opportunities of seeking for the knowledge, the data information about health care. This helped them have the additional knowledge and understanding for making a decision to choose the available behavior including having the suitable modification with the children care in the different formalities of earning their living.

The maternal education might have the negative relation with the formality of earning their lifestyle contributing to risk of CHD. It the mother had the knowledge, she would do health promotion in the family of every factor. The study was found that the maternal education level had the positive relation with the behavior of taking care of the children., finding that the maternal education was the factor which made the

nutritious condition of the children group with lacking of high nutritive and the children group with lacking of low nutritive different. So the parents' education might have the positive relation with the formality of earning their livings in risk taking .

2.4.3 Enabling Factor

a) Peer pressure: Peers have a strong impact on the magnitude of behavior change, and parents are much more importance than peers as sources of influence over this beliefs and behaviors. Of the various social influence processes considered, the direct modeling of behavior appears to be the most importance avenue of influence for both parents and peers (Richard, et al., 1990: 240-259).

Phanthoomnawin & Charoengying (1974: 1) studied the social influence on teenagers attitudes by aiming to study Thai male and female teenagers' attitude in boy school, girl school and both boy and girl schools to closed person of teenagers, such as: fathers, mothers, teachers and friends. The sample groups were the students in Mathayom3 of private school and government school. It was concluded in the important part that: 1) There was not the difference among girl teenagers and the category of schools in the attitude of their fathers. At the same time, boy students who had the moderate status, had the best attitude to their fathers but anyone who had the low status also had the lowest attitude to their fathers. 2) There was the difference of the category of schools in the subject of the attitude to their mothers boy students in the coeducational schools had the attitude to their mothers better than boy students in the boy schools girl students were opposite 3) Girl teenagers had the attitude to their teachers better than boy teenagers. Girl and boy teenagers who had the good economic

status, had the good attitude to their teachers better than girl and boy teenagers who had the moderate and low economic status. 4) Boy and girl teenagers had the good attitude to their mothers more than their fathers and to their fathers more than to their teachers. 5) The attitude to their friends from the comparison the opinion of friends' characteristics, such as: being the person who had corresponding interest, being the person who was the good helper, being the person who had good economic status and being the friends who were the different sex.

For teenagers' groups dividing into the variable of sex, the category of schools and the economic status, the result of the research was concluded that the independent variables above were relevant with the attitude to their friends in all features except being the person who was the god helper whom the researcher did not find the difference of making friends among boy and girl teenagers in the boy, girl and co-educational schools and the children group which had the high, moderate and low economic status.

Flay, et al. (1994: 248-265) used structural equation modeling to study of parental smoking and friend's smoking on adolescent initiation and escalation of smoking. The model examines the interactive effect of eight constructs: a) friends' smoking b) parenting smoking c) negative outcome d) perceived friend' approval of smoking e) perceived parental approval of smoking f) refusal self-efficacy g) smoking intention h) adolescent smoking behavior. The final structure model of smoking initiation showed that friends' smoking had both direct and indirect effects on smoking initiation. The indirect effect were channeled through smoking intentions

and negative outcome expectations. As expected, exposure to smoking friends directly triggered initiation of cigarette smoking. Also, exposure to smoking friends elevated adolescents' smoking intentions. Although friends' smoking had a strong effect on friends' approval of smoking, this effect did not seem to carry through to intentions. Parental smoking had only indirect effects on smoking initiation. These effects were mediated through smoking intentions, negative outcome expectations, and parental approval of smoking.

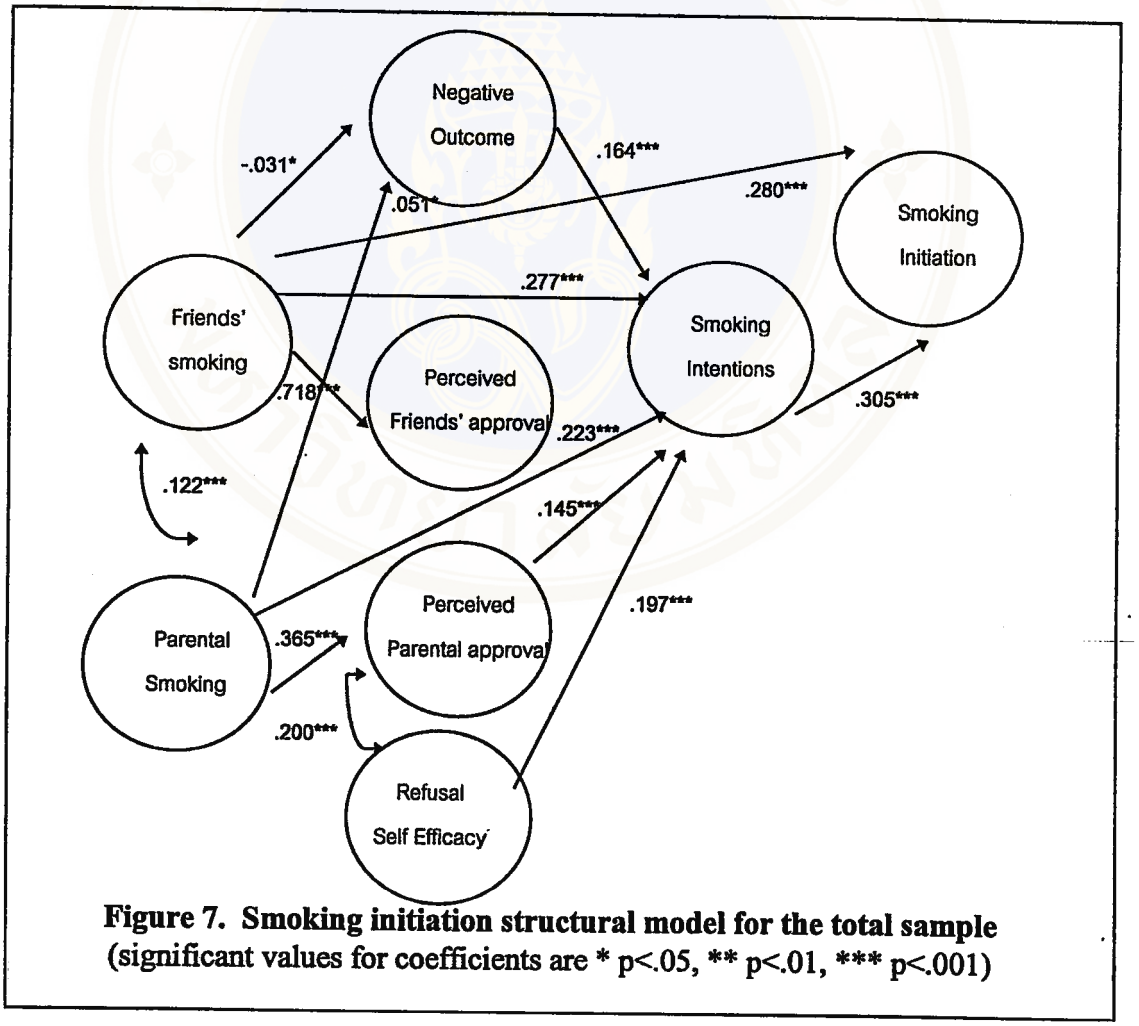


Figure 7. Smoking initiation structural model for the total sample (significant values for coefficients are * p<.05, ** p<.01, *** p<.001)

b) The social support: Social support and employment characteristics also directly affect well-being (Pugliesim, 1988: 35-58). Sermsri (1996: 39-35) proposed the context of the social change of Thailand to the procedure of using the family to be the way of the health condition. It was supported that the conception of the social support seemed to be the regulation of protecting the disease. It was also the condition of protecting no risk-taking situations to occur the disease and unhappiness.

It could be said in another way that the risk-taking factors occurred the disease. For example lacking of exercises, the unsuitable consumption of food, drinking whisky, having the aggressive behavior and doing anything that risked being the disease and sickness including smoking. These factors were occurred because of lacking of the social support. For example: lacking of the warm family, lacking of the relatives' love, lacking of taking care of the beloved person and the unworried condition of the family and the beloved person. So, the solution of people's health was necessary to regard the component of the social system by having the feature of the combining component.

The information support and the perception of advertising mass media was the social and cultural factor which were affected to the behaviors, such as: TV, magazines. They were positively and negatively affected to teenagers' health. From the study of Guillen & Barr (1994: 464-472), studied the information of food and health in "Ladies" magazine from 1970 to 1990, founded that the nutrition content and being on diet had never changed for a long time but the proportion of fat, waist and hip was decreased. The curve line was less but the straight line was more, indicting

that the expectation of the social culture of ladies' thinness was more obvious phenomenon in the magazine. The rate of eating the food was not balanced for teenagers, for example: eating sweet meats, cake. There was much advertisement in the magazine, rapid change of shape that teenagers were pleased with these wrong information the role of advertisement was very important to teenagers.

c) Time spent watching TV per day:

David & Abelman (1983: 385-399) indicated that watching TV was the significantly with value and behavior in adolescence. In 1986, Tucker (1986: 797-806) studied the connection between television viewing and multiple measures of physical fitness in adolescent males. Finding showed that high level of TV watching were strongly associated with low score on tests of fitness (etc: pullups, situps, sidestep, six-minute run, and pushups). Similarly, Dietz & Gortmaker (1985: 807-812) found that as TV viewing increased, obesity increased systematically in several thousand children aged 6-11 and 12-17.

In 1989, Tucker & Friedman (1989: 516-518) showed that time spent watching TV was directly related to obesity levels in adult males. Men who watched more than three hours of TV per day had more than twice the prevalence of obesity levels compared to those who watched less than one hour per day.

Tucker & Bagwell (1991: 908-911) measured the relation between time spent watching television per week and obesity in 4,771 adult females. After controlling for age, education, cigarette smoking, length of work week, and weekly duration of

exercise, females who reported three to four hours of TV viewing per day showed almost twice the prevalence of obesity (body fat>30 per cent), and those who reported more than four hours of TV watching per day showed more than double the prevalence of obesity, compared to the reference group (<1hr/day). Part of the TV/obesity association was a function of differences in exercise duration among the four TV viewing categories. Excessive television viewing was found to be associated with certain dietary and physical activity habits and may prove to be a useful, global marker for several life-style factors predisposing children to hypercholesterolemia (Wong, et al.,1992: 75-79). And adolescence who spent more time for watching TV might be drink alcohol too Tucker (1985: 593-598).

The Office of National Statistic surveyed of spending the time of the population in 1990 and in 1995 finding that in 1995, the population who were at age of 13 up, spent much time to watch TV most (90.4 per cent). It was the increasing proportion in 1990 which only had 79.0 per cent. The subordinate was 50.4 per cent for listening to the radio and tape decreased in 1991 for 63.4 per cent. From surveying the behavior of playing sports and being the spectator of sports of the population in 1990 and 1992, it was found that the population who played sports, had the high proportion. During 1987-1992 there were approximately a quarter of the population who were at the age of 6 up and played sports in 1992 while nearly half amount of the children and youths were playing sports.

The proportion of playing sports in the male persons was higher than the female persons. The person who lived in the urban region, played sports more than the person who lived in the rural region. The children in Bangkok metropolitan play sports most. The subordinates were the southern part, the central part, the north eastern part (The Office of National Statistic, 1998: 115).

d) Smoking drinking with alcohol of the parents and closed friends:

Teenagers had frequency of trying out the new behavior, especially when having the model most researches could indicate the factors of occurring teenagers' smoking, for example: 1) the level of social acceptance in the high level 2) the reaction of giving the value of the cigarette marketing 3) the easiness of the access of cigarettes 4) the role of the model by the parents and other adults including smoking of the friends' groups. Being this model was the important factor which made teenagers have the trial behavior of smoking or drinking whisky, although this trial behavior was not occurred in the long run. Some teenagers who get the information of cigarettes or saw the model from their childhood, had the acceptance of providing cigarettes. This created the psychological value which helped them pass of being teenagers' period. They thought that the risk of smoking had less weight than their mental values.

2.4.4 The psycho-social factors

The psychological factors had the positive and negative effect to the behavior of eating the food. For example: if any persons perceived the usefulness of the god

habit for eating the food, this would effect them to choose the high valuable food: that was: low fat, giving the suitable energy, choosing to eat the food with high fiber and low salt. It should have been studied of the realization in making a decision of health since preschool age (Pender, 1996: 215).

Suwan, et al. (1997: 3-26) studied the behavior and condition of surroundings for health promotion of youths' groups at the age 12-19, housewives' groups and workers' groups which were made random sampling from the different region around Thailand including Bangkok. They chose 12 provinces by the method of 30 cluster sampling in order to get 3 sample groups. The total was 400 persons per province by choosing the families in the municipal region to be the principle of random sampling in Bangkok. They chose 700 families from 36 ruling regions which were divided into 5 urban regions. This research chose 17 regions which were classified into middle class of urban region and external class of urban region by choosing the size proportion of the total sample amount of 6,659 persons. This was divided into Bangkok for 1,949 persons, other provinces for 4,710 persons by having 2,430 persons for youths, 2,314 persons for housewives and 1,527 persons for workers. The result of the study was found that the high percentage of 3 groups gave the value of behavior for health promotion in the moderate and low level of 3 groups most sample groups had the attitude to health and health promotion including positive health promotion. The variable of the value of health promotion, the perception of usefulness, the perception of self-ability fir conducting the behavior of health promotion had the relation significantly in the statistical way with the behavior of health promotion.

2.5 THE FORMALITY OF CONCEPTUAL FRAMEWORK

2.5.1 Variable of study

The researcher revived the study of the formality of lifestyle contributing to risk of CHD and the factors determined that formality in teenagers' groups both in the foreign countries and Thailand. From the past to present. To examine the boundary of the theoretical conception which the researcher made it. To confirm it and choose the groups of variables for this research as shown in Table 3, and Figure 7

Table 3 Variable and source theories of variables use in this research

Variables	From Theories and concepts
X1 Sex	The Health Belief Model
X2 Birth order	Research: Gecas & Pasley (1983), Steelman (1985), Vorakitpokathorn (1990)
X3 Personality	The Health Belief Model
X4 Academic achievement	Research: Hamphrey (1959), Supapak (1997), Boonsom (1992), Rojanalert (1990), Moombanchao (1994)
X5 Family size	Liska's revision model
X6 Family income	Liska's revision model, Pender (1987), Palank (1991)
X7 Level of mother's education	Tenconi, et al. (1992), Unden, et al. (1995)
X8 Family structure	Minisota University (1968)
X9 Time spent watching TV per day	David & Abelman (1983), Tucker (1986), Tucker & Friedman (1989), Wong, et al. (1992)

Table 3 (continued) Variable and source theories of variables use in this research

Variables	From Theories and concepts
X10 Vulnerability to high risk lifestyles	Pender Health Promotion Model
X11 Family lifestyle	Pender Health Promotion Model, Kandel, et al. (1995)
X12 Peer pressure	The Health Belief Model
X13 Social support	Social Support
Y1 Perception of risking opportunity to CHD	The Health Belief Model
Y2 Perception to barrier to healthy lifestyle	Pender Health Promotion Model, Garcia, et al. (1995)
Y3 The perception of self efficacy	Pender Health Promotion Model, Sallis, et al. (1992)
Y4 The attitude toward high-risk lifestyle	Pender Health Promotion Model, Weitzel (1989)
Y5 Value concerning health	Pender Health Promotion Model
Y6 Value concerning food	Pender Health Promotion Model
Y7 Lack of exercise	Biddle, et al. (1994), Scott (1994), Johnson, et al. (1990)
Y8 Eating high saturated fat and high calory	Strong & Huon (1998), Edmundson, et al. (1996), French (1996)
Y9 Cigarette smoking	Miligan, et al. (1997), Kannel (1990)
Y10 Drinking alcohol	Green & Kreuter (1991), WHO (1992)
Y11 Caffeine intake	Tverdal, et al. (1990), Schwarz, et al. (1994), Groisser (1978)

2.5.2 Conceptual framework of causal model with 5 latent variables and 24 observe variables

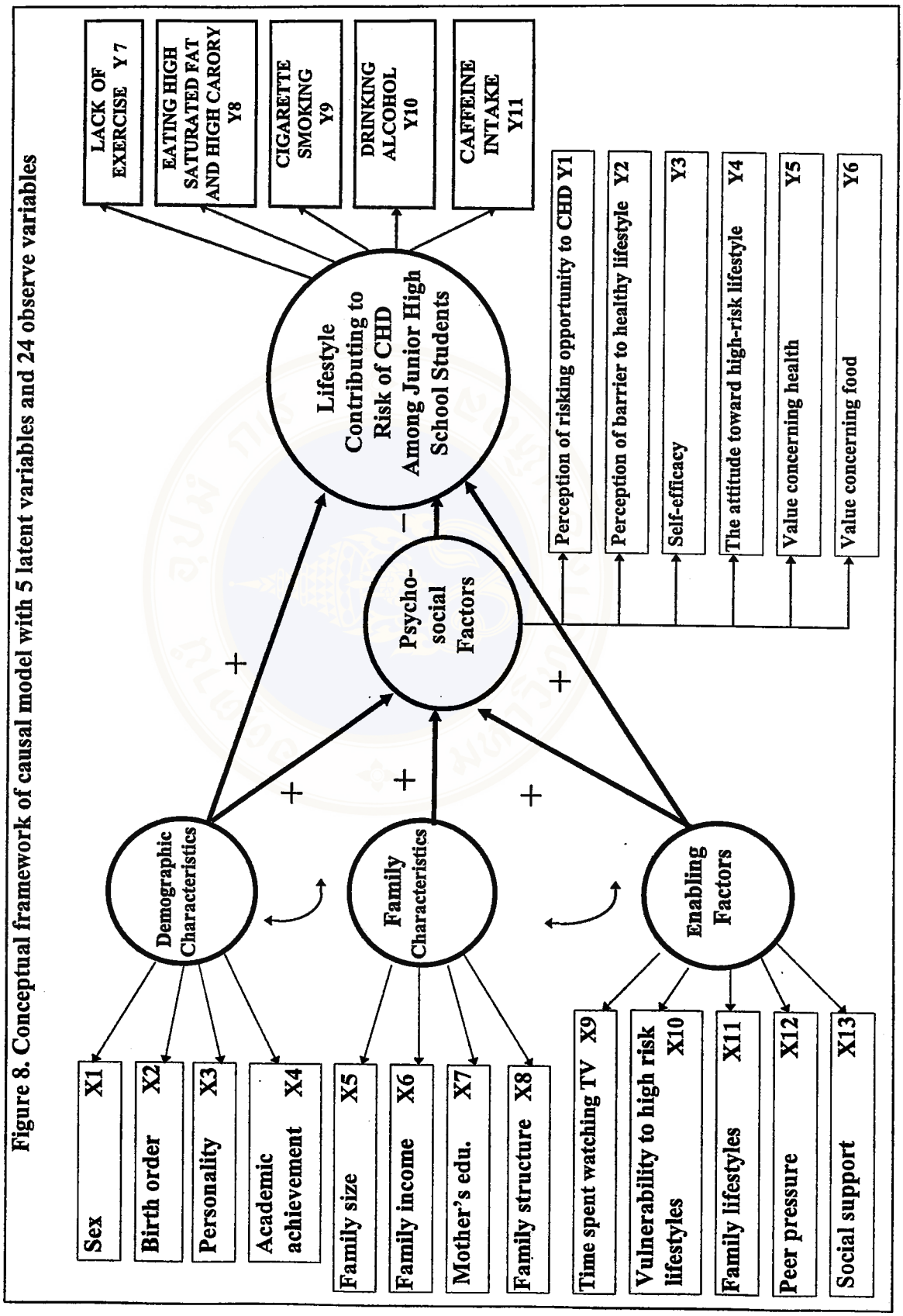


Figure 8. Conceptual framework of causal model with 5 latent variables and 24 observe variables

CHAPTER III

MATERIALS AND METHODS

3.1 RESEARCH METHODOLOGY

This research is used of correctional oriented (Kanchanawasri, 1994: 9). The individual is the unit of analysis by integrated the psycho-social theory and modification of the behavior. And brought for the determination of the variables in order to predict the value of the factors which are influenced on the formalities of the teenagers. The following details are:

3.1.1 The sample group of the quantitative approach

Population and sample: The population that are using for this research are the boys and girls students who are studying in Matayom1-3 (junior high school) They are subject to the department of elementary and audit education in Phuket 1998. The total students are 6,198 persons from six schools. The sample groups of this study are the students who are studying in Matayom1-3 in three kinds of school, only girl students school, only boy students school, and both boy and girl students school.

The sample size: Researcher calculate sample size from the formula of finding, in survey for approximation of the proportion of Cochran (1977: 75-76).

$$n = (Z)^2 p q / d^2$$

n = sample size

Z = normal standard score form Z-Table at $\alpha = 0.05$ value = 1.96

p = proportional of the answer in the right direction

q = proportional of the answer in the wrong direction (1-P)

d = maximum error that allow to happen = 0.05

Curing to the study of determinants of lifestyle contributing to risk of CHD in junior high school students. It composed of lacking of exercise, eating saturated fat and high calory, smoked, drink alcohol and caffeine intake so it was necessary to consider each part of sample size with the relevant research as follows:

1. **Lack of exercise:** In 1997, the Office of National Statistics surveyed the exercise of population, found that the individuals are 6-24 years olds (48.4 per cent), not play sports. In 1992, the teenagers and children at the age of 10-17, no activities and no exercise more than 50 per cent. So we used this proportion of 50 percent to determine the sample size by substituting the formular with $n = (Z)^2 p q / d^2$. So the education of exercise is used for the sample size not less than 384 persons.
2. **Eating high saturated fat and high calory:** The survey of the behavior of using fast food restaurant service of the Bangkokian, found that the pupils and students used this service 61.7 per cent. They were risking being CHD because they ate the food with fat and high calories. So we used this proportion of 61.7 percent to calculation of sample size. It should not be less than 365 persons.

3. **Cigarette smoking:** In 1996, the survey of the smoking rate in Phuket province, was found that the smoking rate of students in Mathayom1-5 were 14.3 per cent (The Office of Public Health in Phuket, 1996: 17). So we used this proportion of 14.3 percent to calculation of the sample size, it should not to be less than 189 persons.

4. **Drinking alcohol:** The study of teenagers in Bangkok found that the teenagers drank alcohol 9.64 per cent (Visuthikul, 1997: 54). For this study we used 9.64 per cent to calculate the sample size of proportion so the study of drinking alcohol is used for the sample size not less than 134 persons.

5. **Caffeine intake:** It was found that the teenagers in Bangkok drank the caffeine 9.60 per cent (Visuthikul, 1997: 59). So the calculation of the sample size should not less than 134 persons.

This study composed of 5 part of lifestyle above so that the minimum of sample size should not less than 365 samples.

When considering the sample size in each factor, we found that "sex" affected to the formalities the most. So this research should be determined the characteristics of school in to 3 characteristics: a) only boy students school b) only girl students school c) boy and girl students school.

The first step: To classify the school from the characteristics

The second step: Simple random sampling was determined by Sattri Phuket School for girl students school, Phuket Wittayalai School for boy students school and Choeng-Talae Wittaya School for boy and girl students school.

The third step: The prediction of the approximation of the average amount of student in each class.

The fourth step: The random sampling of the classroom by calculating the sample size and then making the random sampling of the position of the classroom in each school used by simple random sampling.

The fifth step: When we got the number of the classroom, we kept the sample from every student in that classroom which was obtained to be the sample for this research as shown in the fourth table.

Table 4 The sample size of research

Name of School	Class	Number of class	Number of student
Phuket Wittayalai	Matayom 1	2	54
	Matayom 2	2	69
	Matayom 3	2	73
Sattri Phuket	Matayom 1	2	95
	Matayom 2	2	91
	Matayom 3	2	57
Choeng-Talae Wittaya	Matayom 1	2	67
	Matayom 2	2	83
	Matayom 3	2	59
Total	1-3	18	648

3.1.2 The sample group of the qualitative approach

The sample of the population of the qualitative study was the students who had the determinants of lifestyle contributing to risk of CHD of the teenagers, There were two groups of each school, 6-8 each the total groups were 6, criteria as follows:

a) Have a lifestyle contributing to risk of CHD

b) Have the determinants of lifestyle contributing to risk of CHD

c) Participation with full speed ahead and willing to answer question.

3.2 RESEARCH INSTRUMENTS

This study used two method to collect the data. First, it was the quantitative method by using questionnaire which enable the students to answer by themselves and the measurement models including the weight and the height. Second, it was the qualitative method by asking some key informant of junior high school students with the setting frame of question.

The first method: quantitative

The self administered questionnaire was created to collect the data of the demographic characteristics, family and psycho-social of the sample group as follows:

1. The first section: The basic information of the responses of questionnaires which had the variables for the research. They are: sex, birth order, time spent watching TV per day, and the academic achievement.

2. The second section: The data of the family of responses of questionnaires which had the variables for the research. They are the family size, family income, level of mother's education, and family structure.
3. The third section: The data of the formalities which the researcher set up by developing Lifestyle and Health Habit Assessment of ten factors (LHHA) of Pender (1987: 134-143). We brought every factor of the formalities to develop in this research.
4. The fourth section: The personality measurement model was improved by the personality measurement model of Synder (1989: 122).
5. The fifth section: The measurement model of the family support was established by the conception of Cobb (1976: 93), Kahn (1986: 252).
6. The sixth section: The measurement model of the psycho-social factors was created for the perception of the risking opportunity of being this disease, the perception of the barriers to healthy lifestyle, self-efficacy.

