CHAPTER III

RESEARCH METHODOLOGY

Research design

A cross-sectional study with descriptive and analytic component

Target population

The medical students in the Faculty of Medicine, Chulalongkorn University

Study population

All medical students in the Faculty of Medicine, Chulalongkorn University in academic year 2008

Year 1:	291 students
Year 2:	272 students
Year 3:	260 students
Year 4:	232 students
Year 5:	255 students
Year 6:	184 students

Sampling method

All medical students in the Faculty of Medicine, Chulalongkorn University in academic year 2008 were recruited without sampling.

Questionnaire development

A questionnaire was closed-ended and administered in Thai. The questionnaire running number would spontaneously reflect the students' academic years and campuses. Personal data in Part I covered information on the students' year of study, gender and their GPAX. GPAX was divided into 6 categories from ≤ 2.00 to > 3.50. We collected only personal data that would not endanger the actual or perceived anonymity of

the students. The first step of item setting in this questionnaire was to review the related literatures and consulted the experts' opinions. After developing a thorough understanding of the research, the next step was generating statements/questions for the questionnaire. Two experts (one senior staff who has instructed medical ethics for more than 30 years and the other staff who was very keen in medical education) considered the draft of questionnaire and made a number of suggestions. A brief and concise questionnaire was then designed and the experts again were asked to review and validate this questionnaire.

Part II of the questionnaire consisted of 25 questions which asked the students whether they had engaged in, or would consider engaging in, various behaviors regarding academic misconduct (focusing on dishonesty and irresponsibility). This was modified from previous studies[14,17] and more items were designed to make the questionnaire relevant to medical students in our country. As designed, there were 17 items about dishonesty (items 1 – 17 in questionnaire part II) and 5 items about irresponsibility (items 7, 12, 13, 18, 19 in questionnaire part II) while 3 items contained both components (items 7, 12, 13 in questionnaire part II). There were also 5 items that either were not academic misconduct or controversial issues (items 20 – 24 in questionnaire part II) in order to prevent the students from answering without reading the questions. The items about dishonesty included cheating- for example: forged signature, cheated in examination, lent work to other students to copy, etc; plagiarism and bribing.

Part III consisted of 24 scenarios mimic to part II, but they were arranged in different order. Each scenario portrayed "Somchai", a fictitious student engaged in academic misconduct described in part II. Students were asked whether they felt Somchai was wrong. A final question of each part asked students to indicate their attitudes and willingness regarding informing the faculty of serious misconduct on the part of their peers. Unlike other previous studies, we arranged the reported behaviors to be the former part of questionnaire in order to prevent the students from avoiding to accept that they had performed or considered performing what they had judged as wrong.

Response options were Likert-type scale point proliferation which hopefully would take the students some thought and effort to answer. