CHAPTER III

RESEARCH METHODOLGOY

3.1 Study Design

This research is a cross-sectional descriptive study, which aims to measure the distinguish the relationship between preference of consumption of vitamins and mineral supplements and socio-demographic factors. The methodology of the study is quantitative study using closed-ended and open-ended self-reported questionnaires. The questionnaire covers four different aspects: socio-demographic characteristics, knowledge of vitamins and vitamin or mineral supplements, attitude regarding vitamins and vitamin/mineral supplement and practice of vitamin or mineral supplements. The study aims to quantify the significance of variables and correlations among them.

3.2 Study population and setting

3.2.1 Inclusion criteria.

All Chulalongkorn University supporting staff will be included in this study. They will also have to meet the following criteria.

1. Working at Chulalongkorn university can be part time or full time

2. Staff member of Chulalongkorn University

3. Volunteer and willing to participate in the study.

The database of the study was obtained using the information from the university's website. The website contained information about the total number of

teaching staff and supporting staff from each faculty. The database showed that there was a total of 2063 supporting staff working at Chulalongkorn University. 2063 of the working staff constitute from a total of 18 faculties that will be randomly selected to fill out the questionnaire. This study population included every faculty at the university already.

3.2.2 Exclusion criteria

The following criteria were used to screen out the sample population.

1. Staff members of the university such as drivers, janitors or security guards.

2. Teachers or staff members who were not present during the data collection period (2 months; February –March 2006).

3. Those those were not willing to participate and refuse to the fill in the questionnaire.

3.2.3 Sampling and sample size.

The Cochran simplified formula was employed to calculate the sample size for the questionnaire data collection. The reason why Cochran was selected to use to calculate the sample size is because the study population size is finite and known (Cochran). In addition the reason why we have chosen to use because our population size is large.

Equation 1:

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

Where n_0 = sample size

Z = Confidence interval

p= estimated proportion

q = 1-p

e= is the level of precision (0.05)

The estimated proportion was used to calculate the proportion of the teachers and faculty member included in the pilot study that consumed vitamins or mineral supplements.

So that

$$n_0 = \frac{(1.96)^2(0.65)\,(0.35)}{(0.05)^2}$$

$$= 349.58$$

Since our study will affect a total of 2063 we will have to use additional equation to calculate our final sample size.

Equation 2:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

n = sample size of effected of study

n_0 = sample size

N= population size that effects the study.

So that

$$n = \frac{349.58}{1 + \frac{(349.58 - 1)}{2063}}$$

$$= 299 \text{ teachers}$$

A safety tolerance (10 % of 299) was added to cope with possible errors such as missing or incomplete data. Therefore at least 328 faculty members and teachers will be subjected to the self-reported questionnaire.

3.2.4 Data collection

In order to collect the data for this study, the total number of supporting staff at Chulalongkorn University was calculated. A total of 2063 supporting staff was identified working at Chulalongkorn University (Chulalongkorn, 2008). The 2063 supporting staff came from a total of eighteen faculties at Chulalongkorn University (Chulalongkorn, 2008). The eighteen faculties the data was collected from include:

1. Allied Health Sciences

2. Architecture

3. Arts

4. Commerce and Accountancy

5. Communication Arts

6. Dentistry

7. Economics

8. Education

9. Engineering

10. Fine and Applied Arts

11. Law

12. Medicine

13. Nursing

14. Pharmaceutical Sciences

15. Political Science

16. Psychology

17. Science

18. Veterinary Science

A total of 328 questionnaires were collected from the eighteen of the faculties. In order to have fair and unbiased results, the total number of each staff member for faculty was calculated as a percentage of the total population

