



CHAPTER I

INTRODUCTION

1.1 Background and Rationale

1.1.1 Background

Vitamin or mineral supplement consumption is rather prevalent and preferred in many countries world wide (Ishihara et al., 2003; Balluz et al., 2005; Pedro et al, 2004). According to the National Health Interview Survey (NHIS), 46% of adults in the United States have officially stated that they are using a vitamin or mineral supplement at least once in the past year and 26 % reported daily use of vitamin and mineral supplement (Balluz et al., 2005). The demand and the supply of the variety of goods that are in the US markets of dietary supplements range from fortified foods to array of dietary supplements that maintain good health (Balluz et al., 2005). It is estimated that the United States population spends as much as \$ 1.3 billion to \$1.7 billion annually on vitamin and mineral supplements alone (Balluz et al., 2000). Ranking vitamin and supplement used among citizens of United States the third largest over the counter drug used (Balluz et al., 2000).

Demographic factors can be highly associated with the consumptions of vitamin and mineral supplement (Lyle et al., 1997; Rock et al., 2007; Ishihara et al., 2003). Vitamin and supplement factors can be easily correlated demographic factors such

as gender, age, race and socio economic status (Ishihara et al., 2003). Vitamin consumption can also be correlated with alcohol consumption, and smoking status (Ishihara et al., 2003). According to several studies, there is an association with preference of vitamin supplement intake with the level of education (Lyle et al., 1997; Block et al., 1987; Rock et al., 2007; Ishihara et al., 2003; Balluz et al., 2005). Those with education more than 12 years, tend to consume more vitamins than those with less than 12 years of education (Lyle et al., 1997; Block et al., 1987; Rock et al., 2007; Ishihara et al., 2003; Balluz et al., 2005). Likewise, gender also plays a vital role in vitamin and supplement consumption (Lyle et al., 1997; Block et al., 1987; Rock et al., 2007; Ishihara et al., 2003 ; Balluz et al., 2005). Women are more prefer to consume vitamins than men (Lyle et al., 1997; Ishihara et al, 2003, Balluz et al., 2005; Kim et al., 2003). As age increases the amount of dietary supplements that are used is more likely to increase (Balluz et al., 20055). In addition, the level of income also has an association with preference and prevalence of vitamin consumption (Ishihara et al., 2003). People who had made more money on average were more likely to consume vitamin supplement when compared with groups of people with lower social economic status (Block et al, 1988; Ishihara et al., 2003; Kim et al., 2001; Muntwyler et al., 2002). Teenagers that came from higher socio-economic families prevalence of consumption of vitamin supplement was also higher when compared to teenagers that came from a lower socio economic status (Kim et al.,2001; Kim et al., 2003). In some studies, the consumption of alcohol and smoking status has an association between vitamin supplement consumption (Lyle et al., 1998; Ishihara et al., 2003). In studies by Lyle et al., 1988; Kim et al.,1993

stated that women who consumed alcohol were more likely to consume vitamin supplements when compared to men who consumed alcohol. Although in other studies it states that there is association between vitamin supplement consumption and alcohol consumption and smoking status (Rock et al., 2007). Lastly, smoking status is also associated with vitamin supplement consumption (Rock et al., 2007). In the study Rock, 2007, it states then those who are current smokers are less likely to consume vitamin supplements. Whereas the study population of the study by (Rock et al., 2007) that those who were former smokers, tend to consume vitamin supplements more than current smokers.

The consumption of vitamins is also becoming more prevalent in many countries throughout Asia (Ishihara et al., 2003; Kim et al., 2003; Kim et al., 2001; Yong et al., 1990). The prevalence of vitamin supplement consumption is becoming more prevalent in Asia in almost every age group (Ishihara et al, 2003; Kim et al, 2003; Kim et al, 2001; Yong et al., 1990). Sun H. Kim, 2003 studied the vitamin and mineral supplement use healthy teenagers in Korea, in teenagers. When identifying the motivating factors of consumption of vitamin supplement in health teenagers in Korea revealed that the prevalence of vitamin supplement consumption was higher in high school students that when compared to middle school students in Korea (Kim et al., 2001). The reason for higher prevalence among high school students than in middle school is that the high school student felt that they were more stressed, more fatigue or by advertisements that are frequent in Korea to reduce the stress that is highly associated with university entrance examinations (Kim et al., 2001). In Malaysia a study on the vitamin use and

belief has been done among Malaysian University students (Yong et al., 1990). According to the study by Yong, 1990 showed that 24.6 % had practiced vitamin supplement consumption prior to the study, the most common vitamin supplement used among students in the study the majority of the students consume multivitamins supplements. In China and Hong Kong the market for vitamin supplement consumption has also improved in the past few years (Euromonitor, 2008). In the year 2003, sales of vitamin or mineral supplements in China had increased more than 200 % to US \$ 129 million in 2003 when compared to 1998 (Euromonitor, 2008). The increase of vitamin supplement consumption was due to urban areas have the most eager group of consumers (Euromonitor, 2008). Multivitamin supplement was the most nearby had the highest preference among consumers when compared to single vitamins due to convenience and limited knowledge about the benefits of single vitamin benefits in Chinese consumers (Euromonitor,2003). The consumption of vitamin supplement has also increased in Thailand (Thai customs department, 2007). The increase in vitamin supplement consumption among Thai's has increased due to the change in lifestyle, and influence from the media (Thannnews, 2007)

Demographic factors and vitamin supplement consumption increase can also be associated in Asia (Ishihara et al., 2003; Kim et al.,2001; Kim et al., 2003; Yong et al.,1900). Vitamin supplement consumption is very prevalent among teenagers and teenage athletes in Korea (Kim et al., 2003). Teenagers that came from a higher socio-economic status were more likely to consume vitamin supplements when compared to teenagers that came from lower socio economic status (Kim et al., 2001; Kim et al.,

2003). According to a market report from Euro monitors regarding the Hong Kong and Chinese the market of vitamin supplement has increased by almost 200 % due to an increase in consumption in those that are living in the urban areas (Euromonitor, 2003). In Asia there has only been one study that directly investigates the association between demographic factors and the preference of vitamin supplement consumption (Ishihara et al., 2003). According to Ishihara, 2003 it states those who were living in metropolitan regions (Suita and Katsushika) and also in areas that were influenced by Western lifestyles (Ishikawa). In areas that were influenced by western lifestyles or had easy access to vitamins or mineral supplements had a higher prevalence of vitamin or mineral supplement consumption (Ishihara et al., 2003). In addition those with more conservative jobs such as farming, fishing groups had less prevalence of vitamin supplement consumption when compared those who were self-employed (Ishihara et al., 2003). In Thailand, although there are no direct studies that look at the prevalence of vitamin supplement consumption and demographic factors, there have been some several news articles that report the association (Thannnews, 2007). It has been stated in many news articles that those in the age range of 24-45 constitute 70 % of the consumers of dietary supplements, which includes vitamin supplements (Thannnews, 2007). Therefore in Thailand there has been some evidence that age can be associated with vitamin supplement consumption.

1.1.1.1 Study location Background

1.1.1.1.1 Universities in Thailand

Currently, there are a total of 105 universities, nationwide. The universities can be divided into 2 categories (Wikipedia, 2007). The first categories of university are private and the second categories are public universities. There are 64 private universities and 41 public universities throughout Thailand (Wikipedia, 2007). Universities nationwide have the capability of education 1.1 million students (Intarakumnerd et al., 2002)

1.1.1.1.2 Chulalongkorn University

Chulalongkorn University, Thailand's first institution of higher learning officially came into being in March, 1917 (Chulalongkorn, 2008). In the year 2006, Chulalongkorn University was ranked 161 out of 200 World University Rankings (Times higher education supplement, 2006).

Chulalongkorn University has eighteen faculties, three affiliated institutes, two schools, three colleges, eleven institutes, and three special programs (Chulalongkorn, 2008). As of January 21, 2008 Chulalongkorn University accommodates 34,946 students (Chulalongkorn, 2008). The university has 7851 staff members; this number includes teachers and supporting staff (Chulalongkorn, 2008). The teachers and staff of the university have various fringe benefits that will help and promote good health (Chulalongkorn, 2008). For example, the primary health care unit in the university provides service to the students, faculty members, and supporting staff. The primary health care unit provides medical care and advice from doctors, who are

currently working at Chulalongkorn University (Chulalongkorn, 2008) In addition there is also a sports and recreational area, where there is a swimming pool, fitness room, tennis court and Thai massage service is available (Chulalongkorn, 2008).

1.1.2 Rationale

The dietary supplement market was introduced in Thailand approximately ten years ago (Child Thai, 2007). Ever since the introduction of dietary supplements, the market has continued to grow (Weekly-Manager Online, 2007). The market for dietary supplements has continued grow fast and diverse into various forms (Thannews, 2007). The market for many dietary supplement especially vitamin supplement has increased in sales due to shift in lifestyle of many Thai people (Thannews, 2007).

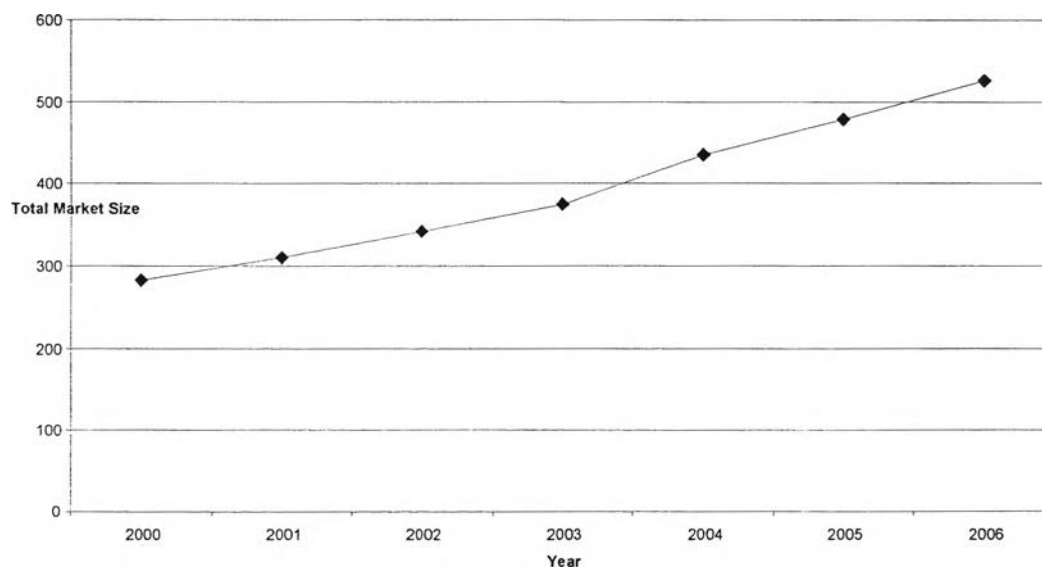


Figure 1: Table of markets size of food supplements (Thailand)

Ever since the introduction of the dietary supplement, the market grows 15 % each year, and continues to grow (Thannews 2007). The market for dietary supplements

has been booming especially in the past 3 – 4 years (Thannnews 2007). The growth of dietary supplements including vitamin and mineral supplements is due to Thai people becoming more concern of their health and taking more preventive measures towards health (Thannnews, 2007). Vitamins and mineral supplements are the latest trend for the new generation of Thais, due the change in lifestyle and limited hours (Thannnews,2007).

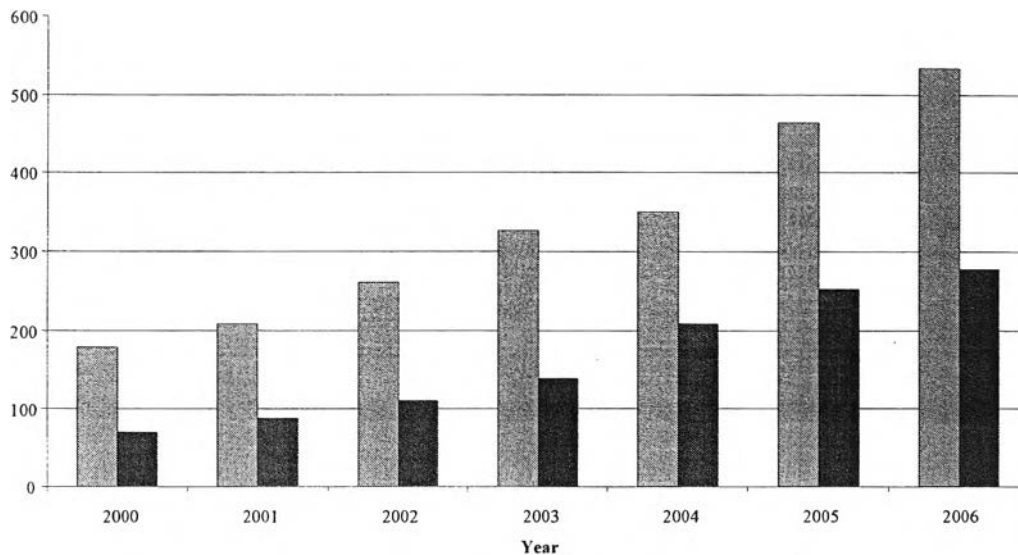


Figure 2: Total Import vs. Export of Food Supplements (Thailand)

It is estimated that for vitamin supplement consumers in Thailand if person spends 100 baht a day (3.5 US dollars), at least 10 percent of that person's expenditure is on vitamin supplements (E-LIB: Health library for Thai, 1997). Regardless of the shift in the economy, the market for vitamin supplement continues to grow (Thannnews, 2007). Despite the economic downturn that had effected the Thai economy during the last trimester of the year 2007, those who consumed vitamin supplements still continued usage regardless of economic situation (Thannnews, 2007). The reason for continuous

usage of vitamin supplements is due to the Royal Thai government's pursuit to promote preventive health rather than curative methods (Weekly-Manager Online,2007). In addition a lot of Thai people believe that the money that they spend on vitamin supplements will be a lot less than the actual cost of medical bills (Thannews,2007).

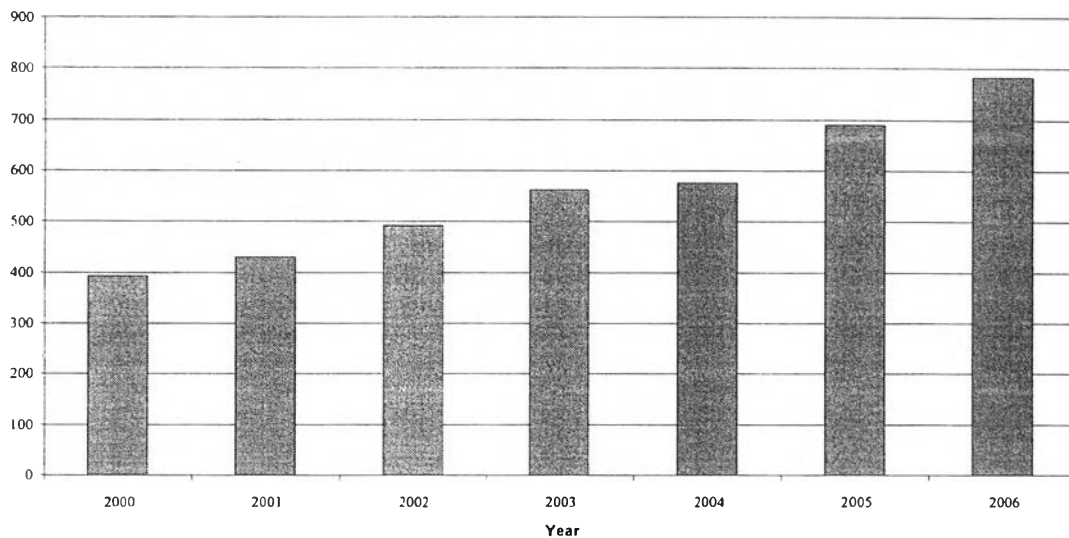


Figure 3: Total local production of Food Supplements (Thailand)

Currently in Thailand, there is a lot of debate whether the consumption of vitamins and mineral supplements are necessary (E LIB: Health Library for Thai, 2007). In Thailand there is still very little evidence to support that consumption of vitamins and minerals supplement will improve the health of Thai people (Thannews, 2007). The Thai population continues consumption of dietary supplements, and especially vitamin supplements because consumers believe it is better to protect than cure (Thannews, 2007).