The second method: qualitative

The group interview of key informant of students who had the lifestyle contributing to risk of CHD. It was done in the extensive topics what the attractive cause were affected to the formalities and if we wanted to modify them, how to do and support.

3.2.1 Selection of the important variables

The researcher selected the variables from the revision of the theory and the research work concerned including the variables in the boundary of the demographic by determining the value of the variables as follow:

Table 5 The latent and manifest variable and scale use in this research

Latent Variable	Manifest Variable	
	Variable	**Scale**
1. Demographic characteristics	X1 Sex	Dichotomous 1=male 2=female
	X2 Birth order	Continuous
	X3 Personality	Continuous
	X4 Academic achievement	Continuous
2. Family characteristics	X5 Family size	Continuous
	X6 Family income	Continuous
	X7 Level of mother's education	Ordinal 1 = no literacy 2 = elementary level 3 = secondary level 4 = certificate and diploma 5 = bachelor degree or more
	X8 Family structure	Ordinal 1 = single family living with their parent 2 = living with their relatives 3 = living with many families 4 = living in the dormitory

Table 5 (continued) The latent and manifest variable and scale use in this research

Latent Variable	Manifest Variable	
	Variable	**Scale**
3. The enabling factor	X 9 Time spent watching TV per day	Continuous
	X 10 Vulnerability to high risk lifestyles	Continuous
	X11 Family lifestyles	Continuous
	X12 Peer pressure	Continuous
	X13 Social support	Continuous
4. The psycho-social factor	Y1 Perception of risking opportunity to CHD	Continuous
	Y2 Perception of barrier to healthy lifestyle	Continuous
	Y3 Self-efficacy	Continuous
	Y4 The attitude toward high-risk lifestyle	Continuous
	Y5 Value concerning health	Continuous
	Y6 Value concerning food	Continuous
5. The lifestyle contributing to risk of CHD	Y7 Lack of exercise	Continuous
	Y8 Eating high saturated fat and high calory	Continuous
	Y9 Cigarette smoking	Continuous
	Y10 Drinking alcohol	Continuous
	Y11 Caffeine intake	Continuous

3.2.2 Developing of research instrument

The method of developing the questionnaire of each part are difference as follows:

a) The first and second part

They were questioned by the researcher of the demographic characteristics family and the history of the sickness of the responses which had the step position of making as follows:

1.1 To study the documents and the research work concerned with the variables in order to determine the definition and the treatment of the variables including the models of questions.

1.2 Then, we made the questionnaire with all the variables in order to be measured the things what we wanted.

1.3 Later, we brought all the variables to propose to thesis consultant professor so as to verify and need the information to have content validity.

1.4 To modify the questionnaires before trying set.

1.5 To bring them to try out in a characteristic group which was similar expression and language factor and them collect the data.

b) The third to seventh part

They were the questionnaires of the lifestyle contributing to risk of CHD which were composed of lake of exercise, eating high saturated fat and high calory, smoking and drinking alcohol and caffeine, having the following steps:

1. The questionnaires of lacking of exercise: were developed by Lifestyle and Health Habit Assessment (LHHA) of factor of Pender including health risk appraisal of Pruitt & Stein (1994: 27-29) wellness assessment of Maclym (1993: 13). The questionnaires in this factor had three dimensions of structure: a) the type of exercise b) the frequency of exercises per work c) the time of exercise per time (Hiranrat & Juangpanich, 199: 33-34) as follows:

1.1 The dimension of the type was classified into three groups:

a) Light force group was worth being eight scores of the third section.

b) Medium force was worth being two scores of the third section.

c) Heavy force group was worth being one scores of the third section.

1.2 The dimension of the frequency was classified into three groups:

a) Every day exercise group was worth being one score.

b) Three-six times per week exercise group was worth being 2 scores.

c) One-two times per week exercise group was being seven scores

1.3 The dimension of the time was classified into two groups:

a) Exercise more than twenty times per minute was worth being one score.

b) Exercise less than twenty times per minute was worth being nine scores.

Table 6 Dimension of exercise behavior score

Kind of exercise	Frequency per week	Time each day	Score
Heavy	everyday	< 20 minute	11
Heavy	everyday	>20 minute	3
Heavy	3-6 times per week	< 20 minute	12
Heavy	3-6 times per week	>20 minute	4
Heavy	1-2 times per week	< 20 minute	17
Heavy	1-2 times per week	>20 minute	9
Moderate	everyday	< 20 minute	12
Moderate	everyday	>20 minute	4
Moderate	3-6 times per week	< 20 minute	13
Moderate	3-6 times per week	>20 minute	5
Moderate	1-2 times per week	< 20 minute	10
Moderate	1-2 times per week	>20 minute	18
Lighten	everyday	< 20 minute	12
Lighten	everyday	>20 minute	4
Lighten	3-6 times per week	< 20 minute	13
Lighten	3-6 times per week	>20 minute	5
Lighten	1-2 times per week	< 20 minute	10
Lighten	1-2 times per week	>20 minute	18
No exercise			30

Remark: Kind: heavy = 1, Moderate = 2, Lighten = 8, No exercise = 10

Frequency: every day = 1, 3-6 times = 2, 1-2 times = 7, No exercise = 10

Time: >20 minute = 1, <20 minute = 9, No exercise = 10

Total score of lifestyle contributing to risk of CHD in part of exercise between 3-30, lower score mean a low risk of CHD than higher score.

2. The questionnaire of eating high saturated fat and high calory: were develop by Lifestyle and Health Habit Assessment (LHHA) of ten factors of Pender (1987: 134-143). The researcher brought the nutrition to develop and measure the analysis the analysis of the quantity of fat in the food by Nutritional division sanitation department of the ministry of Public Health (1992), Tangkanakul (1994: 190-200), and Visuthikul (1997: 37-38). The questionnaires in this factor had two dimensions: the type of food and the amount of time of eating the food as follows:

2.1 The type of food was classified into two groups:

a) The food group with high carbohydrate of the fourth section.

b) The food group with high fat of the fourth section.

2.2 The amount of time of eating the food per week and per month from everyday eating to nothing

The structure of eating the food with fat and high calories has to be thought over the different dimension and weight by using the order from computer programs. Detail as follows:

Table 7 Dimension of eating high saturated fat and high calory behavior score

No	Composition of variable		risk	weight
	food	eating frequency		
1	High calories food	every day	The most risk	6
2	High calories food	4-6 time per week	High risk	5
3	High calories food	1-3 times per week	moderate risk	4
4	High calories food	2-3 times per month	low risk	3
5	High calories food	1 time per month	lower risk	2
6	High calories food	not eating	lowest risk	1
7	High fat food	every day	The most risk	6
8	High fat food	4-6 time per week	High risk	5
9	High fat food	1-3 times per week	moderate risk	4
10	High fat food	2-3 times per month	low risk	3
11	High fat food	1 time per month	lower risk	2
12	High fat food	not eating	lowest risk	1

Remark: Total weight score of lifestyle contributing to risk of CHD in part of eating the food with fat and high calories the score between 13-78, and the lower score means that low risk of CHD too.

3. The questionnaires of cigarette smoking: were developed by the survey form of Rose & Blackburn (1982: 178) and Visuthikul (1997: 36). There were two structure factors a) the behavior of smoking b) passive smoking.

There were five structures of smoking: 1) smoking or non smoking 2) the kinds of cigarette 3) the duration of smoking 4) the quantity of smoking 5) the frequency of smoking.

Table 8 Dimension of cigarette smoking behavior score

Smoking variable	Detail of score	Risk score
Active Smoking		
1. Smoking	non smoking	1
	smoked but now stop smoking	2
	now smoking	3
2. Type of cigarettes	lower nicotine cigarettes	1
	filter cigarettes	2
	no filter cigarettes	3
3. Duration of smoking	lower than 1 month	1
	more than 1 month but not to 1 years	2
	more than 1 year	3
4. The amount of smoking	1-10 cigars per day	1
	11-20 cigars per day	2
	more than 20 cigars per day	3
5. Frequency of smoking	1-3 times per month	1
	1-6 times per week	2
	every day	3
Total Score of Active Smoking		1-15

Table 8 (continued) Dimension of cigarette smoking behavior score

Smoking variable	Detail of score	Risk score
Passive Smoking		
1. Living in smoking area	No	1
	Yes	2
2. Time per day to living	1-20 minute per day	1
in smoking area	21-60 minutes per day	2
	> 60 minutes per day	3
3. Frequencies of living in	1-3 times per month	1
smoking area	1-6 times per week	2
	every day	3
4. The amount of years	< 1 year	1
living in smoking area	1-5 years	2
	> 5 years	3
Total Score of Passive smoking		1-11

Remark: Smoking was worth being two-twenty-six scores, the lower value means less risking, the higher values means risking.

4. The questionnaire of drinking alcohol: were modified by the survey form of Ross, et al. (1982: 178) which was composed of the multiplication of the type of drinks, the quantity, the frequency per week, including the characteristics of drinking the mixture, the long duration of drinking as follow:

Table 9 Dimension of drinking alcohol risk score

Drinking alcohol variables	Detail of score	Risk score
1. Drinking alcohol	never drinking	1
	over drinking but now stop drinking	2
	still drinking	3
2. Type of drinking	other drink with the mixer of alcohol	1
	beer	2
	whiskey and wine	3
3. Characteristic of drinking	dilute with soda or aerated water	1
	pure drink did not dilute	2
4. The volume of drinking	< 2 glass	1
each time	2-4 glasses	2
	> 5 glasses	3
5. The frequency of drinking	1-4 times per month	1
	1-6 times per month	2
	every day	3

Remark: Drinking alcohol was worth being four-twenty-one scores, the lower values means drinking less alcohol and the higher value means drinking high alcohol.

5. The questionnaire of caffeine intake such as: tea, coffee, chocolate, cocoa and drink giving the force and different pills. These were composed of five structures: 1) Drinking with the mixture of caffeine 2) The type of drinks 3) The quantity per time 4) The frequency per week 5) The long duration.

Table 10 Dimension of caffeine intake risk score

Caffeine intake variables	Detail of score	Risk score
1. Drinking of aerated water with contained of caffeine	never drinking	1
	over drinking but now stop drinking	2
	still drinking	3
2. Type of drinking caffeine	aerated chocolate-cocoa drink	1
	tea - coffee	2
	aerated water that giving the force	3
3. The volume of drinking caffeine each time	< 2 glass	1
	2-4 glasses	2
	> 5 glasses	3
4. The frequency of drinking caffeine	1-4 times per week	1
	1-6 times per week	2
	every day	3

Remark: Caffeine intake was worth being one-sixteen scores, the lower value means less risking and the higher value means high risking.

The risking of the formality of earning lifestyle contributing to risk of CHD in 5 factor were calculated by the total risking score of 5 factors which determined the value of the risking scores of each factor to have the score weight inequality. It was determined the regulation of the important factor of the formality by having 5 scores, 1 score for the less important factor and 0 score for having no risks, The formalities of earning lifestyle contributing to risk of CHD which were very important were lacking of exercise, eating the food with fat and smoking. For drinking alcohol and caffeine were the formalities of earning lifestyle with were less important than 3 first factors equalized to 1 score .

c) Development of the instrument for measuring the psycho-social factors

They were composed of measurement model of personality of the perception of the lifestyle contributing to risk of CHD, the perception of barriers of the healthy lifestyle, self-efficacy, the process of the construction and the examination of the qualities of this measurement which had been done:

1. To collect, arrange the structural question and content validity which were corresponded with each psycho-social factor.
2. To bring the measurement model of the researcher to develop and modify including each the practical definition so as to be corresponded with the construct validity and content validity before trying out.
3. To bring the measurement model to try out the junior high school student (Matayom1-3) at Muang Thalang school in Phuket which was not the target school about 116 students. It was investigated the qualities of the equipment in construct validity by factor analysis, the reliability and internal consistency by alpha coefficient of Cronbach.
4. Later, the researcher brought the result of the experiment to modify the model, and try to simplify and suit the questions and the teenagers, then collected the data.

There was the confidence of each measurement model as follows:

1. The eight section

The personality model was improved by researcher from Synder (1989: 122) which was composed of ten items. The scores between ten to forty. We brought this model to try out 116 students in Matayom1-3. As a result, it was corresponded with principle component analysis in order to get the highest variance with Varimax model. And considered the components from igen value with were more than 1.0 and factor loading more than 0.30. As a result, ten questionnaire were devilled into two factors and were explained the variation about 59.47 per cent all questions were corresponded with the seventh and second items. For the analysis of reliability found that the value of alpha coefficient of cronbach was 0.712. It was indicated that personality model of this test had high construct validity and high reliability.

2. The nine section

The measurement model of the peer pressure was follow by Liska's revision model. The belief of social expectation of other people multiplied with the inspiration that's given and the belief of the follow-up specific result of the behavior multiplied with the evaluation of the value of that result. The agreement of the friend's group in the same way of the formalities would be covered by the content of the tendency of the sentiments whether they agreed or disagreed or not to eat the food with fat and high calories, drink alcohol and caffeine, smoke and lake of exercise. It was necessary to study originally of silent referents which the group was and it was important and influenced on pushing those individuals to

conduct the behaviors (Sirisuk, 1991: 96-106; Ajzen & Fishbein, 1980: 84-85). The conclusion was the friend's group was influenced on the formalities "the teenagers" were the silent referents in exercising, drinking alcohol and smoking. "The families" were the silent referents in eating the food with fat and high calories.

The answer	Score
Group influence	
- strongly wanted	5
- want	4
- neutral	3
- not want	2
- strongly not want	1
Doing behavior follow by someone	
- every time	5
- mostly	4
- moderate	3
- few	2
- never	1

As a result, it was corresponded with principle component analysis in order to get the highest variance with Varimax model. And considered the components from igen value with were more than 1.0 and factor loading more than 0.30. As a result, ten questionnaires were devilled into two factors and were explained the variation about 67.21 per cent. For the analysis of reliability found that the value of alpha coefficient of cronbach was 0.7327. It was indicated that this test had rather high construct validity and high reliability.

3. The tenth section

The supportive society was made by Kahn (1986: 252) to measure the supportive society to the formalities. It was composed of three factor: 1) The data information support 2) The emotional support 3) The materials support. Each of the questions were composed of five choices. Analyzed with the structural in Principle component analysis in order to get the highest variation in varimax model, and then, brought them to consider the number of components from igen values which were worth being more than 1.0 then considering the question of factor loading more than 0.30. As a result, the ten questionnaire were divided in to three components could be explained the variation 55.88 per cent. But the first and sixth questions were corresponded the most. The coefficient of confidence was 0.8087. It was indicated that this test had rather high construct validity and high reliability.

4. The eleventh section

The model of psycho-social factors in the attitude of exercise drinking caffeine and alcohol was composed of twenty-seven questions and three components: 1) Exercising and eating 2) The risking behaviors of smoking and drinking 3) The imitation of friend's group. Those had five answers level respectively. The researcher made the principle component analysis in order to get the highest variation in Varimax model and then considered from igen values more than 1.0, then considered the questions of factor loading more than 0.30. As a result, the twenty-seven questions were divided in to nine components which were not corresponded with the theoretical structure although they could be explained the variation 67.74 per cent. The coefficient of confidence was 0.69 rather rare.

5. The twelfth section

The data of health values model was developed by Walston & Wallston (1978), modified from Rocheach (1973) and Jirakulpattana (1993) which was composed of ten values: 1) the comfortable living 2) the exciting living 3) fulfillment feeling 4) freedom 5) happiness 6) physically and mentally health 7) no controversy in mind 8) cheerfulness in life 9) respectful acceptance 10) well-known and acceptance in society. The sixth item was questioned of health to answer in the important order by determining that 1-4 items were shown as the highest level of health, 5-8 items where shown as the medium level of health, 9-10 item were shown as the lowest level of health

6. The thirteenth section

The model of the perception risking being the coronary heart disease of teenager was developed by the researcher. It was composed of eleven items in ratting sales by having five answer level: *"great agree, agree, not sure, disagree, disagree greatly"* scoreed by 5, 4, 3, 2, 1 rapidity. The interpretation of the score values was composed of three components: 1) the perception of risking being the disease in teenagers 2) the perception of the risking behaviors in smoking and drinking alcohol 3) the perception of the risking behavior in eating and exercising. The result of principle component analysis corresponded with the theoretical structure and could be explained the variation 87.57 per cent. The coefficient of confidence was 0.8163 (rather high)

7. The fourteenth section

The model of the self-efficacy was developed of Rubin's self esteem scale, made by four choices. But the researcher made five choices: greatly agree, agree, not sure, disagree, disagree greatly. The maximum value means highest self-efficacy evaluated by self-capacities and good expectation and self confidence. The minimum value means lowest self-efficacy evaluated by lack of self capacities, confidence and bad expectation. The result of principle component analysis weren't corresponded with theoretical structure and can be explained the variation 55.45 per cent. The coefficient of confidence was 05.36 (rather low). It mean this test had low structural validity and low reliability, the researcher improved this by cut item 4 which was a complexity variable .

8. The fifteenth section

The model of the value of the food consumption was established by the conception of Lewin (1980: 47). The structure was composed of taste, the social status, the body conditions and the price with choices which were answered *"yes"*, *"no"* and *"not sure"*. For the score levels of positive questions, *"yes"* scoreed by three, *"not sure"* scoreed by two, *"no"* score by three. The maximum score was shown by good value of the food consumption but the minimum score was shown by not good value of the food consumption. The result of principle component analysis weren't corresponded with the theoretical structure and can be explained the variation 57.13 per cent. The coefficient of confidence was 0.6428 (rather low) It mean this test had low structural validity and low reliability, the researcher improved this by cut item which was a complexity variable.

9. The sixteenth section

The model of the barriers of exercising and the consumption with low fat was written of 8 question by researcher. There were five evaluation levels: *"yes of course, yes, not sure, don't know, no, no of course not"*. The result of principle component analysis were corresponded with the theoretical structure and can be explained the variation 67.10 per cent. The coefficient of confidence was 0.7997 (rather high).

3.2.3 The group interview guideline Using interviewing guideline to ask the group of key informants person of junior high school students who had the formalities of earning their living that risked being CHD. The extensive factors. What were the attractive causes to the formalities and it they wanted to modify, how to do and support. Using time 1-2 hours, the main concepts composed of:

1. The perception of CHD in teenager in, cause of CHD, violence, cause, protection
2. The attractive cause and origin of the formalities (lacking of exercise, eating the food with high fat, smoking, drinking alcohol and caffeine)
3. The influence of the friend's group to the formalities.
4. The values of the teenagers to the for the protection of the formalities
5. If the students' group wanted to proceed, improve the causes of problem by themselves, what did they want their school to support and how?

The group interview guideline

The main point	The frame of questions
1. The perception of the belief to CHD of teenagers: - violence - causes - protection	1. Have you ever seen the people who got this disease? Do you have anyone with CHD in your family? How? 2. Do you believe what the cause of CHD are from? 3. Do you believe how symptom of CHD is? Who will be contagious most? 4. Do you believe whether this disease can be protect or not? How to do? Why? 5. Do you think whether the teenagers have risked being this disease or not ? How?
2. The important factors of the determination to different formalities - protection - asking for support	1. Do you think what factors can be occurred to each formalities? (lack of exercise, eating high saturated fat and high calory, cigarette smoking, drinking alcohol and caffeine intake). 2. Do you believe which factor the teenagers can improve? How? 3. Do you believe whether this formality can be protection or not? Why? and How? 4. If you want to make the project plan, do you believe whether your school support or not? When? And How?

3.3 DATA PROCESSING

The data collection was made by the researcher of the principle of the field research. There were three techniques of collecting the data: a) questionnaires of the sample population b) the in-depth interview c) the structural observations, as follows:

3.3.1 The step of preparation

a) To bring the equipment made by researcher for construct validity, then examined content validity by the consultant professor the qualifiers. After passing the consideration, the researcher brought all equipment to modify.

b) To test with 116 student of Matayom1-3 who were not the target population in Phuket. Those were: Muang Thalang and Katu school. Then, to calculate foe finding the reliability by using the formula of conbach's alphas coefficient. If it was less than 0.7-0.8 the questions would improve.

c) To improve the real questionnaires about the language for the simplification and suitability of the target.

d) The preparation of examining the body and the examiner. The researcher examined the measurement equipment in order to be standard including the training examiner for specializing in the utilization of the equipment.

3.3.2 The step of collecting the data

a) The researcher and her group met the director of the school and prepared the classroom.

b) The researcher, assistant, doctoral students indicated the questionnaires, explained method of answering to the sample group without the limitation of time.

c) When the student finished answering, they had to get the measurement of height, weight, waist, hip respectively by the Public Health Officer.

d) The researcher made editor the data from the questionnaires and check-up.

e) The researcher made editor the data from in-depth interview and observation and made editor again the data from the questionnaires and check-up

3.3.3 The step of verifying the data

The researcher was verify the data as step follow:

a) The step of designing the questionnaires. The researcher filled the repeated questions into quaternaries for examining the correspondence of the answers.

b) The step of coding was made by the researcher for the accuracy. During coding, spot-checking was made that there might be mistakes. After coding already, there might be a set of questionnaire, repeated coding to make sure that no mistakes for coding were not occurred.

c) The step of the raw data to enter the computer was determined to have two key persons for repeating key data. Then, the verification was made and if they were not corresponded, would be turn back to verify the raw data again and modified them before analyzing.

d) The step of analyzing, verifying scattering the frequency of every variables for searching whether the illegal code had an omission or logical inconsistency or improbability or not. If there were the verification of raw data and missing data of completeness during collecting the data in the field, the researcher would determine two editors to verify the researcher and assistant. They had to collect the data completely before going cut of the area both quality and quantity.

3.3.4 Data analysis

a) The descriptive statistics is the calculation the statistical values of mean, median, mode, standard deviation, skewness and kurtosis of each variable to verify the characteristics of the frequency of each variable, analyzed by using the program of SPSS for Windows release 7.51.

b) Inferential Statistics

The test of primary agreement was analyzed by Path Analysis of multiple Regression statistics for finding the linearity and Additivity of the variables and for analyzing causal relationship of the variables, analyzed by the program of SPSS for Windows release 7.51.

Factor analysis was made by observing variables in order to get the least important variables for suitable structural model but could be explained clearly. Later, the structural model was made completely, and for testing contract validity.

The analysis the influence for comparing with the direct and indirect variables of family, facilitation, demographic, and psycho-social factors to the formalities, analyzed by the program of LISREL (A Statistical Package program for analyzing Linear Structural Models).

CHAPTER IV

RESULTS

This research aimed to understand and explain the lifestyle contributing to risk of CHD of the junior high school student in Phuket in five action: a) Lack of exercises b) Eating high saturated fat and high calory c) Cigarette smoking d) Drinking alcohol e) Caffeine intake. This chapter present the results of the data analysis. It contains of four parts as follows:

1. The background of the sample population (family, society, and economy).
2. The analysis of the lifestyle contributing to risk of CHD.
3. The analysis of independent variable.
4. The analysis of the influence of the variable and hypothesis testing.

4.1 THE BACKGRUND OF THE SAMPLE POPULATION

After the validity and the reliability of the questionnaire were examined. The researched used this questionnaire to collected the data from 648 junior high school students in Phuket. About 54.2 per cent was the female sex. The students of Matayom1 was 33.3 per cent, Matayom2 was 37.5 percent and Matayom3 was 29.29 per cent. The average age was 13.92 years, which lowest age was 11 years and the highest age was 17 years ($\bar{X}$ = 13.92, SD = 1.01). Most of them have respected Buddhism (81.8 per cent).

4.1.1 The family characteristics

The average numbers of a family was 5.16 ($\bar{X}$ = 5.16, SD = 2.04, Min = 2, Max = 16), the average of brothers and sisters associated with the same parents was 2.79 ($\bar{X}$ = 2.79, SD = 1.26, Min = 1, Max = 8). Most of them were the single family about 89.2 per cent. Of these with single family, we found that, about 61.9 per cent are nuclear family (only live with father, mother, and children).

4.1.2 The socio-economic of family

The average income of family was 22,146.83 baht per month, but the distribution of the income had more skewess and kurtosis (skewess = 8.82, kurtosis = 100.16, Min = 12,000, Max = 850,000, SD = 46,882.92). It means that most of the answer are in lower income. The economic status of the family classified in to 3 levels: rich, medium, and poor. It was found that the percentages of samples were medium 91.2 per cent, 7.9 per cent for poor and 0.9 per cent for rich. The first main profession of the father was to be employed and the second one was commerce, hold a port in government sector and state enterprise sector. (26.1 per cent, 17 per cent, 16.2 per cent). The first main profession of the mother was commerce, and the second one was to be employed and hole a part in government sector. (21.3 per cent, 17.4 per cent, 13.4 per cent). The level of the father's education was higher than the mother only a little.

4.1.3 The biological factors

The average height was 158.96 centimeters. ($\bar{X}$ = 158.96, SD = 8.65, Min = 110, Max = 183). The average weight was 48.74 kg ($\bar{X}$ = 48.74, SD = 9.94, Min = 30, Max = 91). The Body Mass Index (BMI),which calculated by the weight divided by the height as M^2 and classified BMI in to 4 levels: BMI less than 20, BMI between 20-24.9, BMI between 25-29.9 and BMI equal and over 30, it was found that the percentage of BMI were (66.7 per cent, 27.9 per cent, 4.3 per cent, 1.1 per cent respectively). In the other sight we can said that obesity student were 5.4 per cent (BMI over 25).

4.1.4 The history of family

It was found that the history of family's illness of CHD about 10.5 per cent of the direct relative (father, mother, brother, sister) who had the symptom of heart failure condition.

Table 11 Number and percentage of sample group

Characteristics of sample group		Number	per cent
1. School	Only male student School	196	30.2
	Only female student School	243	37.5
	Both male and female School	209	32.3
2. Class	Matayom1	216	33.3
	Mattayom2	243	37.5
	Mattayom3	189	29.2
3. Sex	Male	297	45.8
	Female	351	54.2

Table 11 (continued) Number and percentage of sample group

Characteristics of sample group		Number	per cent
4. Religion	Buddhist	530	81.8
	Christian	2	0.3
	Islam	116	17.9
5. Number of brother and sister associated with the same parents (mean = 2.79)			
	1 person	62	9.6
	2 persons	261	40.3
	3 persons	173	26.7
	4 persons	84	13.0
	5 persons and more	68	10.5
6. Family structure			
	single family living with their parent	401	61.9
	living with their relative	177	27.3
	living with many families	52	8.0
	living in dormitory	18	2.8
7. Family income (baht) (mean = 22,146.68, min = 1,200, max = 850,000)			
	< 5000	117	18.1
	5,000 - 10,000	179	27.6
	10,001 - 20,000	162	25.0
	20,001-50,000	136	21.0
	> 50,000	54	8.3
8. The status of family income			
	enough and saving	438	67.6
	enough but not saving	168	25.9
	not enough and have a debt	42	6.5
9. The economic status of family			
	rich	6	9.0
	moderate	591	91.2
	poor	42	6.5

Table 11 (continued) Number and percentage of sample group

Characteristics of sample group	Number	per cent
10. The occupation of father		
the owner of rubber garden	23	3.5
employee in rubber garden	14	2.2
commercial	110	17.0
government worker	105	16.2
an employee in company or hotel	70	10.8
work in the field of tourist	15	2.3
fisherman (the ship's owner)	10	1.5
fisherman (employer)	10	1.5
general employer	169	26.1
owner of business	72	11.1
working business of family	7	1.1
have no work	11	1.7
11. The occupation of mother		
the owner of rubber garden	16	2.5
employee in rubber garden	15	2.3
commercial	138	21.3
government worker	87	13.4
an employee in company or hotel	59	9.1
work in the field of tourist	4	0.6
fisherman (the ship's owner)	2	0.3
fisherman (employer)	0	0
general employer	113	17.4
owner of business	43	6.6
working business of family	39	6.0
have no work	90	13.9

Table 11 (continued) Number and percentage of sample group

Characteristics of sample group	Number	per cent
12. The level of father's education		
illiteracy	6	0.9
elementary level	274	42.3
secondary level	147	22.7
certificate and diploma	98	15.1
bachelor degree	103	15.9
more than bachelor degree	15	2.3
13. The level of mother's education		
illiteracy	12	1.9
elementary level	307	47.4
secondary level	134	20.7
certificate and diploma	79	12.2
bachelor degree	107	16.5
more than bachelor degree	3	0.5
14. The illness history of family with CHD		
not have CHD illness history	442	68.2
person have CHD illness history	60	9.3
persons have CHD illness history	6	0.9
persons have CHD illness history	2	0.3
15. Body Mass Index(BMI)		
<20	432	66.7
20-24.9	181	27.9
25-29.9	28	4.3
30 and over	7	1.1

4.2 THE ANALYSIS OF LIFESTYLE CONTRIBUTING TO CHD

The lifestyle contributing to risk of CHD contained of five parts, lack of exercise, eating high saturated fat and high calory, cigarette smoking, drinking alcohol, caffeine intake. The results of the study founded that the lifestyle contributing to risk of CHD among the junior high school student in Phuket was in a high level as: high risk level about 51.9 per cent, moderate risk level about 40.0 per cent and lower risk level group about 8.2 per cent

Table 12 The level of lifestyle contributing to risk of CHD.

	High risk		Moderate risk		Low risk		Total	
	No	per cent	No	per cent	No	per cent	No	per cent
School								
Only male M	192	29.6	4	0.6	0	0	196	30.2
Only female F	142	21.9	101	15.6	0	0	243	37.5
Both Male/Female	2	0.3	154	23.8	53	8.2	209	32.3
Class								
Matayom1	50	7.7	113	17.4	53	8.2	216	33.3
Matayom2	162	25.0	81	12.5	0	0	243	37.5
Matayom3	189	29.2	124	19.1	65	10.0	189	29.2
Sex								
Male	193	29.8	75	11.6	29	4.5	297	45.8
Female	143	22.1	184	28.4	24	3.7	351	54.2

4.2.1 Lack of exercise (Y7)

Lack of exercise in this research meant one month age, there was the lack of the action which was moved by the muscle, using the natural oxygen which was composed of less than 20 minutes per time of duration. There were three dimensions of the risking levels: a) the categories of exercising (heavy, medium, light) b) duration time of exercise (<20 min, >20 min) c) the frequency of exercise (every day, 3-6 time/week, 1-2 time per week). The low mark meant the low risking level as shown in the Table 13.

Table 13 Risking level of CHD by lack of exercise

Risking level	male		female		Total	
	No	per cent	No	per cent	No	per cent
lowest risking	164	25.31	98	15.12	262	40.4
low risking	86	13.27	130	20.06	216	33.3
medium risking	22	3.40	98	15.12	120	18.5
high risking	3	0.46	4	0.62	7	1.1
highest risking	22	3.39	21	3.24	43	6.6
Total	297	45.83	351	54.17	648	100.0

The results of the analysis was found that there were the risking level for lacking of exercises 59.3 per cent. It was classified in to five risking: 40.4 per cent for lowest risking, 33.3 per cent for low risking, 18.5 per cent for medium risking, 1.1 per cent for high risking, and 6.6 per cent for highest risking. These data was harmonious with qualitative data by group interview of junior high school student that

"Do you think whether teenagers have risk being CHD or not ?"

Half of them think that teenagers have risking.

When the exercise being classified into 3 levels: exercise with heavy force, exercise with medium force and exercise with light force. It was found that 53.4 per cent of exercise with heavy force (string, jumping, riding, boxing, tennis, badminton, volley-ball, football, basketball), 14.2 per cent of exercising with medium force (quick walking, jogging, rattanball, chinese boxing, aerobic exercising, skating, swimming), 25 per cent of exercising with light force (doing all home work and normal walking). It was harmonious with qualitative data. They said that:

"the exercise that teenager liked playing the most were Rollerbase, riding, swimming, running and walking, and playing like these, because of the enjoyment" For the question *"What are you expect for exercising?"* .

They said *"No, we didn't think for exercise but doing it with enjoyment and playing it with friend"*

"In Phuket he who walk to school is not abreast of time"

"Here! We like to go everywhere by motorcycle"

"If we walk to school, we afraid that others will look down us."

Mostly, there were 3-6 times per week of exercising by using the time more than 20 minutes per time. The reason of exercising of no time and lack of devices were the group which was not exercising.

Table 14 Exercing and reason of exercise

Characteristics of exercise		Number	per cent
1. Type of exercise:	heavy	162	25.0
	medium	92	14.2
	light	346	53.4
2. Frequency of exercise:	every day	199	30.7
	3-6 times per week	245	37.8
	1-2 times per week	157	24.2
3. Time used in exercise:	< 20 minute	63	9.7
	> 20 minute	538	83.0
4. The reason for exercise:	healthy	291	44.9
	good personality	25	3.9
	learning	8	1.2
	availability place & equipment	5	0.8
	funny and social	84	13.0
	go with friend	7	1.1
	follow with family	5	0.8
	a sport man	24	3.7
5. Place for exercise:	in house	163	25.2
	park	110	17.0
	school	115	17.7
	private club	43	6.6
	other	19	2.9

4.2.2 Eating high saturated fat and high calory (Y8)

It was meant the frequency of eating high saturated fat and high calory measured by the amount of time of eating that food one month ago including the amount of meal of eating per day. The result of analysis was found that the sample group had the risks of eating with high fat about 71.8 per cent by classifying the risks into: highest 1.1 per cent, high 20.2 per cent medium 50.5 per cent. There was the similarity both in female and male sex.

When considering in meals per day, we found that 55.6 per cent of junior high school students eat with three meals, 30.5 per cent eat more than three meals, 4.0 per cent often eat. Mostly 60.8 per cent were inspired by the taste of food, and the food that often eat in family19.90 per cent. The same way as answers in group interview that they eat because of taste, such as

"even though we know that eat the food with high fat and calories will lead to be CHD, but we must eat because of good taste" "can't stop eating it"

The first advertising media was television (86.73 per cent), the advertising poster was the second (5.25 per cent). The percentage of 16.51 who buy food with calling on telephone, the reason for doing like this was accommodation. More over, in group interview they indicated that eating of the teenager depended on the value, as:

"Pissa, KFC McDonnell, Swenzen are the food that who never eat is not in fashion" "even though we known that it was a junk food but sometime we eat by peer, and sometime we eat by good taste and good smell"

"it so expensive: someone eat because he want to show that he have a rich man and in fashion".

Qualitative data shown that the advertisement at the attached plastic bag was the advertising media affected on eating of teenagers.

Table 15 The Characteristics of junior high school eating

Characteristics		Number	per cent
1. Meals each day:	2 meals	69	10.70
	3 meals	360	55.60
	more than 4 meals	191	30.50
	eat all of the day	26	4.00
2. Influence of eating:	the delicious of food	394	60.80
	advertising	11	1.70
	form of food	96	14.80
	often eat in family	129	19.90
	eat with friend	18	2.70
3. Media influence eating:	radio	20	3.09
	television	562	86.73
	newspaper	9	1.39
	a handbill	7	1.08
	a signboard of shop	34	5.25
4. Used delivery service:	never	541	83.49
	used	107	16.51
5. Type delivery service:	pizza	67	62.60
	instance food	17	15.89

4.2.3 Cigarette smoking (Y9)

There were 648 persons for the sample group, 88.3 per cent were non cigarette smoking and 11.3 per cent cigarette smoking and 5 per cent for once they smoked but now stop cigarette smoking and 6.6 per cent now cigarette smoking, 4.17 per cent for still cigarette smoking of the male sex and 2.47 per cent for still cigarette smoking of the female sex. The type of the cigarettes was the filter cigarettes, duration of smoking more than 1 year, and the amount of smoking between 1-10 cigars per day as shown in Table 16.

The qualitative data from the group of student in junior high school, we found that the rate of cigarette smoking in junior high school was high such as:

"A lot of student cigarette smoke, both male and female, with ganja inner".

In male school they said *"most of male student in Matayom 2 smoke"*

In female school they said *"female smoke about 20 per cent, close friend in same classroom smoking more than 10 persons".*

The cause of cigarette smoking in male were trying on, following with their friends, being smart, persuaded by the friends, and to force with friend

"If you don't cigarette smoke, you are not allow to be in gang".

But the cause of cigarette smoking in female were persuaded by the outsider school friends while they go to club or bar where drink are serve in the night.

"Are you want to try on it? Then give me a cigarette, and teach me to smoke, but for the first time, I can't do it, because of choking and then try again to smoke inside and emit the smoke out from the nose, it was easy to do like this."

"I am broken home, and have a problem with home, my friend persuaded to smoke, I try and like it because it make me happy ".

The primary cigarette smoke was normal such as: Krongthip but later, it had *"the meat"*. Those were marijuana. More over, *" Most of smoker will smoke ya-bha too, we call lan-ma or hunter"* It mean smoke amphetamine.

"There are a lot of ya-bha, sometime orange color, red, green"

"The green ya-bah is good one"

price of ya-bah "about 150-180 baht per tablet ".

"The method of smoking was: rolling ya-bah, put in foil, exposed to the fire at the bottom and then smoking."

"The after smoke were: comfortable feeling, inserious, not hungry, not sleeping, feeling drunk, not taking a bath and then being thin. Someone used to be fitness."

For the amount of smoke ya-bah, she said "Joy, My friend use 10 tablets per day".

Not only self-smoking that risked being CHD, but also living in the smoking area. The percentage of 74.4 was in the smoking area that took times about 20-60 minutes per day, and 40 per cent for living in the smoking area every day. Visiting at the entertainment places. such as: discotheques at night were found that they were in the smoking areas as shown in Table 17.

Table 16 Characteristics of cigarette smoking of junior high school

Characteristics	Total		Male		Female	
	No	per cent	No	per cent	No	per cent
1. Cigarette smoking:						
never	572	88.30	250	38.58	322	49.69
used to smoke but now stop	33	5.10	20	3.09	13	2.01
still smoke	43	6.60	27	4.17	16	2.47
2. Type of cigarette:						
low nicotine cigarette	21	27.63	14	18.42	7	9.22
filter cigarette	52	68.42	31	40.79	21	27.63
have not filter cigarette	3	3.95	2	2.63	1	1.32
3. Duration of smoking:						
< 1 month	23	26.44	17	19.54	6	6.90
1-12 month	15	17.24	10	11.49	5	5.75
> 1 years	36	41.38	19	21.84	17	19.54
4. The number of cigar smoking per day:						
1-10 cigars	74	98.67	47	62.67	27	36.0
11-20 cigars	1	1.33	0	0	1	1.33
5. Frequency of smoking:						
1-3 times per month	12	15.79	5	6.58	7	9.21
1-6 times per week	16	21.05	9	11.84	7	9.21
every day	48	63.16	33	43.42	15	19.74

Table 17 Characteristics of passive smoking or living in smoking area

Characteristics	Number	per cent
1. Living in smoking area:		
Yes	482	74.4
No	166	25.6
2. Duration of living in smoking area each day:		
1-20 minute per day	127	76.51
21-60 minute per day	30	18.07
> 60 minute per day	9	5.42
3. Frequency of living in smoking area:		
1-3 times per month	46	27.72
1-6 times per week	51	30.72
every day	69	41.57
4. Years living in smoking area:		
< 1 year	88	53.01
1-5 years	34	20.48
> 5 years	44	26.51

4.2.4 Drinking alcohol (Y10)

The sample group was found that 10.7 per cent for drinking alcohol and can be classified into two groups: 5.1 per cent for over drinking but now never and 5.6 per cent for still drinking, 2.8 per cent for starting at the age of 13, the second one was 14. The reason of drinking were trying on (57.97 per cent), force by other friends, being

bullied by other friends (27.54 per cent), and going to the party (11.59 per cent). The kinds of alcohol they like most beer, the second one was whisky and wine respectively. The cause of drinking alcohol of boys and girls was persuaded by their friends, most of the girl's thinking were changed, drinking alcohol was their protection and everybody at home drinking alcohol, this made the girls drink it, as shown in Table 18.

4.2.5 Caffeine intake (Y11)

It was included tea, coffee, cocoa, chocolate, drinks giving the forces or aerated water which contain the quantity of caffeine more than 100 milligram per day. The result of analyzing was found that there were the similarity between tea-coffee drink and aerated water chocolate-cocoa drinks (42.7 per cent, and 42.1 per cent respectively). From the collection of qualitative data, most of children didn't know that caffeine was contained in cocoa, chocolate, drinks giving the force and aerated water.

The reasons of drinking were thirsty, try on tasting, cheaper, feeling fresh after drinking, new values of the teenagers, being smart. For coffee, boys and girls liked drinking during the examination and working hard because they were not sleep. For tea, they have to drink it every day because it was sold by the school as shown in Table 19.

Table 18 The level of risk for CHD by drinking alcohol

Characteristics	Number	per cent
1. The level of risk:		
highly risk	2	0.34
high risk	11	1.70
moderate risk	13	2.01
low risk	29	4.47
lower risk	14	2.16
lowest risk	579	89.35
2. Drinking history:		
never	579	89.40
over drink but now stop	33	5.10
still drink	36	5.60
3. Type of drinking:		
whiskey	31	44.93
spirit	23	33.33
wine	15	21.74
4. Dilution:		
dilute with soda	36	52.17
pure drink	33	47.83

Table19 The level of risk for CHD By caffeine intake

Characteristics	Number	per cent
1. The risk level:		
highly risk	17	2.6
high risk	115	17.7
moderate risk	213	32.7
low risk	256	39.5
lowest risk	47	7.3
2. Type of caffeine intake:		
aerated water chocolate-cocoa	273	42.1
tea coffee	277	42.7
aerated water giving the force	98	15.2

4.3 THE ANALYSIS OF THE INDEPENDENT VARIABLES

Sex (X1)

It was shown that the female sex was more than the male sex 54.2 per cent of female and 45.8 per cent of male, looking at Table 11.

Birth order (X2)

It was found that most of the studied group were 1.44, the standard of the deviation was equal to 1.53. Most of the sample group were the second son or daughter who corresponded with the same parents. The eleventh table was shown that 40.3 per cent was for having 2 brothers and sisters and 26.7 per cent was for having 3 brothers and sisters.

Personality (X3)

According to the result of data analysis. It was found that, most of the junior high school students had personality type A. The average was equal to 24.38 per cent, the standard deviation was equal to 4.75, the mark of 11 for minimum and 44 for maximum. Total mark of personality more than 20 about 80.6 per cent.

Academic achievement (X4)

It was found that most of the students had moderate level of academic achievement which had the average 2.38, the standard deviation was 0.793 Minimum academic achievement was 0.80 and the maximum academic achievement was 4.00 by having 5.6 per cent for lower than 1 of academic achievement, 37.8 per cent for academic achievement 1.00-2.00, and 30.6 per cent for academic achievement 2.01 - 3.00 and 26.1 per cent for academic achievement 3.01- 4.00.

Family size (X5)

It was found that 32.3 per cent for 4 members of a family, 28.4 per cent for 5 members, 12.2 per cent for 3 members, 27.2 for more than 5 members which were shown that the small family had only 2 members.

Family income (X6)

It was found that 73.6 per cent for the moderate level of the family, 18.1 per cent for poor level, 8.3 per cent for rich level from the minimum, income 1,200 baht per month and 850,000 baht per month for maximum income. The average income of a family was 22,146.83 baht per month and in the moderate level (rather low).

Level of mother's education (X7)

It was found that it was high about 98.1 per cent 47.4 per cent for elementary level 20.7 per cent for secondary level 12.2 per cent for certificate and diploma, 17.0 for bachelor degree or more. We could see that the mother's high education was only 1.9 per cent.

Family structure (X8)

Most of them were single family (89.2 per cent), by having 61.9 per cent for living with their parents, 27.3 per cent for living with their relatives 8 per cent for living with many families and 2.8 per cent for living in the dormitory.

Time spent watching TV per day (X9)

It was found that the average amount was 2.15 hours per day 0.586 for the standard deviation, 1 hour minimum and 11 hours for maximum. It was shown that the student spent their spare tome watching TV.

Vulnerability to high risk lifestyle (X10)

The risked to the result of the analysis, found that there was 5 types of CHD: lack of exercising, eating with fat and high calories, drinking alcohol, cigarette smoking, caffeine intake, 58.2 per cent for the moderate level, 40.4 per cent for the maximum level, 1.4 for the minimum level.

Family lifestyles (X11)

It was found that 44.1 per cent for the minimum level 38.1 for the moderate level 17.7 for the maximum level, the average of risking level was equal to that the formalities of the family that risked being CHD only a little.

Peer pressure (X12)

It was found that the average point was 32.14 per cent and 10.49 per cent for the standard deviation, 15 per cent for the minimum values and 62 per cent for the maximum value most of them perceived from the friend's pressure in the moderate and high level respectively. (57.7 per cent and 39.0 per cent) 3.3 per cent for less pressure. It was shown that the peer group was influenced on 5 factors of the lifestyle.

Social support (X13)

It was found that the average point was 32.14 and 5.42 for the standard deviation 15 per cent for minimum and 48 per cent for maximum by having 63.7 per cent for high level 34.3 for moderate and 2 per cent for less. It was shown that most of them got the supportive society from the information, emotional and materials in high level.

Perception of risking opportunity to CHD (Y1)

The big sample group (87.8 per cent) 12.2 per cent for the moderate level, the minimum level no answers, the average of the perception that risked being to CHD was equal to 5.38, the standard deviation was equal to 0.508. It was shown that the perception of the students risked being to CHD in high level.

Perception of barrier to healthy lifestyle (Y2)

It was found that the average was equal to 4.62, the standard deviation was equal to 0.64, 54.7 per cent for the moderate perception, 25.3 per cent for the maximum perception, 17.1 per cent for the minimum perception. We could conclude that the moderate level was rather high.

Self-efficacy (Y3)

It was found that 99.8 per cent for the high level, 0.2 per cent for the moderate level. The average was 36.95 per cent, the standard deviation was equal to 5.55 per cent, the minimum was 24 marks the maximum was 43 marks. It was shown that the perception of the self efficacy of students was in a high level.

The attitude toward high-risk lifestyle (Y4)

The average was equal to 6.73 per cent, the SD was equal to 0.48 per cent, the minimum was 5.10 per cent, the maximum was 7.48 per cent. It was shown that most of the sample groups had good attitudes to the lifestyle contributing to risk of CHD.

Value concerning health (Y5)

It was found that 40 per cent for the moderate level, 37.8 per cent for the high level, 37.8 per cent for the lowest level, the average was equal to 6.73 and the SD was equal to 0.48. It was shown that valve concerning health value were in the moderate level.

Consumption value (Y6)

The average was equal to 4.96, the SD was equal to 0.47, 85.1 per cent for good level 12.6 per cent for the moderate level, 2.3 per cent for the lowest level. It was shown that the consumption value was in the good level.

Table 20 The characteristics of dependent variables

Characteristics of dependent variables		Number	per cent
X1 Sex			
	Male	297	45.8
	Female	351	54.2
X2 Birth order			
	Order 1	62	9.6
	Order 2	261	40.3
	Order 3	173	26.7
	Order 4	84	13.0
	Order 5	68	10.5
X3 Personality			
	Type A personality	522	80.6
	Other type personality	177	19.4
X4			
	< 1.00	22	3.4
	1.00 -2.00	259	40.0
	2.01 - 3.00	198	26.1
	> 3.00	169	26.1
X5 Family size			
	3 persons	79	12.2
	4 persons	209	32.3
	5 persons	184	28.4
	More than 5 persons	176	27.2

Table 20 (continued) The characteristic of dependent variables

Characteristic of dependent variables	Number	per cent
X6 Family income (baht)		
< 5000	6	9.0
5,000 - 10,000	591	91.2
10,001 - 20,000	42	6.5
20,0001- 50,000	136	21.0
> 50,000	54	8.3
X7 The level of mother's education		
Illiteracy	12	1.9
Elementary level	307	47.4
Secondary level	134	20.7
Certificate and diploma	79	12.2
Bachelor degree	107	16.5
More than bachelor degree	3	0.5
X8 Family structure		
Single family living with their parent	401	61.9
Living with their relative	177	27.3
Living with many families	52	8.0
Living in dormitory	18	2.8
X9 Time spent watching TV per day		
1 hours	19	2.9
2 - 5 hours	426	65.7
6 - 10 hours	172	26.5
more than 10 hours	31	4.8
X10 Vulnerability to high risk lifestyles		
Lowest vulnerability	9	1.4
Moderate vulnerability	377	58.2
High vulnerability	262	40.4
X11 Family lifestyle		
Low risk of CHD	243	37.5
Moderate risk of CHD	290	44.8
High risk of CHD	115	17.7
X12 Peer pressure		
Minimum level of peer pressure	88	13.6
Medium level of peer pressure	190	29.3
Maximum level of peer pressure	370	57.1
X13 Social support		
Low social support	92	14.2
Moderate social support	142	21.9
High social support	414	63.9

Table 20 The characteristic of dependent variables

Characteristic of dependent variables	Number	per cent
Y1 Perception of risking opportunity to CHD		
perceive risking in a low level	82	12.7
perceive risking in a high level	566	87.3
Y2 Perception of barrier to healthy lifestyle		
perceive in a low level	110	17.0
perceive in a moderate level	186	28.7
perceive in a high level	352	54.3
Y3 Self-efficacy		
low self-efficacy	446	68.8
moderate self-efficacy	202	31.2
Y4 The attitude toward high-risk lifestyle		
negative attitude	44	6.8
neutral attitude	523	80.7
positive attitude	81	12.5
Y5 Value concerning health		
lowest concerning health	204	31.5
medium concerning health	292	45.1
highest concerning health	152	23.5
Y6 Value concerning food		
negative concerning food	15	2.3
neutral concerning food	81	12.5
positive concerning food	55	85.2

4.4 THE ANALYSIS OF THE INFLUENCES OF THE VARIABLES AND HYPOTHESIS TESTING

4.4.1 The assumption testing

The researcher used the primary assumption to be based upon in making the model through the revision for the theory and the document of the research work concerned. The direction of the relation among the variables of the model got along with the cause as the primary agreement of LISREL (Viratchai, 1994: 17) Before analyzing, the researcher examined the characteristics of data by proceeding the following steps:

The first step

Test for the distributing of data used by PRELIS for data processing of analyzing asymptotic variance and covariance by the method of polyserial correlation. It was for analyzing the basic statistic value and adapting the data for input to LISREL. As a result, there were the normal distribution by considering from the skeweness (between ± 1.0) and the kurtosis (between ± 3.0) except Y7, Y9, Y11 variables which had the skeweness over 1 only a little but Y10 had the kurtosis which was equal to 5.89. In overview, they had the values not less than 5 per cent. The preparation of PRELIS was the normal distribution and didn't violate the assumption as shown in Table 21.

The second step

Test the relations among the independent variables of the model formed. After preparing the data with the program PRELIS that was modified by normal distribution, the details in the Table 24, having the test by scattering plot between the independent and each following variables, founds that there were the relation of linearity and Additivity. When it was tested to find the value of simple correlation, it was found that the relation of the variables was over 0.3, there are the variable of academic achievement (X4) with the variable of family income (X6) which were being $r = 0.308$ and the variable of academic achievement (X4) with the variable of the level of mother's education (X7) which were worth being $r = 0.347$. But the values of each independent variable was very little. We could see that the value of the simple correlation should not be over 0.5 ($p<0.001$). It was shown that each of the independent variables had no multicollinearity as shown in Table 22.

Table 21 The descriptive statistical of variables: adjusted by PRELIS

Variable	Mean	SD	Skewness	Kurtosis	Maximum	Minimum
X1	1.76	1.63	-0.22	-1.96	1.00	2.00
X2	1.44	1.53	0.83	1.05	8.33	-0.07
X3	24.38	4.75	0.16	0.09	40.00	11.00
X4	2.38	0.79	0.14	-0.80	4.00	0.80
X5	1.58	0.34	0.00	0.27	2.58	0.58
X6	9.44	0.96	0.14	-0.72	11.25	8.01
X7	2.93	1.20	0.65	-0.64	6.38	0.49
X8	0.88	1.27	0.94	-0.28	4.41	0.05
X9	2.15	0.59	-0.25	-0.73	3.32	1.00
X10	2.18	0.14	-0.53	0.01	2.40	1.79
X11	13.74	6.71	0.59	-0.73	30.00	5.00
X12	37.88	10.49	0.13	-0.52	62.00	15.00
X13	32.14	5.42	-0.16	-0.12	48.00	15.00
Y1	5.38	0.51	-0.25	-0.38	64.00	4.12
Y2	4.62	0.64	-0.25	0.66	6.32	2.83
Y3	36.95	5.55	-0.01	-0.50	48.00	24.00
Y4	6.73	0.48	-0.90	0.97	7.48	5.10
Y5	2.39	0.57	-0.91	0.22	3.16	1.00
Y6	4.92	0.48	-0.63	0.92	5.66	2.24
Y7	2.90	0.97	1.16	0.89	5.48	1.73
Y8	6.63	0.72	-0.47	0.01	8.16	4.27
Y9	0.15	2.60	1.57	1.73	10.98	-1.41
Y10	0.07	1.08	2.73	5.89	4.38	-0.30
Y11	1.98	1.13	-0.35	-1.06	5.06	0.38

The third step

Test the logical related way between each pair of the following variable and the independent variable by using the statistic of the regressive analysis which was shown the relation between the following variable and each independent variable as follows:

1. The following variable of the perception of the risking opportunity to be the CHD (Y1) with the independent X1-X13.

The result of the analysis was that, all independent variables (X1-X13) were explained the variation of the following variable in the perception of risking opportunity to CHD (Y1) about 21.10 per cent. In all 13 independent variables, there were 4 positive variables which had the logical relation to the following variable significantly in the statistical way. They were the academic achievement (X4), the social support (X13), the sex (X1) and the level of mother's education (X7) as shown in Table 22.

2. The variable of the perception of barriers to healthy lifestyle (Y2).

The result of the analysis was that all independent variables were explained the variation of the following of the perception of barrier to healthy lifestyle (Y2) about 7.0 per cent. In all 13 independent variables, there were 3 negative variables which were the academic achievement (X4), the vulnerability to high risk lifestyles (X10) and the birth order (X2). The family size (X5) which were affected to the following variables significantly in the statistics way. The family size (X5) was negatively affected to self-efficacy (Y3), others were affected positively.

3. Value concerning health (Y5) about 4.9 per cent. The academic achievement (X4) was positively affected to this variables.

4. The variable in lacking of exercise (Y7). All predictable variables (Y1-Y6) were explained the variation of the following variables about 4.3 per cent. The variable of the perception of barriers to healthy lifestyle (Y2) was positively affected to this variable.

5. The variable of the formalities in eating high saturated fat and high calory (Y8). All variables (Y1-Y6) were explained the variation of this following variable (Y8) about 1.0 per cent. The variable of the value concerning food (Y6) was positively affected to this variable.

6. The variable of the formalities in cigarette smoking (Y9). All variables (Y1-Y6) were explained the variation of this following variables (Y9) about 4.9 per cent .

7. The variable of the perception of risking opportunity to CHD (Y1) and the variable of the value concerning health (Y5) were negatively affected to this variable.

8. The variable of the formalities in drinking alcohol (Y10). All variables (Y1-Y6) were explained the variation of the following variables about 3.5 per cent. The variable of the perception of barriers to healthy lifestyle (Y2) was negatively affected to this variable.

9. The variable of the formalities in caffeine intake (Y11). All variable (Y1-Y6) were explained the variation of this following variables about 0.8 per cent. The variable of the value of value concerning food was negatively affected to the variable.

The fourth step

Test of the independence among the variables with the unsuitability. This result was used by Dubin-Watson method, found that all variables were independent from the instability. That was the value of DL. which was calculated of each variable, was worth being 1.80-2.08 more than DU. and could look at the table of Dubin-Watson test bounds (Vorapongsathorn, 1998: 426) including the significant level in the statistical way of 0.05 (N>100, P-1>5, dl = 1.57, du = 1.78) with the level of 0.01 (N>100, P-1>5, dl = 1.44, du = 1.65). It was accepted that the autocorrelation parameter (P) was equal to 0. The conclusion was the variable and instability were independent (Vorapongsathorn, 1998: 345). As shown in Table 22.

Table 22 Regression between independent X1-X13 and dependent psycho-social group (Y1-Y6) and lifestyle contributing to risk of CHD (Y7-Y11)

Variables	(b)	T	Sig t
Dependent variable (Y1) and independent (X1-X13)			
academic achieving (X4)	1.83	8.88	0.000
social support (X13)	0.12	3.58	0.000
sex (X1)	1.03	2.94	0.003
level of mother's education (X7)	0.42	2.56	0.011
Constant (K)	25.55	20.38	0.000
R^2 = 0.211, SEE = 4.26, F = 6.55, Sig of F = 0.01, Dubin-Watson = 1.91			
Dependent variable (Y2) and independent (X1-X13)			
academic achieving (X4)	-1.54	-6.18	0.000
Vulnerability to high risk lifestyles (10)	-0.40	-2.20	0.028
birth order (X2)	-0.45	-2.11	0.035
Constant (K)	29.93	16.75	0.000
R^2 = 0.07, SEE = 5.66, F = 4.46, Sig of F = 0.035, Dubin-Watson = 1.91			

Table 22 (continued) Regression between independent X1-X13 and dependent psycho-social group (Y1-Y6) and lifestyle contributing to risk of CHD (Y7-Y11)

Variables	(b)	T	Sig t
Dependent variable (Y3) and independent (X1-X13)			
Academic achievement (X4)	1.34	5.28	0.000
level of mother's education (X7)	0.57	2.82	0.000
vulnerability to high risk lifestyles (X10)	0.49	2.87	0.005
birth order (X2)	0.56	2.77	0.004
family size (X5)	-0.26	2.43	0.015
Constant (K)	28.53	16.36	0.006
R^2 = 0.115, SEE = 5.29, F = 5.91, Sig of F = 0.015, Dubin-Watson = 2.02			
Dependent variable (Y5) and independent (X1-X13)			
Vulnerability to high risk lifestyles (X10)	0.67	5.57	0.000
Constant (K)	5.29	17.53	0.000
R^2 = 0.049, SEE = 2.73, F = 31.05, Sig of F = 0.000, Dubin-Watson = 1.81			
Dependent variable (Y7) and independent (Y1-Y6)			
The perception of barrier to healthy lifestyle (Y2)	0.25	5.26	0.000
Constant (K)	3.64	3.33	0.001
R^2 = 0.0.43, SEE = 7.01, F = 27.68, Sig of F = 0.0000, Dubin-Watson = 1.91			
Dependent variable (Y8) and independent (Y1-Y6)			
Valve concerning food (Y6)	-0.19	-2.44	0.015
Constant (K)	50.39	20.92	0.000
R^2 = 0.01, SEE = 9.93, F = 5.96, Sig of F = 0.002, Dubin-Watson = 2.03			
Dependent variable (Y9) and independent (Y1-Y6)			
perception of risking opportunity to CHD (Y1)	-0.56	-4.73	0.000
valve concerning health (Y5)	-0.52	-2.57	0.010
Constant (K)	30.23	6.81	0.000
R^2 = 0.049, SEE = 14.156, F = 6.61, Sig of F = 0.010, Dubin-Watson = 1.80			
Dependent variable (Y10) and independent (Y1-Y6)			
R^2 = 0.035, SEE = 1.85, F = 22.65, Sig of F = 0.005, Dubin-Watson = 1.95			
Dependent variable (Y11) and independent (Y1-Y6)			
Value concerning food (Y6)	0.000	-2.26	0.024
Constant (K)	7.31	8.78	0.000
R^2 = 0.008, SEE = 3.43, F = 5.108, Sig of F = 0.024, Dubin-Watson = 2.083			

4.4.2 The analysis of the influence variable in model

From the revision of the theory and the research work concerned, the researcher developed the model which was explained the lifestyle contributing to risk of CHD.

It was composed of 24 observation variables and 5 latent variables as follows:

1. The exogenous latent variable of the demographic characteristics ($\xi 1$) was composed of 5 observation variables: the sex (X1), the birth order (X2), personality (X3), academic achievement (X4) and the family size (X5).
2. The exogenous latent variable of the family characteristics ($\xi 2$) was composed of 3 observation variables: the family income (X6), the level of mother's education (X7) and the family structure (X8).
3. The exogenous latent variable of the enabling factor was composed of 5 observation variables: the time spent watching TV per day (X9), the vulnerability to high risk lifestyle (X10), the family lifestyles (X11), the peer pressure (X12) and the social support (X13).
4. The endogenous latent variable of the psycho-social factor ($\eta 1$) was composed of 6 observation variables: the perception of risking opportunity of being CHD (Y1), the perception of barrier to healthy lifestyle (Y2), self-efficacy (Y3), the attitude toward high-risk lifestyle (Y4), value concerning health (Y5), and value concerning food (Y6).
5. The endogenous latent variable of the lifestyle contributing to risk of CHD of the junior high school students ($\eta 2$). Was composed of 5 observation variables the lifestyle contributing to risk of CHD: lack of exercise (Y7) eating high saturated fat and high calory (Y8), cigarette smoking (Y9), drinking alcohol (Y10), caffeine intake (Y11) as shown in the Initial model.

The Structure Equation Model

$$\eta = \beta n + \Upsilon \xi + \zeta$$

$$\eta 1 = \beta 0 + \Upsilon 11\, \xi\, 1 + \Upsilon 21\, \xi\, 2 + \Upsilon 31\, \xi\, 3 + \zeta 1 \quad \text{.....(1)}$$

$$\eta 2 = \beta 12\, \eta 1 + \Upsilon 12\, \xi\, 1 + \Upsilon 32\, \xi\, 3 + \zeta 2 \quad \text{.....(2)}$$

The measurement model for Y

$$Y = \lambda^{y}\ \eta + \varepsilon$$

$$Y1 = \lambda^{y} 11\, \eta 1 + \varepsilon 1 \quad \text{.....(3)}$$

$$Y2 = \lambda^{y} 21\, \eta 1 + \varepsilon 2 \quad \text{.....(4)}$$

$$Y3 = \lambda^{y} 31\, \eta 1 + \varepsilon 3 \quad \text{.....(5)}$$

$$Y4 = \lambda^{y} 41\, \eta 1 + \varepsilon 4 \quad \text{.....(6)}$$

$$Y5 = \lambda^{y} 51\, \eta 1 + \varepsilon 5 \quad \text{.....(7)}$$

$$Y6 = \lambda^{y} 6\, 1\, \eta 2 + \varepsilon 6 \quad \text{.....(8)}$$

$$Y7 = \lambda^{y} 7\, 2\, \eta 2 + \varepsilon 7 \quad \text{.....(9)}$$

$$Y8 = \lambda^{y} 8\, 2\, \eta 2 + \varepsilon 8 \quad \text{.....(10)}$$

$$Y9 = \lambda^{y} 9\, 2\ \eta 2 + \varepsilon 9 \quad \text{.....(11)}$$

$$Y10 = \lambda^{y} 10\, 2\, \eta 2 + \varepsilon 10 \quad \text{.....(12)}$$

$$Y11 = \lambda^{y} 11\, 2\, \eta 2 + \varepsilon 11 \quad \text{.....(13)}$$

The measurement model for X

$$X = \lambda^{x} \xi + \delta$$

$X1 = \lambda^{x}1\ 1\ \xi1 + \delta1$ .....(14)

$X2 = \lambda^{x}2\ 1\ \xi1 + \delta2$ .....(15)

$X3 = \lambda^{x}3\ 1\ \xi1 + \delta3$ .....(16)

$X4 = \lambda^{x}4\ 1\ \xi2 + \delta4$ .....(17)

$X5 = \lambda^{x}5\ 2\ \xi2 + \delta5$ .....(18)

$X6 = \lambda^{x}6\ 2\ \xi2 + \delta6$ .....(19)

$X7 = \lambda^{x}7\ 2\ \xi2 + \delta7$ .....(20)

$X8 = \lambda^{x}8\ 2\ \xi2 + \delta8$ .....(21)

$X9 = \lambda^{x}9\ 3\ \xi3 + \delta9$ .....(22)

$X10 = \lambda^{x}10\ 3\ \xi3 + \delta10$ .....(23)

$X11 = \lambda^{x}11\ 3\ \xi3 + \delta11$ .....(24)

$X12 = \lambda^{x}12\ 3\ \xi3 + \delta12$ .....(25)

$X13 = \lambda^{x}13\ 3\ \xi3 + \delta13$ .....(26)

Table 23 Detail of Initial Model Specification

Latent Variable	Manifest Variable	
	Variable	**Scale**
1. Demographic characteristics (ξ1)	X1 Sex	Dichotomous 1 = male 2 = female
	X2 Birth order	Continuous
	X3 Personality	Continuous
	X4 Academic achievement	Continuous
2. Family characteristics (ξ2)	X5 Family size	Continuous
	X6 Family income	Continuous
	X7 Level of mother's education	Ordinal 1 = illiteracy 2 = elementary level 3 = secondary level 4 = certificate and diploma 5 = bachelor degree or more
	X8 Family structure	Ordinal 1 = single family living with their parent. 2 = living with their relatives 3 =living with many families 4 = living in the dormitory
3. The enabling factor (ξ3)	X 9 Time spent watching TV per day	Continuous
	X 10 Vulnerability to high risk lifestyles	Continuous

Table 23 (continued) Detail of Initial Model Specification

Latent Variable	Manifest Variable	
	Variable	**Scale**
	X11 Family lifestyle	Continuous
	X12 Peer pressure	Continuous
	X13 Social support	Continuous
4. The psycho -social factor (η1)	Y1 Perception of risking opportunity of CHD	Continuous
	Y2 Perception of barrier to healthy lifestyle	Continuous
	Y3 Self-efficacy	Continuous
	Y4 The attitude toward high-risk lifestyle	Continuous
	Y5 Value concerning health	Continuous
	Y6 Value concerning food	Continuous
5. The lifestyle contributing to risk of CHD (η2)	Y7 Lack of exercise	Continuous
	Y8 Eating high saturated fat and high calory	Continuous
	Y9 Cigarette smoking	Continuous
	Y10 Drinking alcohol	Continuous
	Y11 Caffeine intake	Continuous

Preparation of Input Data: Preparation of input data with PRELIS program by using PM to adjust the variables. The results as shown in Table 24.

Table 24 Correlation Matrix of observation variables

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
X1	1.000																							
X2	-0.016	1.000																						
X3	-0.071	-0.051	1.000																					
X4	0.001	-0.069	0.092	1.000																				
X5	-0.052	0.227	-0.114	-0.077	1.000																			
X6	-0.110	-0.056	0.096	0.308	-0.076	1.000																		
X7	-0.173	-0.121	0.092	0.347	-0.163	0.505	1.000																	
X8	-0.143	0.022	-0.021	-0.056	0.354	-0.038	0.000	1.000																
X9	0.123	0.025	-0.007	-0.059	0.008	0.095	0.002	-0.011	1.000															
X10	-0.033	-0.012	0.021	0.069	-0.022	0.051	0.101	0.028	-0.125	1.000														
X11	0.054	0.055	0.055	0.038	-0.022	0.127	0.062	0.005	0.038	-0.028	1.000													
X12	-0.112	-0.066	0.180	0.013	-0.030	0.061	0.078	0.083	0.052	0.030	0.044	1.000												
X13	-0.045	-0.061	-0.028	0.154	-0.045	0.093	0.135	-0.035	-0.109	0.069	-0.018	0.142	1.000											
Y1	0.037	-0.037	0.062	0.274	-0.067	0.206	0.194	-0.008	-0.022	0.041	0.024	0.080	0.172	1.000										
Y2	0.024	-0.070	0.008	-0.205	0.014	-0.111	-0.129	0.010	0.047	-0.093	-0.029	-0.012	-0.112	-0.217	1.000									
Y3	-0.061	0.051	-0.008	0.191	-0.095	0.118	0.131	-0.117	-0.040	0.076	0.059	0.047	0.152	0.278	-0.280	1.000								
Y4	0.018	-0.048	-0.052	0.160	-0.079	0.083	0.099	-0.049	0.038	-0.044	0.064	0.018	0.168	0.159	-0.179	0.137	1.000							
Y5	0.053	-0.005	0.000	0.191	-0.056	0.045	0.107	-0.031	0.047	-0.023	0.011	0.011	0.031	0.053	-0.053	0.031	0.025	1.000						
Y6	0.109	-0.005	-0.021	0.214	-0.002	0.012	0.051	-0.053	-0.051	-0.018	-0.032	-0.052	0.134	0.215	-0.275	0.192	0.215	0.105	1.000					
Y7	0.227	-0.055	-0.001	-0.004	0.001	0.060	-0.002	-0.099	-0.021	-0.093	-0.026	-0.013	-0.005	0.053	0.171	-0.025	-0.023	0.083	-0.031	1.000				
Y8	0.075	0.019	0.068	-0.088	0.033	-0.074	-0.066	-0.003	0.056	-0.038	0.128	0.038	-0.042	-0.017	-0.001	-0.022	-0.006	-0.005	-0.080	-0.066	1.000			
Y9	-0.044	0.039	-0.045	-0.244	0.073	-0.134	-0.179	0.071	-0.062	-0.084	0.085	-0.035	-0.069	-0.115	0.088	-0.137	-0.120	-0.049	-0.108	0.012	0.089	1.000		
Y10	-0.084	0.009	-0.011	-0.132	0.005	0.022	-0.066	0.079	-0.019	-0.091	0.087	0.004	-0.049	-0.042	0.157	-0.125	-0.080	-0.069	-0.177	-0.044	0.066	0.415	1.000	
Y11	-0.037	0.014	0.078	-0.039	-0.003	0.043	0.008	0.073	0.037	-0.074	0.160	0.067	-0.002	-0.017	0.045	-0.022	0.006	-0.115	-0.066	-0.056	0.120	0.124	0.125	1.000
Means	1.759	1.437	24.376	2.378	1.580	9.438	2.934	0.885	2.153	2.178	13.744	37.882	32.142	5.381	4.624	36.946	6.731	2.393	4.920	2.898	6.633	0.146	0.066	1.982
SD	1.629	1.530	4.750	0.793	0.339	0.961	1.201	1.266	0.586	0.144	6.713	10.487	5.420	0.508	0.642	5.549	0.479	0.570	0.476	0.968	0.720	2.597	1.085	1.128

* p < 0.05 ** p< 0.01 *** p< 0.001

4.4.3 Test of initial model

In this study was used of maximum likelihood (ML). The result of the analysis was found that the measurement model of the variables which influenced on the lifestyle contributing to risk of CHD of the junior high school students in Phuket was not fit with the empirical data. The chi-square values for the test of the model fit was equal to 697.53 in the degree of freedom of 243 or chi-square relative (X^2/2 df) of 1.43. It had significantly in the highest level of p=0.00. This value was shown that there was the difference between the empirical data and the model developed by the theory and the related research work.

The researcher used 3 indexes in examining the fit of the model with the empirical data. They were: GFI, AGFI, RMR were developed by Joreskog & Sorbom, (1986). The result of the examination the fit of the model by these indexes was found that GFI (Goodness of Fit Index) was equal to 0.9154, AGFI (Adjusted goodness of fit index) was equal to 0.895, RMR (Root mean square residual) was equal to 0.06141, however, GFI value would be equal to 0.9, AGFI was less than 0.9, showing that it was not the good model and had to be re improves. The result of analyzing the observed variable which was worth influencing the most on exogenous latent variable of the demographic characteristics was the variables of the personality. But the variable of the family's size was influenced to the latent variable of the demographic characteristics.

Table 25 Analytical result from the initial model

Measurement Equation					
Unstandardized Equations			Standardized Equations		
Y1	=	1.00 η1 + 0.99 ε1	Y1	=	0.12 η1 + 0.98 ε1
Y2	=	1.09 η1 + 0.98 ε2	Y2	=	0.13 η1 + 0.98 ε2
Y3	=	1.10 η1 + 0.98 ε3	Y3	=	-0.13 η1 + 0.98 ε3
Y4	=	4.21 η1 + 0.74 ε4	Y4	=	-0.51 η1 + 0.74 ε4
Y5	=	1.90 η1 + 0.95 ε5	Y5	=	0.23 η1 + 0.95 ε5
Y6	=	4.96 η2 + 0.64 ε6	Y6	=	-0.60 η2 + 0.65 ε6
Y7	=	1.00 η2 + 0.72 ε7	Y7	=	0.53 η2 + 0.72 ε7
Y8	=	0.18 η2 + 0.99 ε8	Y8	=	-0.10 η2 + 0.99 ε8
Y9	=	0.02 η2 + 0.02 ε9	Y9	=	0.01 η2 + 0.99 ε9
Y10	=	0.15 η2 + 0.99 ε10	Y10	=	0.08 η2 + 0.99 ε10
Y11	=	0.16 η2 + 0.99 ε11	Y11	=	0.09 η2 + 0.99 ε11
X1	=	1.00 ξ1 + 0.99 δ1	X1	=	0.09 ξ1 + 0.99 δ1
X 2	=	3.59 ξ1 + 0.90 δ2	X 2	=	0.32 ξ1 + 0.90 δ2
X3	=	5.59 ξ1 + 0.75 δ3	X3	=	0.50 ξ1 + 0.75 δ3
X4	=	5.24 ξ2 + 0.78 δ4	X4	=	-0.47 ξ2 + 0.78 δ4
X5	=	1.00 ξ2 + 0.77 δ5	X5	=	0.48 ξ2 + 0.77 δ5
X6	=	0.74 ξ2 + 0.87 δ6	X6	=	0.36 ξ2 + 0.87 δ6
X7	=	0.25 ξ2 + 0.98 δ7	X7	=	0.12 ξ2 + 0.99 δ7
X8	=	0.88 ξ2 + 0.82 δ8	X8	=	0.43 ξ2 + 0.82 δ8
X9	=	1.00 ξ3 + 1.00 δ9	X9	=	1.00 ξ3 + 1.00 δ9
X10	=	0.60 ξ3 + 1.00 δ10	X10	=	0.60 ξ3 + 1.00 δ10
X11	=	2.00 ξ3 + 12.09 δ11	X11	=	-2.00 ξ3+ 12.40 δ11
X12	=	9.92 ξ3 + 1.01 δ12	X12	=	6.92 ξ3 + 1.01 δ12
X13	=	1.29 ξ3 +1.00 δ13	X13	=	1.29 ξ3 + 1.00 δ13
Structural Equations					
η1 = -7.68+Υ11 ξ1+Υ21 ξ2+Υ31 ξ3+ζ1			η1 = β0+Υ11 ξ1+Υ21 ξ2+Υ31 ξ3+ζ1		
η2 = β12 η1 + Υ12 ξ1 + Υ32 ξ3 + ζ2			η2 = β12 η1 + Υ12 ξ1 + Υ32 ξ 3 +ζ2		

Chi's square value (df) = 697.5313 p = 0.00

Goodness of Fit Index = 0.9154

Adjusted Goodness of Fit Index = 0.8955

Root mean Square Residual = 0.06141

Effects of exogenous latent variables and endogenous latent variables in the initial model

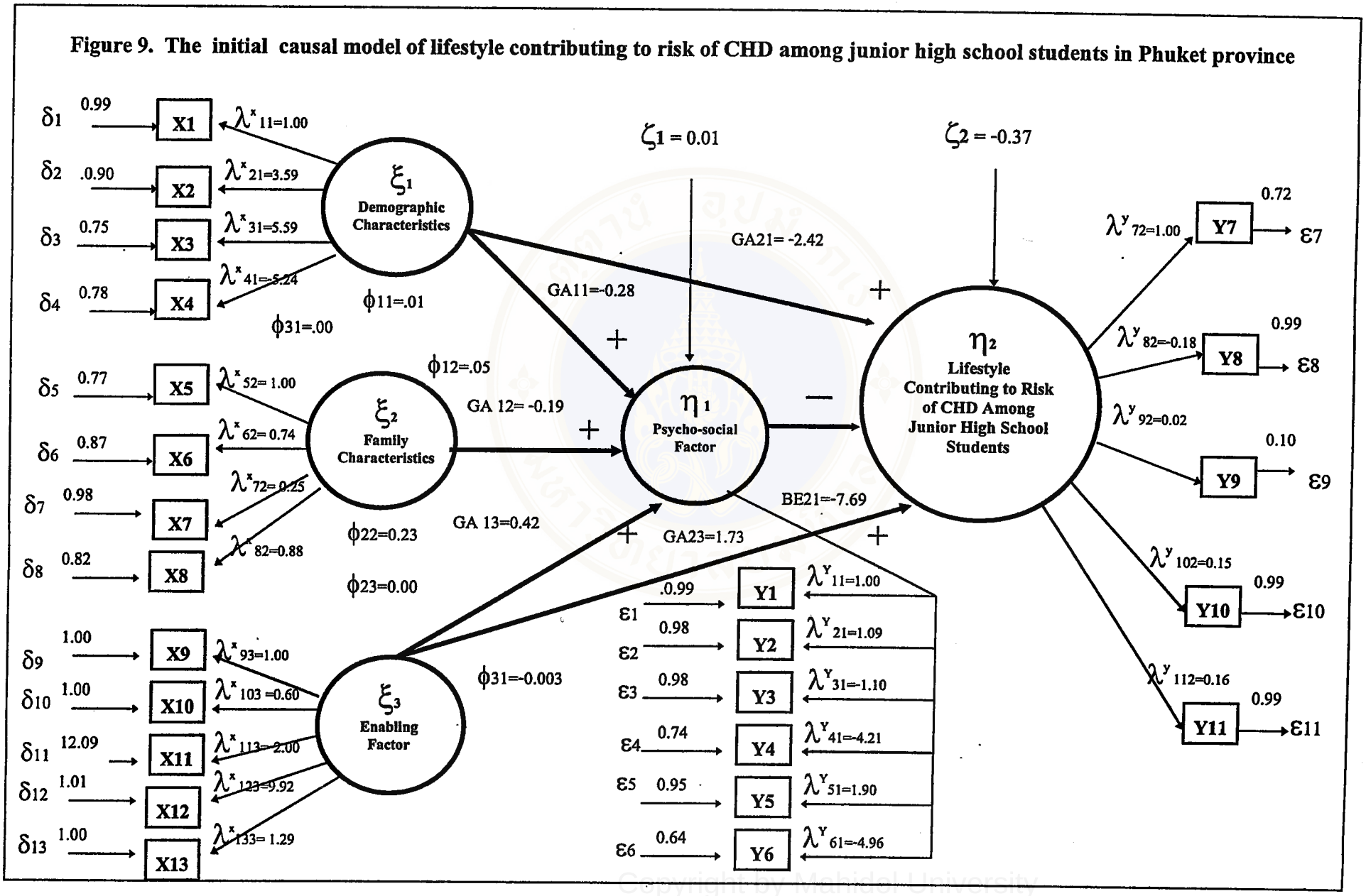
When considerable the relationship of exogenous latent variables and endogenous latent variables in Table 26. We found that the variables of the formality of the health that risked to the family was influenced the most on the latent variables of the psycho-social factor and the factor of life style contributing to risk of in lacking of exercises was influenced the most on the latent variable of the formality of earning one's living that risked to CHD.