The pie chart below illustrates the exact percentage that each faculty constitutes to the total population size of 2068 supporting staff members at Chulalongkorn University (Chulalongkorn, 2008).
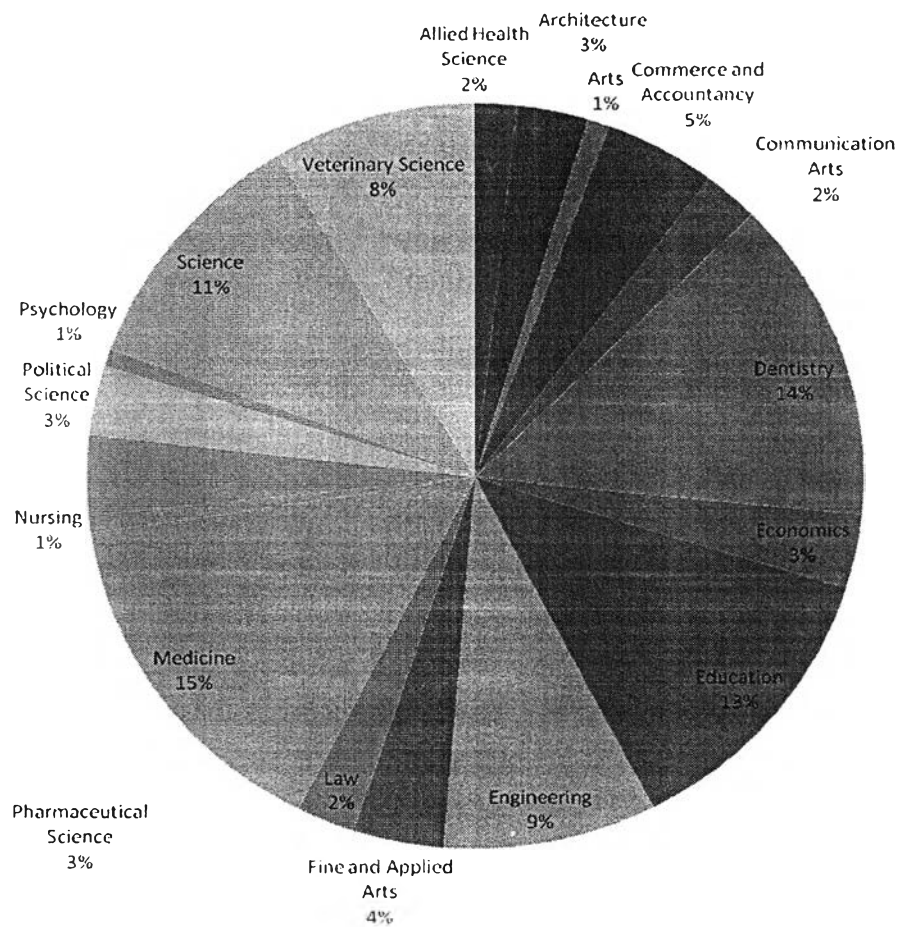

Figure 6: Percentage distribution of each faculty's contribution to total

population size.

Table 3.1: Distribution of questionnaires that were distributed to each faculty.

Faculty	Population of Supporting staff/ Faculty	Percentage Contribution towards Population size (%)	Number of Questionnaires Distributed
Allied Health Science	36	2	6.56
Architecture	61	3	9.84
Arts	19	1	3.28
Commerce and Accountancy	96	5	16.4
Communication Arts	48	2	6.56
Dentistry	289	14	45.92
Economics	66	3	9.84
Education	260	13	42.64
Engineering	183	9	29.52
Fine and Applied Arts	78	4	13.12
Law	51	2	6.56
Medicine	312	15	49.2
Nursing	16	1	3.28
Pharmaceutical Science	70	3	9.84
Political Science	62	3	9.84
Psychology	15	1	3.28
Science	226	11	36.08
Veterinary Science	175	8	26.24
Total	2063	100	328

The questionnaires were distributed according to the percentage of each faculty. Although not all of the questionnaires were complete and usable. Ten of the questionnaires were usable; all ten of them had missing data. Therefore the missing data questionnaires were discarded from the study. A total of 324 questionnaires where then used to analyze data.

3.3 Procedures

Questionnaire survey

Three hundred and twenty-eight staff members were randomly sampled using simple random method from the combined database. The questionnaires were distributed according to the percentage of each faculty's contribution to the total

population size. Each sampled faculty staff was approached and asked permission and willingness to participate in the study. Upon the agreement to participate in the questionnaire, the questionnaire was self reported and collected immediately upon completion.

3.4 Research Instruments and level of Measurement

A questionnaire was distributed to measure the association between socio-demographic factors and consumption ofvitamin/mineral consumption in Chulalongkorn staff members. The questionnaire consisted of four main parts.

3.4.1 Socio-demographic factors

The socio-demographic section contains 14 main items. The socio-demographic section covers general information about the interviewee. The socio-demographic factor such as: age range, education, exercise habit, smoking status, and income.

3.4.2 Knowledge of vitamins and vitamin/mineral supplements

Knowledge section of the questionnaire contains information regarding general information about vitamins, and vitamins or mineral supplements. The knowledge part of the questionnaire contains a total of 19 items. Vitamins A, vitamin B, vitamin C, vitamin C and vitamin D are the most common vitamins that are consumed in Thailand, therefore they were selected to be the five vitamins that would be included in the questionnaire in order to test the knowledge of users and non-users (Food and Drug Administration Thailand,2008). The 19 items knowledge part of the questionnaire, range from general information regarding the source of vitamins A, vitamin B, vitamin C, vitamin D and vitamin E to the benefits.

3.4.2 Attitude regarding vitamins/mineral supplements

The attitude section of the questionnaire includes statements regarding the various aspects of preference of vitamin or mineral supplements, and the usage of vitamin or mineral supplements.

3.4.3 Practice and usage of vitamins/mineral supplements

The practice section of the questionnaire includes questions regarding the usage of vitamins supplements. The questions will include frequency of use vitamins or mineral supplements and the reasons of usage. The practice section also includes the source of purchasing the vitamins, and the motivation in decision making.

3.5 Scaling

For the knowledge part of the questionnaire, there is only one correct answer. If the interviewee had a correct answer, they were given a 1 for each correct answer, if the answer was wrong a 0 was awarded. The scaling for the knowledge section of the questionnaire was used given for 1-100(Academic division, 2003).

$$50-59 \quad = \text{Poor}$$

$$60-69 \quad = \text{fair}$$

$$70-79 \quad = \text{Good}$$

$$80-100 = \text{Excellent}$$

For the attitude part of the questionnaire, Likert scale was used in order to analyze the attitude of each correspondent from the questionnaire. The reason why we have chosen the likert scale, to analyze our data is because it is a five-scale agreement, five = to strongly agree and ranging to one = strongly disagree (Trochim et al., 2006). The attitude section of the questionnaire used this rating scale for each statement.

Strongly agree   = 5

Agree   = 4

Not sure   = 3

Disagree   = 2

Strongly disagree = 1

As for the grading of the attitude of each correspondent, we used the following method. The rating for the attitude was calculated using this scale.

Average	Definition
4.21-5.00	Strongly agrees with the statements
3.41- 4.20	Agrees with the statments
2.61-3.40	Somewhat agrees with the statment
1.81- 2.60	Disagrees with the statments
1.00-1.80	Strongly disagrees with the statments

3.6 Validity of the test instrument

The questionnaire used for this study was based on questionnaires from previous studies (Block et al., 1987; Block et al., 2003; Ishihara et al., 2003; Rock et al., 2003; Kim et al., 2000).

For content validity, the developed questionnaire was distributed to public health experts in order to validate the questionnaire. Possible flaws, and ambiguity of the tool were discussed with these experts and necessary changes were incorporated. The questions were then modified and selected, and translated into Thai. The Thai version of the questionnaire was translated by the department of translation at the faculty of Fine Language and Arts at Chulalongkorn University. Some terms, were adjust for

simplicity and comprehensive in terms of laymen terms so that it was easy to understand and prevent misguidance.

3.7 Reliability test of the Instrument

In order to test the questionnaire for validity test of the Cronbach alpha and Kuder Richardson test was performed to test the validity and reliability of the attitude and knowledge section of the questionnaire. A pilot study was perfumed at Suan-Dusit Ratchapat University, Faculty of Business Administration where 40 questionnaires were handed out to the supporting staff of the faculty.

After performing the pilot test, Kuder –Richardson was used in order to test the reliability of the knowledge part of the questionnaire. The Kuder- Richardson test was used, because this test of reliability will provide the most reliable test, corresponding with the possibility of only one answer (Wikipedia, 2008). The test revealed that the knowledge part of the questionnaire had reliability of 0.71. The results of reliability test revealed that the knowledge part of the questionnaire was rather reliable and in the level that is acceptable. For the attitude section of the questionnaire, the cronbach test was performed in order to check the actual reliability of the attitude section. The reason why the researcher has chosen to use cronbach alpha, because there is possibility to have more than one more right answer (Wikipedia, 2008). The reliability test revealed that the attitude part questionnaire had a reliability of 0.89.

3.8 Data Analysis Method

The data was analyzed using software packages (Microsoft Excel and SPSS). The significance level was set at 0.05.

1. Descriptive statistics were used to describe the population's characteristics. The data was expressed in numbers, frequencies, percentages, means and standard deviation subjected to each factor.

2. Internal statistics were used to determine the associations among variables. Independent t-test, chi-square test.