The majority of consumers of vitamin supplements are those with a middle to high income range of at least 50,000 baht (1,515 US dollars (1 US= 33 Thai baht)) a

month (Thannews,2007). Those that consume vitamins supplements can be divided into three groups (Thannews, 2007). The first groups of people are those with age range less than 15 years old. The second group is at a range of 15-50 years old, this group constitutes 50 percent of the total consumption of vitamin or mineral supplements (Thannews, 2007). The last age range of consumer of vitamin supplements are 50 years old and above (Thannews, 2007).

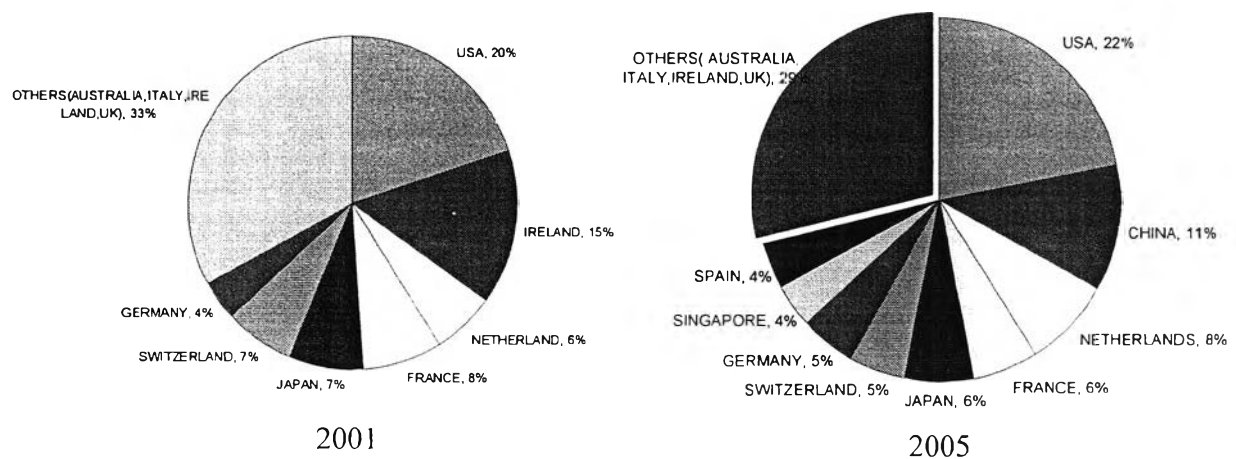


Figure 4: Market Share of Imports of Food Supplement in the year 2001 and 2005 (Thailand)

There have been no research studies, to my knowledge that have looked at the association between vitamin supplement usage and socio demographic factors. Chulalongkon University, would be a good study site to investigate the association between consumption and preference and socio demographic factors because, it will be able to provide a rough idea of the reasons why people choose to consume vitamin supplement. Chulalongkorn University has been used a study site and nowhere else, because according to many studies education has a great impact in the number of vitamin

supplement users and nutritional knowledge (Block et al.,1987. 2003; Ishihara et al.,2003).

1.2 Research Question

1. Asses the knowledge level about vitamins or mineral supplements of the supporting staff at Chulalongkorn University
2. Asses the attitude about vitamins or mineral supplements of the supporting staff at Chulalongkorn University
3. Whether or not demographic factors affect the perception of consumption of vitamins?

1.3 Objectives

1.3.1 General Objective

To study the association between socio-demographic factors and consumption of vitamins/mineral supplements in Chulalongkorn Supporting staff.

1.3.2 Specific Objectives

1. To identify whether there is an association between consumption of vitamins and income.
2. To identify whether there is a willingness to consume vitamins/mineral supplements in non-users
3. To identify whether the percentage of people that use vitamins/minerals supplement is as high as the market claims.

1.4 Research Hypothesis

- 1 That the knowledge of consumers of vitamins/mineral supplements will be higher than non-consumers of vitamin/mineral supplements.
- 2 The attitude of vitamin/mineral supplement between consumers and non consumers will be different.
- 3 There is an association between alcohol consumption, smoking status and exercise with the consumption of vitamins or mineral supplements.
- 4 There is an association between education and consumption of vitamins/mineral
- 5 There is an association between income consumption of vitamins/mineral supplements.

1.5 Conceptual Framework

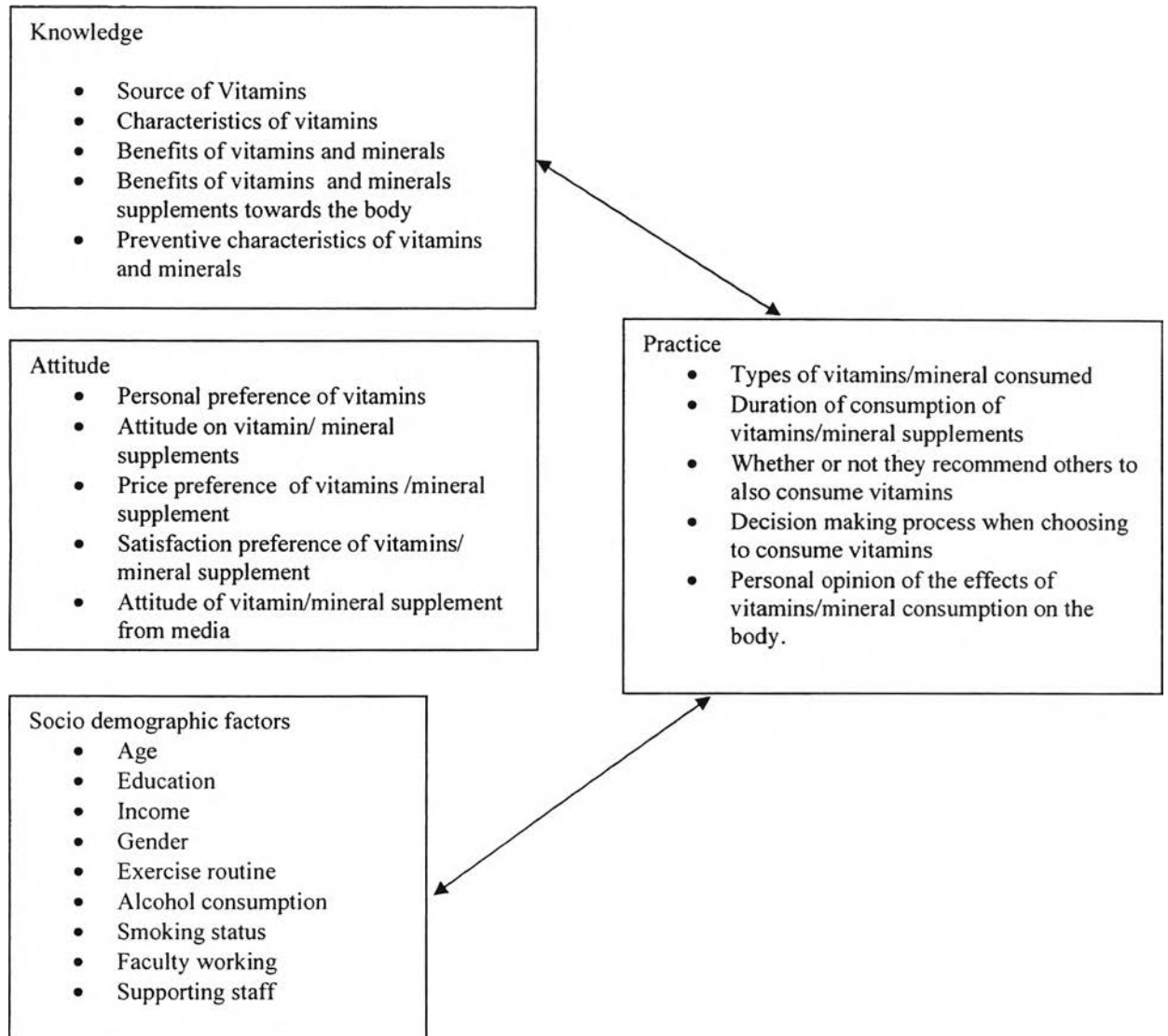


Figure 5: Conceptual framework

1.6 Expected outcomes and Benefits

Expected outcome of the study

The results of this study can be used as a guideline for many futures studies that can take place in Thailand. This because in Thailand the market for vitamins/mineral supplement is growing, although there are no current studies that look at the consumption and socio-demographic information in vitamin/mineral consumers.