Table 26 Total effect, direct effect, indirect effect of exogenous variable and endogenous variables in initial model

	Total Effect	Indirect Effect	Direct Effect
$\eta 1 \rightarrow \xi 1$	0.283	0.000	0.283
$\eta 1 \rightarrow \xi 2$	-0.190	0.000	-0.190
$\eta 1 \rightarrow \xi 3$	0.421	0.000	0.421
$\eta 2 \rightarrow \xi 1$	-4.598	-2.173	-2.425
$\eta 2 \rightarrow \xi 2$	1.457	1.457	0.000
$\eta 2 \rightarrow \xi 3$	-1.513	-3.240	-1.727
$\eta 1 \rightarrow \eta 2$	-7.6862	-0.000	-0.76862

However the result of the analysis of the initial model was found that the chi-square values was high when compare with degree the of freedom though it must be modify the model.

Figure 9. The initial causal model of lifestyle contributing to risk of CHD among junior high school students in Phuket province



4.4.4 Modification of proposed model

From the initial model indicated that, if improve the latent variable, it can reduce the chi-square value and increase AGFI so that the model was closely fit with empirical data. We make a new group of latent variable by considering of the data and related research by cutting X 8, X11, Y4, Y6.

Analytical result from the modified model

The same way analytical with the initial model, it founded the reduced of chi-square value in modified model. Chi's square value (df.69) = 57.0349, p = 0.8477, Goodness of Fit Index = 0.9914, Adjusted Goodness of Fit Index = 0.9737, Root mean Square Residual = 0.02151. The total Coefficient of Determinant for Structural Equation was 0.3252.

When compared the initial model with the modified model, we founded the reduce of chi-square value and the increase of AGFI, this value indicated that the modified model more fit with empirical data than the initial one.

Table 27 Analytical result from the modified model

Measurement Equation					
Unstandardized Equations			Standardized Equations		
Y1	=	1.00 η1 + 0.97 ε1	Y1	=	0.20 η1 + 0.98 ε1
Y2	=	-0.46 η1 + 0.97 ε2	Y2	=	-0.09 η1 + 0.98 ε2
Y3	=	0.67 η1 + 0.97 ε3	Y3	=	0.14 η1 + 0.98 ε3
Y5	=	0.32 η1 + 0.99 ε5	Y5	=	0.07 η1 + 0.95 ε5
Y7	=	-0.10 η2 + 0.99 ε7	Y7	=	-0.01 η2 + 0.72 ε7
Y8	=	1.00 η2 + 0.99ε 8	Y8	=	0.05 η2 + 0.99ε 8
Y9	=	2.53 η2 + 0.98 ε9	Y9	=	0.12 η2 + 0.99 ε9
Y10	=	1.28 η2 + 0.99 ε10	Y10	=	0.06 η2 + 0.99 ε10
Y11	=	0.16 η2 + 0.99 ε11	Y11	=	0.01 η2 + 0.99 ε11
X1	=	-0.69 ξ1 + 0.52 δ1	X1	=	0.00 ξ1 + 0.99 δ1
X 2	=	1.00 ξ1 + 0.01 δ2	X 2	=	0.00 ξ1 + 0.90 δ2
X3	=	-0.63 ξ1 + 0.60 δ3	X3	=	0.00 ξ1 + 0.75 δ3
X4	=	-4.56 ξ2 -19.81 δ4	X4	=	-0.00 ξ2 + 0.78 δ4
X5	=	1.00 ξ2 - 0.003 δ5	X5	=	4.26 ξ2 + 0.77 δ5
X6	=	-2.56 ξ2 -5.57 δ6	X6	=	-10.93 ξ2 + 0.87 δ6
X7	=	-2.84 ξ2 -7.07 δ7	X7	=	-12.12 ξ2 + 0.99 δ7
X9	=	-0.15 ξ3 + 0.98 δ9	X9	=	-0.15 ξ3 + 1.00 δ9
X10	=	0.39 ξ3+ 0.85 δ11	X10	=	0.39 ξ3+ 12.40 δ11
X12	=	0.40 ξ3 + 0.84 δ12	X12	=	0.40 ξ3 + 1.01 δ12
X13	=	1.00 ξ3 +0.004 δ13	X13	=	1.00 ξ3 + 1.00 δ13
Structural Equations					
η1 = -0.0623 ξ1 -0.0768 ξ2 +0.1798 ξ3			η1 = 0.00 ξ1 -1.60 ξ2 +0.88 ξ3		
η2 = -0.3155 η1+0.0011 ξ1 + 0.0227 ξ3			η2 = -1.39 η1 + 0.00 ξ1 + 0.49 ξ3		

Chi's square value (df. 69) = 57.0349 p = 0.8477

Goodness of Fit Index = 0.9914

Adjusted Goodness of Fit Index = 0.9737

Root mean Square Residual = 0.02151

Effect of exogenous latent variables and endogenous latent variables in the modified model

The direction of relationship between exogenous and endogenous variable was the same direction of the initial model as shown in Table 28.

Table 28 Total effect, direct effect, indirect effect of exogenous variable and endogenous variables in modified model

	Total Effect	Indirect Effect	Direct Effect
$\eta 1 \rightarrow \xi 1$	-0.0623*	0.000	-0.0623*
$\eta 1 \rightarrow \xi 2$	-0.0768*	0.000	-0.0768*
$\eta 1 \rightarrow \xi 3$	-0.1798*	0.000	-0.1798*
$\eta 2 \rightarrow \xi 1$	0.0207	0.0196	0.0011
$\eta 2 \rightarrow \xi 2$	0.0242	0.0242	0.000
$\eta 2 \rightarrow \xi 3$	-0.0340	-0.0567*	0.0907*
$\eta 1 \rightarrow \eta 2$	-0.3155**	0.0000	-0.3155*

Remark: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

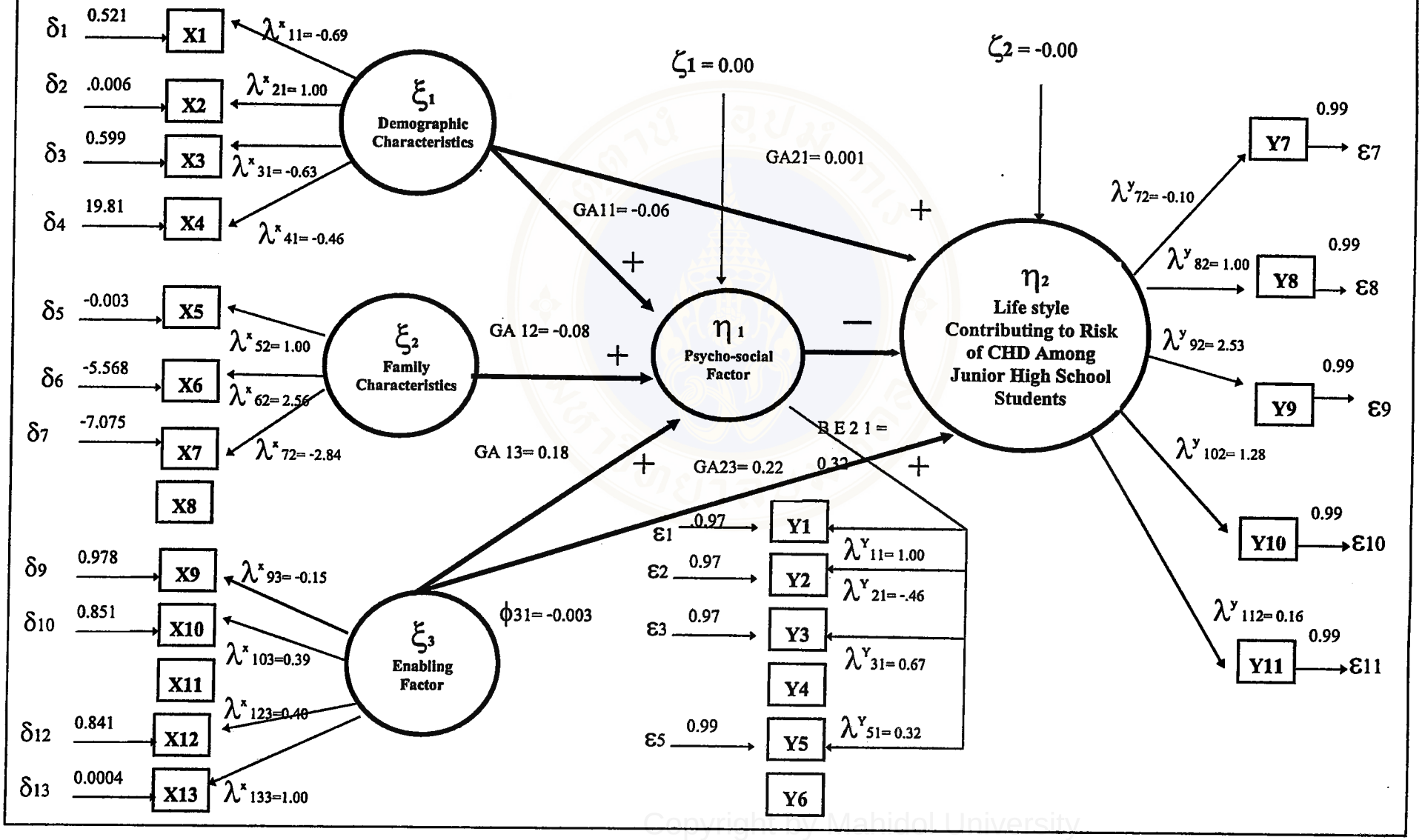
Table 29 Parameter test of modified model

Metrix	Parameter	Unstandardized	Standardized	standard error	t
LX	λ^x11	-0.69	0.00	0.60	-1.1622
	λ^x21	1.00	0.00	0.00	0.0000
	λ^x31	-0.63	0.00	0.55	-1.1476
	λ^x41	-4.56	-0.00	2.25	-2.0314*
	λ^x52	1.00	4.26	0.00	0.0000
	λ^x62	-2.56	-10.93	-1.04	-2.4580*
	λ^x72	-2.84	-12.12	1.11	-2.5587*
	λ^x93	-0.15	-0.15	0.19	-0.7963
	λ^x103	0.39	0.39	0.19	2.0048*
	λ^x123	0.40	0.40	0.19	2.1015*
	λ^x133	1.00	1.00	0.00	0.0000
LY	λ^y11	1.00	0.20	0.00	0.0000
	λ^y21	-0.46	-0.09	0.00	0.0000
	λ^y31	0.67	0.14	0.11	6.0094*
	λ^y51	0.32	0.07	0.13	2.4578*
	λ^y72	-0.10	-0.01	0.37	-0.2602
	λ^y82	1.00	0.05	0.00	0.0000
	λ^y92	2.53	0.12	0.97	2.6006*
	λ^y102	1.28	0.06	0.57	2.2271*
	λ^y 112	0.16	0.01	0.36	0.4352
GA	Υ11	-0.0623	0.000	0.03	-2.0137*
	Υ12	-0.0768	-1.5964	0.03	-2.5024*
	Υ13	0.1798	0.8762	0.04	4.9507*
	Υ21	0.0011	0.000	0.01	0.2384
	Υ23	0.0227	-0.4860	0.02	1.1275
BE	β21	0.3155	-1.3877	0.13	-2.4225*

χ^2 57.0349 df = 69 P = 0.8477 χ^2/df = 0.83

GFI 0.9914 AGFI 0.9737 RMR 0.02151 p<= .05

Figure 10. The modified causal model of lifestyle contributing to risk of CHD among junior high school students in Phuket province



4.4.5 The result of the influence of the variables

a) The influence of the demographic characteristics factor

The result of the analysis was founded that the variable of the demographic characteristics was negatively and directly influence on the variable of the psycho social factor significantly in the statistical way at the level of 0.05. It consisted of direct effect value equalized to 0.0623 and the total effect equalized to the direct effect without the indirect effect. The variable of the demographic characteristics consisted of the total effect on the formality of lifestyle contributing to risk of CHD equalized to 0.0207 by having the direct effect value. There was only a little value of the total effect, the direct and indirect effect insignificantly in the statistical way. It could be concludes that the demographic characteristics factor was not directly influenced on the formality of earning lifestyle contributing to risk of CHD but was indirectly influenced through the psycho-social factors.

b) The influence of the family characteristics factor

The result of the analysis was found that the variable of the family characteristic was negatively and directly influenced on the variable of the psycho-social factors significantly in the statistical way at the level of 0.05. It consisted of the direct effect value equalized to 0.0768. Besides, the family characteristic factor was indirectly influenced on the formality of earning lifestyle contributing to risk of CHD only a little by having 0.0242 for the effect value insignificantly in the statistic way. So, it could be concluded that the family characteristic factor was not directly influenced on the formality but indirectly influenced through the psycho social factor.

c) The influence of the enabling factor

The result of the analysis was founded that variable of the facilitating factor was both positively and negatively directly influenced on the psycho-social factor significantly in the statistical way at the level of 0.05. It consisted of the total effect value equalized to 0.1798 which was higher than other factors. The facilitating factor was negatively and totally influenced on the formality of lifestyle contributing to risk of CHD by having 0.0340 for the total effect value. It was positively and directly influenced on the formality significantly in the statistical way at the level of 0.05 by having 0.0907 for the direct effect value. Besides, the facilitating significantly in the statistical way at the level of 0.05 by having 0.0567 for the indirect effect value. Therefore, it could be concluded that the facilitating factor was directly affected to the formality in the negative way. That was: it the student got higher in the facilitating factor, it would effect them to get lower in the formality of lifestyle contributing to risk of CHD.

d) The influence of the psycho-social factor

The result of the analysis was founded that the psycho-social factor was negatively and directly affected to the formality of lifestyle contributing to CHD significantly in the statistical way at the level of 0.01 by having 0.3155 for the total effect value. It was indicated that the psycho-social factor was negatively and directly affect to the formality. That was, the more the psycho-social factor, the less the formality of earning lifestyle contributing to risk of CHD.

4.4.5 The result of the hypothesis test

The test of influenced path among the variable of the causing model established, they were the demographic characteristics, the family characteristics, the facilitating and the psycho-social factor, including the formality of the lifestyle contributing to risk of CHD from 5 hypotheses of the research by using the program of LISREL in the analysis. The initial model was concerted to the model modify. The details of the diagram, of the model modify were found in the page of 167.

a) The first hypothesis

The demographic characteristics factor was positively and directly influenced on the formality of earning lifestyle contributing to risk of CHD from the Figure 10 and the Table 28 of the page 165 shown that the demographic characteristics factor was positively and directly affected to the formality of earning lifestyle contributing to risk of CHD by having 0.0011 for the direct effect, 0.0196 for the indirect effect and 0.0207 for the total effect. Every effect would be less than 0.05 insignificantly in the statistical way ($p<0.05$). So, the first hypothesis was in part supported and concluded that the demographic characteristics factor was not directly affect to the formality of earning lifestyle contributing to risk of CHD.

b) The second hypothesis

The demographic characteristics factor was indirectly influenced on the formality of earning lifestyle contributing to risk of CHD through the psycho-social factor. From the Figure 10 and the Table 28 of the page 165 shown that the demographic characteristics factor was negatively and directly influenced on the

psycho-social factor was negatively and directly influenced on the factor of the lifestyle contributing to risk of CHD significantly in the statistical way ($p<0.01$) by having 0.3155 for the effect value. So, the second hypothesis was supported.

c) The third hypothesis

The family characteristics factor was indirectly influenced on the lifestyle contributing to risk of CHD through the psycho-social factor. From the Figure 10 and the Table 28 of the page 165 shown that the family characteristics factor was negatively and directly influenced on the psycho-social factor significantly in the statistic way ($p<0.05$) by having 0.0768 for the direct effect value. The family characteristics was indirectly influenced on the factor of the formality of earning lifestyle contributing to risk of CHD by having 0.0242 for the indirect effect value. The psycho-social factor was negatively and directly influenced on the formality significantly in the statistical way ($p<0.01$) by having 0.3155 for the direct effect value. So, the third hypothesis was supported that was: the family characteristics factor was indirectly influenced on the formality of lifestyle contributing to risk of CHD Through the psycho-social factor.

d) The fourth hypothesis

The enabling factor was directly influenced on the formality of earning lifestyle contributing to risk of CHD From the Figure 10 and the Table 28 of the page 165 shown that the enabling factor was positively and directly affected to the formality significantly in the statistical way ($p<0.05$) by having 0.0907 for the direct effect. So, the fourth hypothesis was supported and concluded that the enabling factor

was positively and directly influenced on the formality of earning lifestyle contributing to risk of CHD.

e) The fifth hypothesis

The enabling factor was indirectly influenced on the formality of earning lifestyle contributing to risk of CHD through the psycho-social factor. From the Figure 10 and the Table 28 of the page 165 shown that the enabling factor was negatively and indirectly influenced on the formality of earning lifestyle contributing to risk of CHD significantly in the statistical way ($p<0.05$) by having 0.0567 for the indirect effect. So the fifth hypothesis was supported, that was: the enabling factor was indirectly influenced on the formality of earning lifestyle risky to CHD.

In overview, the result of 5 hypotheses test was only supported by 4 hypotheses: the second, third, fourth, fifth. They were the demographic characteristics factor was indirectly influenced on the formality of earning lifestyle contributing to risk of CHD through the psycho-social factor. The family characteristics factor was indirectly on the formality of earning lifestyle contributing to risk of CHD. The enabling factor was directly influenced on the formality of earning lifestyle contributing to risk of CHD and the enabling factor was indirectly influenced on the formality of earning lifestyle contributing to risk of CHD through the psycho-social factor. The hypothesis that in part supported was the first hypothesis. This was the demographic characteristics factor was positively and directly influenced on the formality of earning lifestyle contributing to risk of CHD but it was not indirectly influenced on the formality of earning lifestyle risky to CHD.

CHAPTER V

DISCUSSION

5.1 THE CHARACTERISTIC OF THE SAMPLE GROUP

The sample group of this study was the average age of 13.92, being the teenagers who were the ages in crisis of their lives. This was because they had many alterations, in the physical, mental, social way including their behaviors. They wanted to know and try on many things. These affected them to occur the risk taking behaviors. For example, smoking, drinking alcohol, using the drugs in the easy way. The peer group was highly influenced on their behaviors (Elkind, 1967: 1025-1034; Marshall & Tanner, 1970: 13-23).

This sample group was a group of the students who studied in the secondary level (Mathayom1-3) in Phuket. Most of them were from the family in the moderate economic status, that was having enough income and saving. They lived with the single family whose parents and children were alone. It was corresponded with the formality of earning life style of the general Thai people who tended to covert to the single family more and more.

It was tended to convert into more single family, it made the family's size decrease respectively. The average amount of sisters and brothers was 2.73 persons. Most of the parents had the education which the father had the educational level higher than the mother only a little, 1.9 per cent of the father and 0.9 per cent of the mother for the illiterate. Most of the fathers were employed and the mothers were commercial, showing that most of the sample groups came from the families of the medium class and the moderate status. It could be seen that having the data was identified by the poor status only 7.9 per cent and having the problem of liabilities only 6.5 per cent.

Nevertheless, these answers were only done by the students' sensibilities to their families' status which were not evaluated in the real economic way. Most of the sample groups had the normal BMI level, 5.4 per cent for being fat (BMI>25) and 1.1 per cent for being very fat (BMI>30). The history of the sickness of being CHD of the direct relatives, such as: the parents, the brothers and the sisters of the sample groups who had the history of the sickness of being CHD or heart attack condition was confirmed by the modern medical doctor only a little for 10.5 per cent.

5.2 THE LIFESTYLE CONTRIBUTING TO RISK OF CHD

The result of analyzing this formality of 5 factors was found that the students who studied in the junior high school in Phuket had the lifestyle contributing to risk of CHD in the high level ($\bar{X}$ = 8.9043, S.D. = 4.2174, MIN = 0, MAX = 17, Skewness = 0.085, Kurtosis = -0.574) by having the high risk for 51.9 per cent (there were at least 2 factors up of the important formality), the moderate risk for 40.0 per cent (there was one factor of the important formality, and the less risk for 8.2 per cent) (especially in the unimportant formality) which was arranged in chronological order in many factors as followed: 92.7 per cent for the most risk of caffeine intake, 73.1 per cent for the risk of eating with fat and high energy, 53.5 per cent for the risk of lacking of exercises, 30.7 per cent for the risk of cigarette smoking and 10.6 per cent for the risk of drinking with the mixture of alcohol respectively. The male persons had the risk to the formality of earning their livings more than the female persons for 0.37 times (95 per cent CI = 0.709-2.842). This finding were corresponded with the study of Muhlenkamp & Broeman (1988: 637-646) which identifying that the different sexes had the different formality of earning their living that risked to CHD. It was found that the female persons had more positive behaviors.

The group which had the good academic achievement was the average grade point of the last term more than 3.00 having this formality more than the group which had the average grade point of the last term lower than 3 for 4.15 times (95 per cent CI = 2.958-6.596). This can be explained that the group of the good academic achievement did the activities of reading the books, working arts and the activities for the high society by having less movement of the body. The group of the poor

academic achievement spent the time for doing the activities of entertainment and playing sports more and more, this made the group use more force and a lot of activities (Humphrey, 1959: 158-231). So that the less affect to lifestyle which risk for CHD.

The group with the history of illness of being CHD of the direct relatives had the formality more than the group without history for 1.46 times (95 per cent CI = 0.867-2.441). It was similar to the study of Anukoolwithipong (1997: 89) who studied the risking behaviors of being CHD of teenagers groups in the secondary level in Bangkok, finding that teenagers in Bangkok had the risking behaviors of being CHD in drinking caffeine, eating the food with fat and lacking of exercises in the moderate level, for the least in smoking, drinking alcohol.

Although the result of analyzing the risk in overview was different, that was: the research of Monticha was found that all risks of every factor of the secondary students in Bangkok was in the low level but in the high level for this research. This was because there were some differences of the age group, social cultural and the principle of the measurement factors.

The factors which were facilitated to the formality of earning one's living that risked to CHD in high level were most of economic status of the sample group were in the moderate principle fairly good, this made the sample afford enough money to buy the facilities for themselves. So, the formality of earning teenagers' livings that highly risked to CHD including having the suitable factors facilitated to the opportunity of their growth might be affected to be CHD in adult age fairly high. This was because CHD was not contagious having the effect of this nature in the long run.

The factors which were occurred being CHD were the sufficient and necessary factors affected to the long run. So, it was very necessary for re-improving these formalities which were considered in details of each factor of these formalities in order to analyze the factors and try to find the way to improve in details of each factor. The researcher presented the proposal of the resulting discussion of the formality of earning one's living that risked to CHD in each factor by arranging in the chronological order from the high risk level to the less risk level as followed:

5.2.1 Caffeine intake

Caffeine intake is meant by drinking tea, coffee, cocoa, chocolate, drinks giving the power or aerated water which are composed of the quantity of caffeine more than 100 milligrams per day. The result of the analysis was found that the risk of drinking with mixture of caffeine of the secondary students in Phuket for the highest of 92.7 per cent.

The male students consumed caffeine intake more than the female students for 0.38 times. The sample group consumed in drinking chocolate, cocoa for the most of 42.7 per cent, the subordinate was 42.1 per cent for aerated water in the category of cola and 15.2 per cent for drinks giving the power. It was corresponded with the qualitative data for most students answering that

"They must drink coke every day because of teenagers' value" as saying

"The new generation teenagers must drink coke and pepsi, if they don't, they will be old-fashioned".

They drink them everyday although they are expensive. Most of the sample groups were studying and spending their lives and time outside home, when they were thirsty, they favored to buy aerated water. They thought that it was cleaner and safer than other types of water with its taste including the influence on the advertisement of mass media and social marketing which competed among the productive companies. They tried to convince teenagers to drink including having fairly good economic status of the sample groups, it made them have their capabilities for buying easily.

Besides, they did not know that there was some mixtures of caffeine in coke and chocolate milk and they didn't know whether caffeine was the leading cause of being CHD. such as:

"We often drink coffee and coke, sometime drink tea too.
Well, is it a part of being CHD? We drink coke every day".

It was the important reason why the risk of drinking with the mixture of caffeine was higher than other factors and drinking caffeine was affected to be CHD by occurring the quantity of cholesterol in the blood vessel (Tverdal, et al., 1990: 566-569).

The study in Thailand of Rakchanyaban (1997) who studied the relationship between drinking coffee and coronary heart disease form the out patient group of hospital and the group of inpatient who had the sickness of being CHD, comparative group which had no sickness of being CHD. The study was found that the person who drank coffee 1 cup of coffee per day risked being CHD for 1.42 times (95 per cent CI =1.12-1.81) of the person who did not drink coffee. The high risk was depended on the quantity of drinking more coffee ($p<0.05$). If anyone drank roasted coffee bean

and well-made coffee for 1 cup of coffee per each day, there would be the difference of the risk of being CHD by having 1.6 times for the risk of drinking roasted coffee bean person (95 per cent CI = 0.56-4.49), 1.4 times for the risk of drinking well-made coffee person (95 per cent CI = 1.10-1.78) of non-drinking coffee person.

Even though drinking with the mixture of caffeine was not highly related to be the risking factor to CHD and the unimportant component of being CHD, the issue of the main problem of the sample group was a) teenagers in the educational institution had no knowledge which some drinks had caffeine b) how caffeine was the part of being CHD, they are the problematical issues which will be found the way to improve clearly next time.

5.2.2 Eating high saturated fat and high calory

The result of the analysis was found that most sample groups had the high risk level of the lifestyle contribution to risk of CHD in the eating high saturated fat and high calory for 73.1 per cent by having the supportive behavior of the consumption, that was the amount of meals for eating the food, finding that 33.3 per cent for the person who ate the food more than 3 meals per each day, the quantity of the food for the most eating in each meal, finding that 46.3 per cent for the most eating in dinner meal, 37.77 per cent for lunch meal and 13.6 per cent for breakfast meal.

It could be explained that the way of life of the modern society had to be hurried on working outside home so there was no time to prepare the food. Most of breakfast meals of teenagers had only coffee with bread, most of lunch meals of teenagers bought the food for eating at school and could not chooses to eat the food

with low fat for 45.5 per cent. The reason that every food shop which sold at school was the food with high fat being up to what the cooked for eating, the amount of food was limited, hurried to buy otherwise it was run out, there were the amount of the children so they had to stand in line. It they delayed buying, there were not in time.

Some schools had the food project for lunch meal, students identified that it's up to their teachers, it made them depend on their school too. So they could not determine the list of food by themselves. Some students were substituted by drinking sweet drinks with sweet meats or hors-doeuver which these kinds of food were composed of high flour, fat and sugar. This mad them feel full and not want to consume the main food which they returned to have the additional dinner.

Besides, there were the important factors facilitated. The inspiration of the taste was the main inspiration of the same group's choice in eating the food for 60.8 per cent, answering that they chose the delicious food and they chose the delicious food and they often ate the food in the family. When the inspiration was not considered in food value, the opportunity of the sample group for eating the delicious food without being valuable was highly potential. The advertising media had the high role for making a decision in the sample group's consumption. Besides, food with was sold in the general shop was food with high fat and sugar.

The media which was mostly affected to eating the food of the sample group wad advertising poster in front of the shop. This circumstance made the risk level in eating the food with fat and high calories which was similar to the United Stated, found that 11 per cent for the children at the age of 6-17 underwent the problem of the overweight condition.

The fat condition of children and teenagers was related to blood cholesterol level, blood pressure level and other healthy problems, such as: respiratory disease, CHD and the increasing rate of death in adult age. (Nieto, et al., 1992: 201-203) The female persons had the formality of earning their living that risked eating the food with fat and energy higher than the male persons only a little.

The persons who got the good academic achievement had the risk of eating the food with fat and high calories more than the persons who got the poor academic achievement for 2.92 times (95 per cent CI= 1.0808-4.723). This was because there was no realization of the importance and usefulness of eating the food seriously including being hurried working against time, the convenience of buying well-made food, working against time, the convenience store of buying well-made food, these made them got more risk level.

Besides the qualitative data was identified that the sample group had the wrong value of eating food

"Good and expensive food had to be sold in the luxurious places"

Thai people appreciated the outward appearance more than considered the real components or characteristics of the behaviors for eating fast food. Teenagers gave the reason that it is delicious most, teenagers liked eating, it's new-fashioned, they followed to TV and it's good convenient. Besides, there was the data of the research, indicating that the female persons who were on diet had the rate of the first smoking higher than the persons who were not on diet.

The use of the method for being on diet was commenced in the children group at the age 9 which was wrong and had a lot of follow-up result. It was corresponded with the qualitative research by interviewing the group of this research, finding that the sample group of the girl students had the use of Ya-bha for being on diet, as saying:

"When eating Ya-bha, I didn't want to eat any food, I didn't sleep, the symptom was like the drunkard"

"This made them thinner and some persons took them for being on diet" .

The best way of being on diet which they ate any food by eating the food with low fat, a lot of vegetables and fruits. This was because they lack of the right knowledge, this made them get more risking behaviors. So, it could be seen the problem of the formality if earning their living in the consumption of food was the complex problem and continuously affected to the following results, So, it was necessary for the proceeding of having the good behavior for eating childhood. If they grew up, their risking behaviors of eating and exercising would be difficult to change.

The proceeding of the encouragement for eating and exercising in the children and teenagers not only protected the cause of sickened and the death but also reduced the expense of health and developed the quality of life. The school was the importance part of the society for adjusting and modifying the behaviors of the children's consumption. It could not be attained these objectives solely if there was no cooperation from the families, the communities and the owners of the food shops.

5.2.3 Lacking of exercises

The risk of lacking of exercises of the junior students in Phuket was in risking level for 53.5 per cent which the female students risked lacking level for 53.5 per cent which the female students risked lacking of exercise more than the male students respectively. (Odd ratio male: Female = 0.562, 95 per cent CI = 0.632-1.175). It was similar to the student's survey in the United States, finding that 52 per cent for girls and 74 per cent for boys of exercising at least 3 times per week.

The rate of exercises for both the female and male persons was tended to decrease when teenagers reached. For the children at the age of 12-13 exercised for 69 per cent decreasing only 38 per cent when they would be at the age of 18-20 , they were the students who studied in the grade of 9 exercising for 72 per cent which decreased only 55 per cent for the students of the grade 12. It might be said that the risking rate of lacking of exercises would be increased when they reached to teenagers.

The international conference of exercising had the suggestion for teenagers that "every teenager has to exercise nearly everyday which may be the part of playing games, sports, working, travelling and physical health". They should exercise for 3 days or up per each week and take the time at least 20 minutes per each time.

In general exercising is affected to protect CHD, that is exercising per each time must be continued treating at least 20 minutes long and not over 1 house. Suitable exercising should be made heart beating quicker approximately 70-85 per cent of the maximum rate of heart beating (Srisaengnarm, 1994: 86). The sample

group which often exercises gave some reasons of 44.9 per cent for health, for an enjoyment and encouraging the personality which were the subordinates.

The group having the persons in the family without exercising risked more than the group having the person in the family without exercising risked more than the group having the persons in the family with exercising for 1.11 times (95 per cent CI = 0.802-1.539). This could be explained that the opportunity of the access of exercising for the children group having the persons in the family with exercising was more convenient than the children group having no imitated persons in the family or accompanying with the exercising altogether.

From the qualitative data of exercising, the children identified that having the friend join with exercising, could be made them joyful and not bored. It was corresponded with other researches, identifying that the relation among the individuals and environment factors were positively affected to exercise for the children including the support of the children group. For the aged children and teenagers, exercising was positively related to exercise of brothers and sisters parents and other teenagers.

Therefore, the persons in the family and the children group were very important for exercising of the children. Moreover, the value of the population's sedentary lifestyle in Phuket was effected to exercise. Noticing that the population in Phuket including teenagers didn't like walking, they used their motorcycles instead. One family had the average of 2-3 motorcycles by giving the reasons that they were afraid of their friends to look down upon including wasting the time.

When considering the economic way, most of them were in the moderate status fairly good, so these were the factors which were facilitated to have the risk lacking of more exercise. For the sample group with the good academic achievement, that was academic achievement with the grade of 3 up risked lacking of exercise more than poor academic achievement, level for 2.62 times (95 per cent CI = 1.799-3.815), explaining that the good learning students' groups were not mostly interested in exercising. They spent most time for reading their books. Exercising wasted the time for learning so it made the risking level of being CHD in lacking of exercise high. Inside the house was the most exercising places, public park and gymnasium of schools were the subordinates.

The persons who were not the sportsman risked more than the persons who were the sportsman for 0.68 times (99 per cent CI = 0.469-0.992). The category of sports in schools, they were takraw, basketball, volleyball, chair-ball, table tennis, ball, running, athletics, swimming gymnastics, football, badminton, aerobic, playing clubs and swords and elasticity which most students' particularly played in schools in the learning period. The school should have been the role of the relation for learning system in the school which made the students have the behavior of exercising as their ways of lives including the cooperation and other contexts.

5.2.4 Cigarette smoking

For the risking level of being CHD in the sample group's the smoking rate was 30.7 percent, by having 11.3 per cent for the male persons and 19.4 percent for

the female persons which were the total result of the risking marks in smoking and in passive smoking. The most risky marks class of being CHD in smoking was the junior high school level or Mathayom2 (17.9 per cent), 6.6 per cent for Mathayom3 and 6.2 per cent for Mathayom1. It could be explained that the students in Mathayom 1 had the low risking level because they passed from their childhood only 1 year and the family was highly influenced on the students' behaviors. The student in Mathayom2 at the age of searching self-identity and wanted to present other people to know that they were grown-up so it was easy to have the behavior of the deviation.

The students in Mathayom3 might find out their individualities. Therefore, the students in the late Mathayom1 to Mathayom2 were the important turning points of lives. If they were well taken care of passing this age, the risking opportunity of having the behavior of the deviation might be decreased. For the learning groups from the family which had enough income and saving from the rest of being CHD in smoking and 1.2 per cent for not enough income of being CHD in smoking.

It could be explained that the fairly good moderate status group had enough economic status for them who could find the cigarette to smoke and highly enter to passive smoking places, such as: entertainment places. For academic achievement, finding that the group with the poor academic achievement risked being CHD in smoking for 2.28 times of the group with good academic achievement (95 per cent CI = 1.584-3.293). It could be explained that the group with the good academic achievement was highly interested in learning, had no time for doing other activities even exercising, 11.3 per cent for never smoking of the sample group in the family,

7.1 per cent for the persons who used to smoke but now they don't smoke and 12.3 per cent for the persons who are smoking now.

The result of the analysis was found that the sample group having the persons in the family had the risk being CHD in smoking more than the sample group having no persons in family for 1.16 times (95 per cent CI = .747-1.495). It was shown that smoking of the person in the family was influenced on the risking level of being CHD in the children's smoking. There was the research indicating that they were influenced on their parents' smoking, this made them have the good attitude of smoking. This relation was found when they were at the age of three. The researcher compared with smoking children and non smoking children twice finding that teenagers who had their parents stop smoking smoked less than teenagers who had their parents smoke. Canned and chocolate in the form of the cigarette model were the first experience of the children who initiated to smoke of adults.

Kandel & Wu (1995: 225-252) were found that children whose parents smoke are more likely to be smokers than children whose parents do not smoke. Maternal smoking has a stronger effect than paternal smoking on smoking by young adolescents, and has a stronger effect on daughters than on sons. Perceived peer smoking is an important determinant of a child smoking, especially for boys. When considering particularly in the sample group with active smoking was found that the sample group of smoking which had the risk of being CHD more than the sample group without active smoking for 1.28 times (95 per cent CI = 0.746-2.189).

It was founds that the rate of the same group's smoking was 11.7 per cent classified by the male persons of 7.26 per cent and the female person of 4.44 per cent (The proportion of the male persons to the female persons equalized to 1.63 times). It was lower than the rate of smoking from the report of other sources, for example, from the result of surveying the behaviors of the Thai people's smoking in 1996, finding that the rate of smoking of male teenagers at the age of 15-19 was increased from 16.5 per cent in 1993 to 18.3 per cent in 1996.

The average age of the commencement of regular smoking was 18.4, the average amount of cigarettes of the commencement in smoking per person and per day was 12.2, when comparing with the survey of smoking of the students in Mathayom1-5 being subject to the department of elementary and adult education in Phuket, surveyed by the Office of Public Health (1996: 17) was founded that the rate of smoking was 14.3, 20.9 for the male smokers, 5.6 per cent for the female smokers (the proportion of the male persons to the female persons equalized to 3.73 times)

When comparing with the rate of smoking, it was found out of this research, the remarkable issues was that the rate of the male smokers was lower than the reports from other sources. When considering the proportion of the male smokers to the female smokers was found that it was less different from 3.73 times to 1.63 times. This showed that the rate of the female smokers were highly increased when it was compared with the gender proportion. It might be explained that the female junior high school students tended to smoke highly which was corresponded with the qualitative data gathering from the group interview of the female students' smoking

more than 10 per cent, as saying:

"My closed friends in the same classroom smoked more than 10 persons, also ate Ya-bha too" "They smoke 1 pill per time."

"The method was taking some foil to roll, fire was floated, taking fire to burn at the end and then smoked, at last it was turned in to the black color."

"Joy my friend wanted to smoke 10 pills per day, she would buy from the producer. She could pay 800 baht when she bought 10 pills."

"It anyone was addicted, he would do everything for pep pills. Some persons took their necklaces to sell when they wanted to smoke."

The less rate of the male smokers might not be the real phenomenon because the school with boy students in Phuket had the strict regulation of the proceeding which made the students not dare to answer the reality, be afraid of having the effect to their learning.

From the qualitative questionnaire, was found that there was the controversial data by having the students identify that ***"most junior school in Mathayom2 smoked".*** The result of the study was similar to Chapilmund, et al. (1990) who studied the epidemic extension of drug addition of children and youths group in the quarter of crowded communities in Bangkok Metropolitan for 600 persons, finding that most addicted children and youth were the male persons who had the educational level lower than Prathom 6 at the average age of 16. Mostly, they used some cigarettes and various kinds of drug altogether and also used the vaporous substance as the tools of relaxing for the tense when they had to face with the problems. They commenced using drugs at the age of 11-14, their friends who used these drugs were the persuaders for using them for the first time.The children and youths' sensibility of

using them for the first time accepted that they wanted to try out. The study was found that the most inspiration which was affected the children and youths' addiction was:

"They followed to their peer or their closed friends" and *"They were convinced by their peer or their closed friend for using drug",*

"They want to try out how they were."

"They felt smart and elegant when using them" , and

"They had a lot of their addicted friends who persuade them to use"

And the factors which were very important for affecting to the epidemic extension of the children and youths' drugs were ***"the impression from the movies which had the contents concerned with drug"*** being the drug retailer had the opportunity of using having their drug friends made the students have opportunity of using.

Therefore, the closed friends' group was highly affected to the drug addition. From interviewing the group, a student answered that ***"He could buy the cigarette easily at the shop near school or at the general shop"*** showing that it was easy to have an access of the cigarette.

The qualitative data from the female students who told the cause of smoking to the researcher that ***"Being persuaded by some friends and being the friends' group outside school."*** The characteristic of the persuasion was giving him a cigarette and saying that ***"Trying out could relax for the tense and make you feel better"*** When the friend didn't smoke, he was forced by saying that:

"If you didn't smoke , you could not joy with the group."

The danger of the cigarette from the study of some countries was indicated that 4-5 persons who smoked approximately 100 cigarettes would be addicted within 2 years latter and the half of them will be smoking until 20 years latter. It was meant that he half of teenagers who was addicted cigarettes will be smoking when they are at the age of 35. Besides, smoking had the power of predicting to drink whisky, use other drugs and be the responsive relation. Cigarettes brought many losses.

The economists joined with World Bank to evaluate the value of loss owing to every ton of cigarettes of tobacco produced, This made the smokers lose their lives for 0.65 persons or every 1,000 tons made them lose their lives for 650 persons. The direct loss was Medicare expenses and the indirect loss was the loss of opportunity because of the loss of life before being the suitable age. So, it was necessary to find the way for protecting the children before everything was too late. The antisepsis was the best rampart was the love and warmth in the family.

5.2.5 Drinking alcohol

The risking level of being CHD in drinking alcohol was in the lowest level by having 10.7 per cent for the rate of drinking alcohol. It was different from the research of Tinsakul, et al. (1987) who surveyed the secondary and higher educational students in the educational institution, being subject to Ministry of education in educational year of 1996, found that the used drug group mostly had the behavior of drinking whisky for 23.1 per cent, cigarettes for 19.0 per cent, marijuana for 5.5 per cent.

This research was found that the female persons drank alcohol higher than the male persons for 1.11 times (95 per cent CI = 0.673-1.840), 6.0 per cent and 4.6 per cent respectively. It was highly related to the risking rate of being CHD in drinking alcohol in the school of girl students. The subordinate was the school of boy students and the least was the school of both boy and girl for 5.71 per cent, 4.5 per cent and 0.5 per cent respectively. It was corresponded with the value of the female persons who changed into the fashion. From the group interviewing, identifying that:

"Every female person had to protect herself, could drink whisky and beer, when in club or other places, we were accused of non-drinking, sometime go with friends, if couldn't drink, it was old fashioned, or when go to disco-theque if you ordered some milk, ha! ha! very old fashioned"

For birth order it was found that the eldest had the risk of drinking alcohol higher than the next order of the children for 1.16 times. It was corresponded with the study litter, who examined the relations among the order of the children and the amount of brothers and sisters in the same family with drinking alcohol of 549 teenagers. It was found that there were only a few students who had the level of using alcohol lower than the average.

The family with three children had the average of using alcohol higher than the average of all three children, The family with 2 children, the eldest had the level of using alcohol lower than the average, the second one was higher than the average of the third one. But this research was found that the persons in the family drank alcohol risking to CHD less than the sample group with having non-drink persons in the family only a little for 0.92 times. The sample group with having the poor

academic achievement more than the good academic achievement for 2.99 times. The smoking group risked drinking alcohol more than the non-smoking group for 8.25 times. Most of the drinking whisky persons lived with the friends' group lonely of lived at the dormitory.

The reasons of drinking whisky were the society, the need of the friends' group, the enjoyment, the curiosity and following to their friends were 27.54 per cent having birthday and New Year parties were 11.9 per cent Most of them drank beer, the subordinates were whisky and wine respectively. The data from interviewing the male persons' group, telling the cause of drinking whisky at the first time to the researcher that

"The persuasion from their friends, we had 3-4 closed learning friends. All that time, we were at the beach, playing the quitar, roasted some chicken, we enjoyed drinking, we had and appointment to drink whisky, so we were happy. Once we were in the late Mathayom, we had ever tried out drinking, we have been drinking whisky since then."

5.3 THE FACTORS INFLUENCED ON LIFESTYLE RISKY TO CHD

The causing model of this research was made under the boundary of 6 theoretical conceptions theory (on the page 92) in order to study the influence of the exogenous latent variable of the demographic characteristics ($\xi 1$), family characteristics ($\xi 2$), the enabling factor ($\xi 3$) and the endogenous latent variable of the psycho-social factor ($\eta 1$) influenced on the formality of earning lifestyle contributing

to risk of CHD ($\eta 2$). The result of the analysis was found that the modified model (on the page 167) could predict the formality of the junior high school students in Phuket for 32.52 per cent, finding that the psycho-social factor ($\eta 1$) was directly influenced on the formality of earning lifestyle contributing to risk of CHD for the most (β = -0.3155, $p<0.05$) and the subordinate was the enabling factor was directly influenced on the formality of earning lifestyle contributing to risk of CHD.

The most undirected influence was the enabling factor through the psycho-social factor ($\eta 1$). The subordinates were the factor of the demographic characteristics ($\xi 1$) through psycho-social factor ($\eta 1$) and the family characteristics factor ($\xi 2$) through psycho-social factor ($\eta 1$) (β = -0.0242, $p< 0.05$).

5.3.1 The influence on psycho-social factor ($\eta 1$)

The psycho-social factor was composed of the observed variable of Y1, Y2, Y3, Y4, Y5 which was influenced on the formality of earning their lifestyle contributing to risk of CHD. For the most, Y3 and Y5 had the most influence significantly in the statistics way, meaning when the psycho-social factor was increased by one standard unit, it would make the lifestyle contributing to risk of CHD decrease 0.3155 standard unit.

The result of the research was supported the directness of the theoretical theme set which was composed of six theories and corresponded with other research, identifying that the psycho-social factor was directly influenced on the behavior of exercising through the perception of the usefulness of exercising and the perception of obstacle of exercising. Pender (1996: 215) identified that if anyone perceived the usefulness of habits of consuming good nutrition food, it would make him choose for

eating useful food very well. Sallis, et al. (1992: 25-32) found that self-efficacy and the perception of the obstacle were affected to exercise but it was controversial with Garcia's research (1995: 213-219), identifying that self-efficacy of teenagers' group had no relation with the exercising behavior.

It was similar to this research, identifying that the effect values with the statistical significance were self-efficacy and health value. The perception of the obstacle of earning their livings that risked to CHD (Y2) had no the statistical significance. Besides, Biddle, et al. (1994: 160-163) funded that the predictor of exercising behavior. For the male persons had only the attitude. Jenkins, et al. (1968) studied teenagers in the grade of 9-12 in the United States, finding that there were many relations between the drug addiction and self-efficacy.

The frequency of drinking beer and marijuana were depended on self-efficacy and anger. Murdaugh & Hinshaw (1986: 19-23) found the relations among health value, smoking and exercising which were corresponded with Martin & Cottrell (1987: 6-9), finding that the average of teenagers give moderate health value. Teenagers who gave high health value had the behaviors better than teenagers who gave low health value. This explained that teenagers with psycho-social factor (Y3, Y5, Y1, Y2) were affected to decrease the formality of earning their lifestyle contributing to risk of CHD.

5.3.2 The influence of the enabling factor ($\xi 3$)

The enabling factor ($\xi 3$) was composed of the amount of hours of watching TV, per day (X9), the convenience to the formality of earning one's living that risk to

CHD (X10), the perception of pressure from the peer (X13) which were directly influenced on the formality of earning lifestyle contributing to risk of CHD and subordinated form the psycho-social factor (β = 0.0907, $p<0.05$). Besides, the enabling factor was indirectly influenced on the formality through the psycho-social factor (β = -0.56, $p<0.05$): that was, the findings which accepted the fourth hypothesis and fifth hypothesis were found that the perception of the pressure from peer (X13) had the most effect value significantly in the statistic way (χ^2 = 0.3987, $p<.05$). The subordinate was the factor of available to the formality (X10) (χ^2 = 0.3865, $p<.05$) which was corresponded with Lau's research, finding that the friend's group was highly affected to the consistent level of changing the behaviors. Whiteside, et al. (1994) tested the theoretical model of the secondary students who had the behavior of the deviation, this made them have more behaviors of the deviation and could be led to commit the crime. Takayo (1996: 309-324) founded that the peer group in the grade of 10-11 was mostly influenced on eating but the students in the grade 7-8 were more influenced by their mother.

5.3.3 The influence of the demographic characteristics factor (ξ1)

The finding refused the first hypothesis but accepted the second hypothesis: that was, the latent variable of the demographic characteristics (ξ1) was not directly influenced on the formality of earning lifestyle contributing to risk of CHD (η2) but negatively and indirectly influenced on the formality of earning lifestyle contributing to risk of CHD through the psycho-social factor.

The result of the analysis of the first hypothesis was controversial with the theory of the health belief model and Pender health promotion model, identifying that the variable of the demographic characteristics were directed to the formality of earning lifestyle contributing to risk of CHD. The demographic characteristic were composed of gender variable (X1), the birth order (X2), the personality (X3) and academic achievement (X4), explaining that 3 theories mentioned were unidentified to the factor affected to the formality of the behavior for the general people but were not identified the clearance of the age groups. Mostly, it was studied by adults whose behaviors were in the periods of more changing and were identified unclearly in this behavior (Charles, et al., 1990: 349), finding that it was correspondent that was: if teenagers had risk-taking behavior, they would get from 2 factors: a) the psycho-social factor in the perception and the perception of self on individuality b) the peer group characteristic factor which was the demographic factor in the development and readiness of the body directly affected to the psycho-social factor so, taking the theory to apply thought over age group with the specific characteristic, especially in teenagers' group which were entering to the process of adapting the behaviors from childhood to adult. And then, they differed in details more than other groups.

The conclusion shown that demographic characteristics was not directly influences on the lifestyle contributing to risk of CHD but indirectly influenced through the psycho-social factor. It means that if demographic characteristics factor and psycho-social factor, were increased in one standard unit, this made the risking level of the lifestyle contributing to CHD increase 0.02 standard unit. The observe variable which could be best explained was academic achievement.

5.3.4 The influence of the family factor (ξ3)

The family characteristics factor was indirectly affected to the formality of earning their lifestyle contributing to risk of CHD through the psycho-social factor by having the effect value. (β = -0.0242, $p<0.05$). This finding accepted of third hypothesis which was corresponded with the theory explaining that the family characteristics factor and psycho-social factor were increased 1 unit, they made the formality decrease 0.0242 unit.

It was similar to Pender's research who concluded that the persons with the good economic status could have an opportunity in search for the useful things for self-attention. They could facilitate to the individual for self-attention, this made them get enough food including suitable service and the ability to provide the things and the instruments for facilitating and promoting self-attention better than teenager student whose families had low economic status.

But the study of Moombarnchao (1994: 65) studied the problems of teenagers' behavior, finding that the parents' income had no relation with the problem of the behavior. This above finding warned for being aware of the theoretical conclusion that it might not be reasonable if there were not to control of the confound variables. They might be the indirect causes. Besides, it was the warning to know that only family factors or individual factor could not be quarantined to affect to the formality of earning their lifestyle contributing to risk of CHD.

CHAPTER VI

CONCLUSION AND RECOMMENDATION

This chapter present on 2 major parts describing conclusion and recommendation. First the conclusion composed of a) approach and research methodology that use the correction research analyzed by LISREL program b) overall research finding. Second composed of a) recommendation base on the finding b) recommendation for policy formulation c) recommendation for the research methodology and future research.

6.1 CONCLUSION

6.1.1 Approach and research methodology

The purposes of this study is to analyze a relates lifestyle to the risk of CHD. The different theoretical perspectives from psycho-social part and behaviorals part have been integrated in to this conceptual framework. The researcher employed structural equation models to address the latent variables between demographic characteristics factor, family characteristics factor, enabling factor and psycho-social factor on lifestyle contributing to risk of CHD, which composed of 5 observation variables as: lack of exercise, eating high saturated fat and high calory, cigarette smoking, drinking alcohol and caffeine intake.

Data were collected from 648 junior high school students studying in Mathayom1-3 level in Phuket province. Correctional oriented research using in this research. The individual is the unit of analysis, both qualitative and qualitative used in this study. This data were collected using the questionnaire and group interview.

Questionnaire were the important instruments of this research. They were from the theoretical conception and the literature concerned, then 5 experts who examined and modified them, were composed of expert in heart disease, expert in instrument & measurement research methodology, expert in behavior science and expert in physical education. Convinced that these questionnaire were construct and content validity for measuring various variables of the model.

Then the researcher took these questionnaire to find out the reliability in other Mathayom1-3 students from other junior high schools in Phuket. It was found that the equipment consisted of the high reliability.

The analyzing data was composed of the basic analyzing data by the program of SPSS for windows, and the analysis the influence for comparing with the direct and indirect variables by the program of LISREL. Structural equation modeling was the major analytical in this study. Because some of the measures were ordinal, therefore polycholic or polyserial correlation were used. And the maximum likelihood (ML) was the method to estimate the parameters for the total sample.

6.1.2 Overall research finding

6.1.2.1 Background of the population

The analysis of data about the background of the population family society economy of the sample group founded that the average age of the sample groups were 13.92 years. 81.8 per cent have respected Buddhism. They lived with the single family. Most of the sample groups had the normal BMI. The history of the illness of CHD or heart attack condition was confirmed by the modern medical doctor 10.5 per cent. Most of them were from the family in the moderate status in economic, that was enabling factors for earning lifestyle contributing to risk of CHD.

6.1.2.2 Lifestyle contributing to CHD

The finding demonstrated that the majority of the students under study have lifestyles that places them at a high risk for CHD.(X = 8.9043, S.D. = 4.2174, MIN = 0, MAX = 17, Skewness = 0.085, Kurtosis = -0.574). About 92.7 per cent of them regularly drink refreshments containing caffeine, and 73.1 per cent consume high saturated fat and high calory food, which about 53.5 per cent lack of sufficiency exercise. The data also show that 30.7 per cent of them smoke, about 10.6 per cent drink alcohol.

The data showed that male were risky to CHD than female. The group which had the good academic achievement had the risk more than the group which had poor academic achievement for 4.15 times. In group of family which had the history of the sickness of CHD had the risk more than the other 1.46 times (95 per cent CI = 0.867-2.441).

1) Caffeine intake

From the analysis of the data was showed that the sample groups consume in drinking chocolate, coca cola approximately 93 percent, they gave reason for regularly drink refreshments containing caffeine that , young generation must drink it, because of its' taste and the influence on the advertisement of mass media and social marketing which competed among the productive company. The problem of this have 2 issues, first from analysis of data indicated that the adolescents in the formal educational lack of knowledge about the kind of drinks composed of caffeine and they didn't know how caffeine lead to being CHD.

2) Eating the food with sturated fat and high calories

The result showed that dinner was the meals that the adolescents et for the most (46.3per cent), lunch (37.77 per cent) and breakfast (13.6 per cent) respectively. Because the way of life of the modern society had to be hurried on working outside home so there have no time to prepare the food in morning, only coffee and bread had the most of their breakfast. For lunch meals, the teenagers bought the food for eating at school and could not choose to eat the food with low fat. The reason was that the food shop which sold at school was the food with high fat they could not determine the list of food by themselves. Mover the clowned of student in limited lunch time it's take time for them to wait, therefore they have no choice to choose the food. The female risky in eating the food with high fat more than male. From the qualitative data indicated that sample groups had wrong value of eating food such as: good food was the expensive one, and they choose food with good taste and delicious one. The advertising media had high role for making a decision of theirs' consumption of food

especially fast-food. The sample group of the girl students had use the pep-pill for being on diet even though it's a few case but this issue was the serious one. The school was the importance part of the society for adjusting and modifying the behaviors of adolescence's consumption. How ever the school could not be attained these objectives solely if there was no cooperation from families, the communities and the owners of the food shop.

3) Lacking of exercise

The study founded that the female students risked lacking of exercise more than the male students. The sample group having the persons in the family without exercising risked more than the group having the person in the family with exercising for 1.11 times. The sample group with good academic achievement with the grade of 3 up risked lacking of exercise more than the poor one for 2.62 times. Most students particularly played sport only in school and only in learning period.

4) Cigarettes smoking

It showed that smoking rate was 11.7 per cent male smoking more than female for 1.63 times. It was lower than the rate of smoking from the report of other sources but the important issue founded that smoking rate in female were highly increased when it was compared with the gender proportion. It was more serious that most of smoker, ate of Ya-bha too especially in female somebody used to diet. Most of inspiration which was affected the student smoke were they want to try how they were felt smart and elegant convinced by their peer factor which important for affecting it was closed friends were smoke. Peer smoking is an important

determinants of a child smoke especially for boys. More over, it was very easy to access of cigarette. The sample group of smoking which had the lifestyle contributing to risk of CHD more than the sample group without active smoking for 1.28 times. The most risky marks class of lifestyle contributing to risk of CHD in smoking was Mathayom2, group of poor economic more risky than group of good economic, and group of poor academic achievement more risky than group of good academic achievement for 2.28 times group of having the persons in the family had the risk more than the group having no persons in family for 1.52 times.

5) Drinking alcohol

The result showed that the lifestyles contributing to risk of CHD in drinking alcohol was in a lowest for 10.7 per cent. Female students drank alcohol higher than the male students for 1.11 times. It was corresponded with the value of the female student who changed into fashion. She had to protect herself by could drink whisky and beer therefor she was old fashion when go to the disco-theqe. The sample group with having the poor academic achievement risk more than the group with having the good GPD for 2.99 times. The group which active smoking have risking for alcohol drinking more than non-smoke group for 8.25 times. The reason of drinking were the society, the need of the friend group, the enjoyment, the curiosity and following to their friends. And situation that high risk of onset on drinking was Birthday celebration of the friends and new year celebration that they could go only peer group. Most of them drank beer whisky and wine respectively.

6.1.2.3 The factor influenced of lifestyle contributing to risk of CHD

1) The demographic characteristics (ξ1) was the exogenous latent variable composed of 4 observe variables: sex (X1), birth order (X2), the personality (X3), academic achievement (X4). The result of the study found that female was more than male only a little, most of them was the second son or daughter, and 85.2 per cent had personality type A, most of them have the grade point average of the education (GPA) had moderate level average GPA= 2.38.

2) The family factor (ξ2) was the exogenous latent variable composed of 3 observe variables: family size (X5), family income (X6), the level of mothers' education (X7), and family structure (X8) The indicated that: most of them have the small family only 4-5 members, 73.6 per cent had the average income of family in the moderate level, 98.1 per cent of mother have education, most of them were single family.

3) The enabling factor (ξ3) was the exogenous latent variable composed of 5 observe variables: time spent watching TV per day (X9), vulnerability to high risk lifestyles (X10), family lifestyles (X11), peer pressure (X12), and social support (X13). The result showed that the average amount for time spent watching TV was 2.15 hours per day, 58.2 per cent had vulnerability to high risk lifestyles, and family lifestyles contributing to risk of CHD had in a low level, 57.7 per cent had pressure from peer, most of them got the social support from information, emotional and material in a high level.

4) The psycho-social factor ($\eta 1$) was the endogenous latent variable composed of 6 observe variables: the perception of risking opportunity to CHD (Y1), the perception of barrier to healthy lifestyle (Y2), self-efficacy (Y3), the attitude toward high-risk lifestyle (Y4), value concerning health (Y5), and the value concerning food (Y6). The result form the study indicated that the perception of the students risking opportunity to CHD in high level, the perception of barrier to healthy lifestyle had a moderate level, the self efficacy in a high level, the sample groups had goods attitudes toward high-risk lifestyle and had value concerning health in the moderate level, the value concerning food was in the good .

6.1.2.4 To explore latent variables

The latent variables composed of demographic character factor, family character factor, enabling factor and psycho-social factor that influences on lifestyle contributing to risk of CHD The researcher employed structural equation models to address these issues.

The first issue addressed concerns about those variables affected lifestyle contributing to risk of CHD by direct modeling or indirectly through mediating variables. Our results clearly show that the modified model was fit, when testing with these sample group ($\chi^2 = 57.0349$ p = 0.8477 GFI = 0.9914 AGFI = 0.9737 RMSR = 0.02151), and enabling factor was both directly and indirectly affected on lifestyle contributing to risk of CHD, and the psycho-social factor effect directly on lifestyle contributing to risk of CHD, whereas the demographic characteristics factor and family characteristics factor effect only directly in psycho-social factor, and indirect

effect of lifestyle contributing to risk of CHD through the psycho-social factor. From the ten Figure, the researcher had discovered two factors directly affected on the lifestyle contributing to risk of CHD, and three factors indirectly affected on the lifestyle contributing to CHD.

The second issue concerns the relative influence of those variables on the lifestyle contributing to risk of CHD The results of the analysis was found that modified model could predict the lifestyle contributing to risk of CHD of the junior high school students in Phuket for 32.52 per cent : the psycho-social factor ($\eta 1$) was directly influenced on the formality of earning lifestyle contributing to risk of CHD for the most (β = -0.3155, $p<0.05$) and the subordinate was the enabling factor was directly influenced on the formality of earning lifestyle contributing to risk of CHD (β = 0.0907, $p <0.05$).

Finally, it should be point out about the indirect influence on the lifestyle contributing to risk of CHD: result showed that the most indicted influence was the enabling factor through the psycho-social factor (β = -0.56, $p<.05$), the demographic characteristics through psycho-social factor (β = 0.0196, $p<.05$) and the family characteristics factor through psycho-social factor (β = -0.0242, $p<0.05$) respectively.

The present research is not intended to test specific theories. Instead, we construct hypotheses of social influences, which we then integrate into a unified model to clarify the process of the influences of the variables on lifestyle contributing to risk of CHD. Our result provide support for most of the theoretical perspectives integrated in the overall structural model and rise some questions about others.

In conclusion, some of major insights learned from the present study points out that the life style contributing to risk of CHD was in high level, could be in summarize in 3 groups 1) Eating habit (caffeine intake, eat the high saturated fat and high calory) 2) Exercise habit (lack of exercise) 3) Risk taking behavior (cigarette smoking and drinking of alcohol). The psycho-social factor had direct influenced on the lifestyle contributing to risk of CHD, otherwise enabling factor influence both directly and indirectly on the lifestyle contributing to risk of CHD Instead of the demographic characteristics factor the family characteristics influenced only indirectly on its. The most values of significantly influence factor of observation variable were self-efficacy, value concerning health, peer pressure, social support, academic achievement and the level of mother's education respectively, all of which have important implications for prevention of CHD.

6.2 RECOMMENDATIONS

The findings of this study indicated many recommendations for family, school, health worker, community, to prevented of lifestyle contributing to risk of CHD. Some of the major recommendations learned from study were:

6.2.1 Recommendations base on the findings

1) Promotion of Health : put adolescent at the center

The lesson learnt from this study founded that the lifestyle contributing to risk of CHD among junior high school student in Phuket was in a high level, especially in male, high economic group, and good academic achievement group.

Although, in present ***"adolescent are healthy"*** but the lifestyle being risk that called "disturbances of human culture" including a rich diet, sedentary lifestyle and cigarette smoking string during adolescents are crucial to current future health not only CHD but also others non communicable disease too. Such as: hypertension, obesity, diabetic, etc. The stakes are too high to ignore and there are necessary to act to protect them, because adolescent was a time of opportunity and risk, youth make economic and political demands they are also a great resource for social and economic progress.

Therefore it was the time for action of health worker to development program among adolescence for enhancing the disturbances of human culture, including a rich diet (drinking caffeine, eating high saturated fat and high calory) sedentary lifestyle (lack of exercise) and cigarette smoking (cigarette smoking and drinking alcohol).

Effective CHD prevention programs in adolescent should therefore lay great emphasis on health education and health promotion, ***"Promotion of healthy lifestyles"***, gender considerations are fundamental, social environment influences adolescent behavior and ***"put adolescent at the center"*** was an importance strategies build on and link existing interventions in various setting, and strengthen program management. It requires coordinated action by the health sector, the government and the social and economic sectors and employs a number of different but complementary methods or approaches including communication, education, legislation, community development and local activities against the risky lifestyle.

2) The Holistic Health Promotion Programs : Urgently establish

The determinants factors of the lifestyle contributing to risk of CHD demonstrates that the most directly factors effect on the lifestyle contributing to risk of CHD were 2 factors, the first was psycho-social factor (self-efficacy and value concerning health). The second was the enabling factor (peer pressure and vulnerability to high risk lifestyles) and the indirectly influence factor through psycho-social factor were demographic characteristics factor (academic achievement) family characteristics factor (the mother's education level). So it was necessary for re improving these lifestyle contributing to risk of CHD which were considered in details of these finding. It is recommended that a holistic health promotion program based on the cooperation between school, family, and community be urgently established for these students. The program should give major emphasis on providing health promotion information and making social psychological and educational support accessible to them to assure that they will develop self-efficacy and health-related values to protect them against the CHD risk lifestyles.

3) Establish school Health eating program

In part of rich diet, the result showed that the students in high economic and good academic achievement had high risk in rich diet than others, they had false value about eating, fashion, advertising influenced them to chose food rather than the nutrition of food. Most of them eat the food with high fat for lunch time in school. The result of study indicated that adolescents understand the importance of limiting fat, cholesterol in one's diet but they do not know which foods are high in fat calories.

They well-informed about good nutrition and health but did not use their knowledge to make healthy food choices. They less aware of the relationship between specific foods and health. They have false value of diet depend on advertising. More seriousness, some young persons in this study practice unsafe weight-loss methods. by using ya-bha. This harmful weight loss practices have been reported among the girls who always smoke. In addition the school have not good management in the meals served by school food service programs at launch thus recommendation to improve it were:

To be established the school health education for healthy eating habit program, because school are one of the powerful social institutions that shapes young persons' eating behaviors and can therefore play a large role in helping improve their diet. Schools can reach almost all children and adolescents. Not only in lunch time but also provide opportunities to practice healthy eating by giving the information and motivation for the family, underlining in family which high economic level, and in students' group with good academic achievement. Parents are also benefit from school health education. In lunch time at school make sure that student could have the healthy food by control of food vendor in school. Adjust time to eat lunch of the student in order not to be density in lunch time.

A comprehensive school health program empowers students with not only the knowledge, attitudes, and skills required to make positive health decisions but also the environment, motivation, services, and support necessary to develop and maintain healthy behaviors, includes health education, a healthy environment, health services,

counseling, psychological, and social services, integrated school and community efforts. Skilled personnel are available. After appropriate training, teachers can use their instructional skills and food service personnel can contribute their expertise to nutrition education programs.

The influence of school goes beyond the classroom and includes normative messages from peers and adults regarding foods and eating patterns. Students are more likely to receive a strong, consistent message when healthy eating is promoted through a comprehensive school health program. Some young persons in this study practice unsafe weight-loss methods. By using Ya-bha. This harmful weight loss practices have been reported among the girls who always smoke. Adolescents should learn about the dangers of unsafe weight-loss methods and about safe ways to maintain a healthy weight.

However, schools cannot achieve this goal on their own when the cultural milieu has a large influence on food-related beliefs, values, and practices. Families, food stores, restaurants, the food industry, religious institutions, community centers, government programs.

4) Establish life long physical activity: by school and community setting

The result of sedentary lifestyle in this research indicated that, the regular physical activity was in moderate level, female and group of good academic achievement were high risk of CHD in lack of exercise than other group, family was influence on exercise of the students. Although they were known that regular physical

activity was linked to enhanced health and to reduced risk for all-cause mortality and the development of many chronic diseases in adults but most of the student exercising only in classroom and school the problem issues pointed out that because the lacking of chain link of school and family and community solving with this issue the recommendation were:

4.1 Schools and communities were established the lifelong physical activity programmed. Because schools and communities have the potential to improve the health of young people by providing instruction, programs, and services that promote enjoyable, lifelong physical activity. Schools are an efficient vehicle for providing physical activity instruction and programs because they reach most children and adolescents. Communities are essential because most physical activity among young people occurs outside the school setting . Schools and communities should coordinate their efforts to make the best use of their resources in promoting physical activity among young people. School personnel, students, families, community organizations, and businesses should collaborate to develop, implement, and evaluate physical. activity instruction and programs for young people. One way to achieve this collaboration is to form a coalition, health worker, school, private sector and local resources that might be useful in promoting physical activity among young people are available to schools and community groups .Within the school, efforts to promote physical activity among students should be part of a coordinated, comprehensive school health program, which is

"An integrated set of planned, sequential, and school-affiliated strategies, activities, and services designed to promote the optimal physical, emotional, social, and educational development of students. The program involves and is supportive of families and is determined by the local community based on community needs, resources, standards, and requirements. It is coordinated by a multidisciplinary team and accountable to the community for program quality and effectiveness"

This co-ordinated program should include health education, physical education, health services, school counseling and social services, nutrition services,. the psychosocial and biophysical environment, faculty and staff health promotion, and integrated efforts of schools, families, and communities. These programs have the potential to improve both the health and the educational prospects of students. These programs have been effective in enhancing students' physical activity-related knowledge, attitudes, and behavior and their physical fitness. Programs that seem to be most effective focus on social factors that influence physical activity (e.g., peers' support for physical activity).

5) Prevent risk-taking : just say no project

The risk-taking behaviors. Although both smoking and drinking alcohol among junior high school in Phuket was in a low level, but the increasing of smoking rate in female was very interesting issue. The most risky marks class being CHD in smoking was the junior high school level Mathayom2, low economic group, poor academic achievement. The latent determinants factors of lifestyle contributing to risk

of CHD in smoking and drinking was enabling factors, and psycho-social factors. The significant observable exogenous variables were: perceive peer pressure, available of lifestyle contributing to risk of CHD, perceive self-efficacy, health value.

This findings indicated many recommendations for prevented the risk-taking behavior of adolescence such as:

5.1 Evidence from this study suggests that onset of tobacco and alcohol used were female students in the age of 13 or 14 or studying in Mathayom 2 level. Therefore school health programs can be an effective means of preventing risk-taking behavior if start at the age of 11 or 12 with high risk female student who are in low economic and poor academic achievement. The prevention program for risk taking behavior should focus on school-age children and adolescents emphasize in students before Mathayom2, the education programs must focus on skills training approaches. To be most effective, school-based programs must target young persons before they initiate tobacco and alcohol use or drop out of school. This school-based programs. also can contribute to preventing the use of illicit drugs, such as Ya-bha marijuana and cocaine especially if such programs are also designed to prevent the use of these substances.

5.2 The recommend for all schools should reform concept on prevention risk taking behavior in adolescence. They must keep in mind that adolescent is a time for opportunity and risk. Most adolescents simply enjoy to drink and smoke. ***"Young people"*** are not separate species, even though they often appear to their elders as a separate tribe. Their adolescent risks not only individual's risk but also society's risks. Therefore it is the time for action of school to take the responsibility of school, protected them and their society by provide instruction about the short and long term negative physiologic and social consequences of tobacco and alcohol use, social influences on tobacco use, peer norms regarding tobacco and alcohol use. Using strategy of exhortation or propaganda and underlining on ***"just say no project"*** in

Mathayom1 students for enhancing perceived self-efficacy. For the personnel in school should provide program-specific training for teachers, and other team. In community, the important enabling setting to help the success of program by involve parents or families and community in support of school-based programs, take care of their adolescence with love, care and understanding especially in the high risk opportunity such as celebration of friends' birthday, New Year Party, and others time that adolescent can come and joy together in the night time.

6.2.2 The recommendation for policy formulation

Policy maker have become aware of being CHD among adolescence as a major problem of public health concern as increasing levels of risk factors due to the change of lifestyle, rich diet, sedentary lifestyle, cigarette smoking and drinking alcohol. Establishment of the program can be further justified by the availability and feasibility of effective interventions. The governments must play a more active role, Political will and commitment should be solicited, either through legislation, health education of financial support. Adequate resources should be made available. Skill in project management with a team approach is very crucial for health personnel. While, the skill of teacher and leadership in community are essential too. The intervention setting of Health promotion was in school. Provide a supportive environment helping young people to achieve greater autonomy, self-efficacy, competence and health promoting behaviors composed of healthy eating (such as: do not eat the food with high fat and do not drinking with the mixture of caffeine) regularity exercise, avoid cigarette smoking and avoid drinking alcohol. To ensure a healthy future for adolescence, have not being sick with non-communicable disease such as CHD etc, school-based health promotion programs must become a national priority. These

programs should be reach students from preschool through secondary school. School leaders, community leaders, and parents must commit to implementing and sustaining health promotion programs within the schools.

6.2.3 Recommendation for research methodology and future research

1. This study was a micro level .It was founded that there are many various factor to influence on lifestyle contributing to risk of CHD Therefore, future studies should be conducted, at the macro level in the issue of behavioral modification and the development of explanatory frameworks that help increase understanding of the lifestyle to contributing to risk of CHD among adolescence in Thailand. This is to be action research.

2. For the future researcher should repeat research in order to confirm the model and the finding in a various empirical data such as adolescent out of school various age group compare with sex various economic status various academic achievement, to test of external validity and using LISREL program.

3. Due to the time limitation of this study the researcher used the cross sectional design but the nature of CHD that was necessary and sufficiency factor to form the disease, should take more time thus in the future the longitudinal research should is recommend.

4. In addition qualitative data are essential to provide in-depth interview regarding health behaviors and the reasons for changing behavior especially in risk-taking behavior such as: cigarette smoking, drinking alcohol, drugs addict. In qualitative research, a good rapport between sample and researcher is more important. Therefore, those who would study the similar one must be aware of trust, sincerity and kin system which are useful for making a good rapport at first. Dialogue and focus group on mature is the heart of this study.

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APPENDIX

QUESTIONAIRE

No OOO (ID)

The Survey of Lifestyle Contributing to Risk of CHD in Junior High School in Phuket Province

Instructions Please complete the questions below. Check ✓in ☐ and write number in O

School ☐ 1. Phuket Wittayalai ☐2. Stree Phuket ☐ 3. Chang-Ta-La Wittayakom (S1)

Class / Class room ☐ 1.MS 1 ☐ 2. MS 2 ☐ 3. MS 3 (S2)

Average GPA Last Semesters ..... (S3)

Part 1 General Information		For Researcher
1. Sex	☐ 1. Male ☐ 2. Female.....(A1)	☐
2. Age	OO Years .....(A2)	☐☐
3. Religion (A3)	☐ 1. Buddhist ☐ 2.Christ ☐ 3 Isalam ☐ 4. Other.....(A4)	☐
4. The number of brother and sister with the same parents .....persons (A5)		☐
5. What is your birth order ? ..... (A6)		☐
6. Whose do you live with now? (A7 ☐ 1. Parents ☐ 2. Father ☐ 3. Mother ☐ 4. Relation ☐ 5. Others..... (A8)		☐☐
7. Height ..... (A9)		☐☐
8. Weight OOO.OO (Kilograms) (A10)		☐☐
9. The average amount of watching TV per day OO hours (A11)		☐☐
Part 2 Family Information		
1. The total number of persons in your family OO persons (B1)		☐☐
2. Living together in the family (B2) ☐ 1. Single family living with parent ☐ 2. Living with relation ☐ 3. living with many family ☐ 4. Living in dormitory or others... (B3)		☐☐
3. What status of your family income ? (B4) ☐ 1. Enough and saving ☐ 2. Enough but not saving ☐ 3. Not enough and have a debt		☐
4. Your responsibility of your family income (B5) ☐ 1. No responsibility ☐ 2. Being responsibility by helping parent ☐ 3. Doing the job to earn money for learning ☐ 4. Others ..... (B6)		☐☐
5. How you thinking about your family income ? (B7) ☐ 1. Rich ☐ 2. Moderate ☐ 3. Poor		☐
6 What your father occupation. ? (B8) ☐ 01. Owner of rubber garden ☐ 02. Employee in rubber garden ☐ 03.Comercial ☐ 04. Government worker ☐ 05. Employee in company or hotel ☐ 06.Work in field of tourist ☐ 07. Fisherman(the ship's owner) ☐ 08. Fisherman(employee) ☐ 09. General employee ☐ 10. Owner of business ☐ 11. Working business of family ☐ 12. Have no work ☐ 13.Others... (B9) Income per month OOOOOO Baht (B10)		☐☐

	For Researcher
7. What your mother occupation. ? (B11)	☐☐
☐ 01.Oowner of rubber garden ☐ 02. Employee in rubber garden	
☐ 03. Commercial ☐ 04. Government worker	
☐ 05. Employee in company or hotel ☐ 06. Work in field of tourist	
☐ 07. Fisherman(the ship's owner) ☐ 08. Fisherman(employee)	
☐ 09. General employee ☐ 10. Owner of business	
☐ 11. Working business of family ☐ 12. Have no work	
☐ 13.Others..... (B12)	
Income per month OOOOOO Baht (B13)	
8. Part time occupation on the member in family	☐
☐ 88 No have ☐ Have number OO persons (B14)	
No relation with you part time occupation average income per month	
1.	
2.	
3.	
9. Average income per month of your family OOOOOO Baht (B15)	☐☐☐☐☐
10. The level of father education (B16)	☐
☐ 1. No education ☐ 2. Pratom ☐ 3. Mathayom	
☐ 4. Certificate ☐ 5. Bachelor degree ☐ 6. More than bachelor	
11. The level of mother education (B17)	☐
☐ 1. No education ☐ 2. Pratom ☐ 3. Mathayom	
☐ 4. Certificate ☐ 5. Bachelor degree ☐ 6. More than bachelor	
12.The illness of CHD in the family (Only diagnosis with the medical doctor) (B18)	☐
☐ 88 No have ☐ Have the number ... .OO ☐ 99 Not know	
13. Smoking in the family ? (B19)	☐☐☐
☐ 1. No one have smoking in family	
☐ 2. Ever smoke but now stop the number of smoker OO persons (B20)	
The relation with you ..... (B21)	
☐ 3. Have the number of smoker in family now (B22)	
The relation with you ..... (B23)	
14. Drinking alcohol in the family ? (B24)	☐☐☐
☐ 1. No one have drinking alcohol in family	
☐ 2. Ever drank but now stop the number of drank OO persons (B25)	
The relation with you ..... (B26)	
☐ 3. Have the number of drank in family now (B27)	
The relation with you ..... (B28)	
15. The number of member in your family have regular exercise (B29)	☐☐
☐ 1. Not have ☐ 2. Have .....personsOO (B30)	
The relation with you ..... (B31)	
16. The number of member in your family drink caffeine (B32)	☐☐
☐ 1. Not have ☐ 2. Have .....personsOO (B33)	
The relation with you ..... (B34)	
17. The number of member in your family eat fat food (B35)	☐☐
☐ 1.Not have ☐ 2. Have .....personsOO (B36)	
The relation with you ..... (B37)	

Part 3 Information of Lifestyle contributing to risk of CHD

	For Researcher
1. Have you regular exercise or not ? (C1) ☐ 1. No ☐ 2. Yes	☐☐☐ ☐☐
Please Check your reason if you have not regular exercise (C2) ☐ 1. Have no time ☐ 2. Have no Place / equipment ☐ 3. Limited of health ☐ 4. Tried ☐ 5. Have no friend to do with ☐ 6. Have not necessary ☐ 7. Other ..... (C3)	
Please Check your reason if you have regular exercise (C4) ☐ 1. For Health ☐ 2. For good personality ☐ 3. For learning ☐ 4 Available of place and instrument ☐ 5. For Funny and release stress ☐ 6. Persuaded by friends ☐ 7. Following the family ☐ 8. A sport man ☐ 9. Others ..... (C5)	
2. The place for you to have regular exercise (C6) ☐ 1. At home ☐ 2. Park ☐ 3. School ☐ 4. Private Place ☐ 5. Others..... (C7)	☐☐
3. Which sport do you study in this semester? ..... (C8)	☐
4. How long do you have exercise above ○○ time per week (C9) Average time each time ○○ minutiae (C10)	☐
5. Are you a sport man ? (C11) ☐ 1. No ☐ 2. Yes Type of sport ..... (C12)	☐☐

6. Please check your type of exercise (duration of 1 month ago)

Type of exercise	Frequencies per week	average each time	For Researcher
1. House work	☐ 0. Not have this exercise ○ Time per week (C13)	○○ (C14) minute	☐ ☐ ☐
2. Garden Work	☐ 0. Not have this exercise ○ Time per week (C15)	○○ (C16) minute	☐ ☐ ☐
3. Regular Walking	☐ 0. Not have this exercise ○ Time per week (C17)	○○ (C18) minute	☐ ☐ ☐
4. Playing Pa-tong	☐ 0. Not have this exercise ○ Time per week (C19)	○○ (C20) minute	☐ ☐ ☐
5. Quickly walk	☐ 0. Not have this exercise ○ Time per week (C21)	○○ (C22) minute	☐ ☐ ☐
6. Jogging	☐ 0. Not have this exercise ○ Time per week (C23)	○○ (C24) minute	☐ ☐ ☐
7. Playing Ta-krow	☐ 0. Not have this exercise ○ Time per week (C25)	○○ (C26) minute	☐ ☐ ☐
8. Swimming	☐ 0. Not have this exercise ○ Time per week (C27)	○○ (C28) minute	☐ ☐ ☐

Type of exercise	Frequencies per week	average each time	For Researcher
9. Jumping with a rope	☐ 0. Not have this exercise O Time per week (C29)	OO (C30) minute	☐ ☐ ☐
10. Cycling	☐ 0. Not have this exercise O Time per week (C31)	OO (C32) minute	☐ ☐ ☐
11. Playing Boat or Boxing	☐ 0. Not have this exercise O Time per week (C33)	OO (C34) minute	☐ ☐ ☐
12. Tennis Volleyball	☐ 0. Not have this exercise O Time per week (C35)	OO (C36) minute	☐ ☐ ☐
13. Football Basketball	☐ 0. Not have this exercise O Time per week (C37)	OO (C38) minute	☐ ☐ ☐
14. Others..... (C39)	☐ 0. Not have this exercise O Time per week (C39)	OO (C40) minute	☐ ☐ ☐

Part 4 Information of Lifestyle about eating food

How offend do you doing this activity ?	For Researcher
1. The number of meals you eat in each day ..... (D2)	☐
2. Which meals do you eat most? (D3) ☐ 1. Breakfast ☐ 2. Lunch ☐ 3. Dinner ☐ 4. After (11 PM.)	☐
3. What the intention of you to select the food to eat? (D4) ☐ 1. The delicious taste ☐ 2. Advertising ☐ 3.The form of food (look good) ☐ 4.Offen eat in family ☐ 5. Persuade by friend ☐ 6.Others..... (D5)	☐☐
4 Which media that effect to you selective of eating (D6) ☐ 1. Radio ☐ 2. TV ☐ 3. Newspaper ☐ 4. Handbill ☐ 5. The front of shop ☐ 6. Other ..... (D7)	☐☐
5 Do you able selected the food with low fat by your self ? (D8) ☐ 1. Yes every meal ☐ 2. No depend on family ☐ 3. Select some meals ☐ 4. Others..... (D9)	☐☐
6 At School do you able selected the food with low fat by your self ? (D10) ☐ 1.Yes reason..... (D11) ☐ 2. No reason..... (D12)	☐☐
7 Do you ever call delivery service by call on telephone (D13) ☐1. No ☐2.Yes Type of food ..... (D14) ☐1 Pizza ☐2.Fast food ☐3. Chicken fried ☐4. Others..... .... (D15) Reason for use of delivery service (D16) ☐ 1. Comfortable ☐ 2. Traffic ☐ 3. Available	☐☐ ☐☐

8. Please Check ✓your answer in ☐ for your eating in week

Type of food	Type of eating	For Researcher
1. The sweet meals : donut, cake, cookies (D17)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D18) Times per months O (D19)	☐ ☐ ☐
2. Ice-cream (D20)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D21) Times per months O (D22)	☐ ☐ ☐
3. Hamburger Pizza sandwich (D23)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D24) Times per months O (D25)	☐ ☐ ☐
4. Confection with coconut (D26)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D27) Times per months O (D28)	☐ ☐ ☐
5. Boiled rice floor in noodle mixed with curry (D29)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D30) Times per months O (D31)	☐ ☐ ☐
6. Sweet Fruits (D32)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D33) Times per months O (D34)	☐ ☐ ☐
7. Kung-chang ; Sai-oua (D35)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D36) Times per months O (D37)	☐ ☐ ☐
8. Food Fried (D38)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D39) Times per months O (D40)	☐ ☐ ☐
9. noodle with egg (D41)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D42) Times per months O (D43)	☐ ☐ ☐
10. Rice with pock leg (D44)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D45) Times per months O (D46)	☐ ☐ ☐
11. Lo-Ba (D47)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D48) Times per months O (D49)	☐ ☐ ☐
12. Knum-Tod (D50)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D51) Times per months O (D52)	☐ ☐ ☐
13. Curry with coconut and meat (D53)	☐ 1. Never eat ☐ 2. Eat everyday Time per week O (D54) Times per months O (D55)	☐ ☐ ☐

Part 5 Information of Lifestyle contributing to risk of CHD ; Smoking

	For Researcher
1. If you want to smoke Do you think a can find cigar easy ? (E1)	☐☐ ☐☐
☐ 1. Yes available Reason..... (E2)	☐☐
☐ 2. No not available Reason..... (E3)	
2. Have you smoke now? (E4)	
☐ 1. Never smoke ☐ 2. Ever smoke but now stop for ○○ years (E5)	
☐ 3. Smoking now	
3. Type of smoke ? (E6)	☐
☐ 1. For l year long time ☐ 2. Smoke some time ☐ 3. Smoke regularly	
➢First time smoke Age ○○ (E7)	☐☐ ☐
Reason for smoke ..... (E8)	
➢ Duration of smoke ○○ years (E9)	☐☐
➢Type of cigar (E10) ☐ 1. Low nicotine cigar ☐3. No filter cigar ☐ 2. Filter cigar. ☐4. Other.... (E11)	☐
➢ The number of cigar per day ○○ cigars per day (E12)	☐☐
➢ Frequency of smoke ☐ 1. Every day ☐ 2. 1-6 time per week ☐ 3. 1-3 times per month (E13)	☐
➢ Times of smoke (E14)	☐
☐1.< 1 month ☐2. 1 month - 1 year ☐3. Over 1 year	
4. Living in the smoking area (E15)	☐
☐ 1. Never live in smoking area ☐ 2. Live in smoking area	
➢Time living in smoking area ○○ minute (E16)	☐☐
➢Frequency of living in the smoking area ☐30.Every day ○○ times per month (E17)	☐☐
➢Years living in smoking area ○○ years (E18)	☐☐
Reason for Smoking ..... (E19)	☐

Part 6 Information of Lifestyle contributing to risk of CHD: drinking alcohol

	For Researcher
1.If you want to drink alcohol , Do you think you can find alcohol to drink easy ? (F1)	☐☐☐
☐ 1. Yes Available Reason..... (F2)	
☐ 2. No not available Reason ..... (F3)	
2. Have You ever drink alcohol ? (F4)	☐☐☐
☐ 1. Never	
☐ 2. Ever drank but stop now .....○○ years (F5)	
☐ 3. Drinking now	
3. Detailed of alcohol drinking	
➢ Age to drink at the first time ○○Years (F6)	☐☐☐
Reason¡..... (F7)	
➢ Type of drink ☐1.Dilute with soda) ☐ 2. Pure drink (F8)	☐
➢ Years of drinking ○○ years (F9)	☐☐

4. Type of drinking alcohol

Type	Volume	Frequency	For Researcher
Spirit	OO (F10)	OO (F11)	□□□□
Wine	OO (F12)	OO (F13)	□□□□
White Spirit	OO (F14)	OO (F15)	□□□□
Ya Dong	OO (F16)	OO (F17)	□□□□
Beer	OO (F18)	OO (F19)	□□□□

4. Reason for drinking alcohol ..... (F20) □□

5. Which drug you often eat? □ 1. No have drug □ 2. Yes..... (F22)

Part 7 Lifestyle contributing to risk of CHD : Drinking Caffeine

1 It you want to drink caffeine Do you available to drink it? (G1) □□□

□ 1. Available Reason ..... (G2)

□ 2. Not availableã Reason..... (G3)

2. Now Have you drink caffeine? (G5) □□□

□ 1.Never drink □ 2.Ever but now stop □ 3.Now Drinking OO Years (G6)

3 Type of drinking Caffeine

Type	Volume	Frequency	For Researcher
Tea	OO (G7)	OO (G8)	□□□□
Coffee	OO (G9)	OO (G10)	□□□□
Co-Co Chocolate	OO (G11)	OO (G12)	□□□□
Aserate water	OO (G13)	OO (G14)	□□□□
Force aserate water	OO (G15)	OO (G16)	□□□□

4. Reason of drinking Caffeine ..... (G17) □

Part 8 Personality

Instruction **Please check ✓ in the right column , in the column that the same as you**
1. Mean Almost true 2. Mean Often true 3. Mean slightly True 4. Mean Almost not true

Detailed	1	2	3	4	For Researcher
1. I hate waiting for queue.					□
2. I Often work competition with time					□
3. When use more time to work, I feel irritable.					□
4. Under stress I often in bad emotion.					□
5. My friend told me that I often in bad emotion.					□
6. I like the work that work competition with time.					□
7. When have the work to work, I often do it first even though the work have not clearly in detailed.					□
8. If I have a mistake, It was because I hurry work, without circumspect thinking.					□
9. If possible, I will doing 2 work in the same time , such as eating while working, plan while take a bath.					□
10. I feel guilty when I am not doing seriously work.					□

Part 9 The perception of the pressure from peer

Instruction For the beleife of the person
1. Mean strongly want 2. Mean want 3. Mean neutral 4. Not want 5. Strongly not want

Instruction For the doing thing follow by the person
1. Mean doing every time 2. Doing most 3. Doing in moderate 4. Doing few 5. Never

The belief of the persons	1	2	3	4	5	Researcher
1.You belief that your close friend want you to exercise?						☐
2.You belief that your close friend want you to eat low fat?						☐
3.You belief that your close friend want you to drink alcohol?						☐
4.You belief that your close friend want you to smoking?						☐
5.You belief that your close friend want you to drink caffeine?						☐
6.You belief that your family want you to exercise?						☐
7.You belief that your family want you to eat low fat?						☐
8.You belief that your family want you to drink alcohol?						☐
9.You belief that your family want you to smoking?						☐
10.You belief that your family want you to drink caffeine?						☐
Are you doing thing by follow that person?	**1**	**2**	**3**	**4**	**5**	
1.You doing exercise following with your closed friend?						☐
2.You doing exercise following with your family?						☐
3.You doing exercise following with your teacher?						☐
4.You eating fat food following with your closed friend?						☐
5 You eating fat food following with your family?						☐
6.You eating fat food following with your teacher?						☐
7.You are smoking following with your closed friend?						☐
8 You are smoking following with your family?						☐
9.You are smoking following with your teacher?						☐
10.You drinking alcohol following with your closed friend?						☐
11 You drinking alcohol following with your family?						☐
12.You drinking alcohol following with your teacher?						☐
13.You drinking caffeine following with your closed friend?						☐
14 You drinking caffeine following with your family?						☐
15.You drinking caffeine following with your teacher?						☐

Part 10 Social support

Social support	1	2	3	4	5	Researcher
1. When you were sick of felt unhappy, you were care of, Ask about happiness and unhappiness from the persons in the family.						☐
2. If you had some problems, you were not confident that you would get help.						☐
3. The people who were around you made you know, you were a valuable person.						☐
4. Your family often provided the instruments of exercising for you whenever you.						☐
5. Your family often choose the food with low fat.						☐

Social support	1	2	3	4	5	Researcher
6. Your family often bought drinks with caffeine.						☐
7. You often got the information about CHD from the various media.						☐
8. You often got the knowledge of exercising in order to protect CHD.						☐
9. You often got the knowledge of eating in order to protect CHD.						☐
10. When you or the persons in the family had some problems about CHD, You were confident to find the knowledge and get some help.						☐

Part 11 Attitude of 1) Exercise 2) Drinking Caffeine 3) Drinking alcohol
1. Strongly agree 2. Agree 3. Neutral 4. Not agree 5. Strongly not agree

Items	1	2	3	4	5	Researcher
1. If you did not want to have heart attack, you would exercise regularly,						☐
2. Exercising made you waste your time in learning.						☐
3. The friends' group was highly influenced on exercising.						☐
4. Anyone who was the sportsman, no need for them to exercise again when they stopped exercising.						☐
5. Exercising made you relax for the tension						☐
6. During the teenager's' period , at least they tried out smoking. in order to know its taste.						☐
7. The smoking friends' group looked as if they had been adults, smart and very great.						☐
8. Smoking was common and usual of teenagers.						☐
9. It should not be smoking because you might be CHD.						☐
10.You agreed to the sentence "The new generation men did not smoke".						☐
11.Drinking with alcohol added the enjoyment in the friends' group.						☐
12. When your friends persuaded you to drink with alcohol, you dared to refuse them.						☐
13. Drinking alcohol could protect heart disease.						☐
14. Most friends who drank alcohol were adults in the high level, smart and had a lot of friends.						☐
15. If should not have been the advertisement of whisky from TV or other various media because it made other people try out.						☐

Part 12 Information of Health Value

1.How did you think about your present health? ((By explaining the level of feelings and looking at the picture of visages instead, the choosing which picture was the representative of the present feeling.) ☐

The Best feeling						Too suffer
1	2	3	4	5	6	7
☺	☺	☺	😐	☹	☹	☹

2. Please read Item and then please sort by descending you want most in your life and put the number in right column

Item	No	Researcher
1. The comfortable life		M1 ☐
2. The exciting life		M2 ☐
3. The successful feeling		M3 ☐
4. Freedom		M4 ☐
5. The happiness		M5 ☐
6. Healthy in physical and mental		M6 ☐
7. No conflict in mind		M7 ☐
8. Funny in life		M8 ☐
9. Self efficacy		M9 ☐
10.Social support		M10 ☐

Part 13 The perceive of the opportunity to risk of CHD

1. Strongly agree 2. Agree 3. Neutral 4. Not agree 5. Strongly not agree

Item	1	2	3	4	5	Researcher
1. The person who had high fat in the blood risked to CHD.						N1 ☐
2. The fat person might be heart disease more than the thin one.						N2 ☐
3.Eating the yolk of an egg, entrails of animals, shrimps and squids in the regular way had the change of being CHD easily.						N3 ☐
4. The regular exercising had the change of being CHD.						N4 ☐
5. The young aged person risked being CHD more than the old aged person.						N5 ☐
6. The smoking person had the less chance of being CHD.						N6 ☐
7. The person who drank whisky had the chance of being CHD less than the person who did not drink whisky.						N7 ☐
8. Eating cake, butter aerated water, dessert with coconut milk in the regular way had the high chance of being CHD.						N8 ☐
9. Eating vegetables and fruit that were not so sweet in the regular way made you be less CHD.						N9 ☐
10.Teenagers who likes eating the fried food regularly were easy to get CHD.						N10 ☐

Part 14 The Self-efficacy

1. Strongly agree 2. Agree 3. Neutral 4. Not agree 5. Strongly not agree

Item	1	2	3	4	5	Researcher
1. I feel that I am a person of worth, at least on an equal plane with others.						O1 ☐
2. I feel that I have a number of good qualities.						O2 ☐
3. All in all. I am inclined to feel that I am a failure.						O3 ☐
4. I am able to do things as well as most other people.						O4 ☐
5. I feel that I do not have much to be proud of.						O5 ☐
6. On the whole I am satisfied with myself.						O6 ☐
7. I certainly feel useless at times.						O7 ☐
8. At times I think I am no good at all.						O8 ☐
9. I take a positive attitude toward myself.						O9 ☐
10. I wish I could have more respect for myself.						O10 ☐

Part 15 The consumption Value

1. Mean yes agree with 2. Mean not sure 3. Mean no agree with

Item	1	2	3	Researcher
1. Eating the meat food showed off the good income.				P1 ☐
2. If you had less money, you would buy the vegetables more than meat for food.				P2 ☐
3. If you regarded to the taste only, you would choose to eat the fried food which had good smell and delicious food, such as; fried chicken, Sobah, O-Tao.				P3 ☐
4. It you regarded to your health only, you would eat the food having fiber, such as; the vegetable, fruits, cargo rice.				P4 ☐
5. If you wanted your friends satisfied, you would feed them at fast food restaurant, such as; Kentucky(KFC), Pizza.				P5 ☐
6. The desserts and ice-cream were not suitable for teenagers.				P6 ☐
7. You often followed to eat the food, as the stars whom you impressed.				P7 ☐
8. You like eating fast food, such as; chicken oily rice, pork-legged rice, noodles because it was safer than cooking by yourself.				P8 ☐
9. Eating the vegetables and fruits made you be good health.				P9 ☐
10. You like eating fact food because it showed off the new generation person.				P10 ☐
11. You chose to eat the food by regarding of food value more than taste.				P11 ☐
12. Fast food was useful and delicious taste.				P12 ☐
13. Our age was necessary to be worried about the food without fat.				P13 ☐
14. You drink with caffeine such as; aerated water because your friends drink it.				P14 ☐

Item	1	2	3	Researcher
15. Choosing to drink aerated water because it was the drinks of the new generation people.				P15 ☐
16. You chose to eat the food because you wanted to try out from the advertising media.				P16 ☐
17. Although you were teenagers, you would regard to eat for protecting heart disease.				P17 ☐
18. You often drink caffeine when in the duration of examination.				P18 ☐
19. The knowledge of food and nutrition was important for you to take care of your health.				P19 ☐
20. Sweet meats were in pairs of teenagers.				P20 ☐

Part 16 The perceive of barrier of exercise and eating low fat
1. Strongly agree 2. Agree 3. Neutral 4. Not agree 5. Strongly not agree

Item	1	2	3	4	5	Researcher
1. Regular exercising can not do because have no time.						Q1 ☐
2. Regular exercising can not do because have no place.						Q2 ☐
3. Regular exercising can not do because have no equipment.						Q3 ☐
4. Regular exercising is the difficult thing.						Q4 ☐
5. Eating with low fat can not do in family because they don't like.						Q5 ☐
6. Eating with low fat can not do in school.						Q6 ☐
7. Eating with low fat can not do because lack of knowledge.						Q7 ☐
8. Not to stop eating fried food because the taste.						Q8 ☐

BIOGRAPHY

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INSTITUTION ATTENDED

Bangkok Nursing College, 1976-1979
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POSITION & OFFICE

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1995-1998 Planning and Evaluating Section, PCMO, Phuket, Thailand.
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1985-1995 Planning and Evaluating Section, PCMO, Phuket, Thailand.
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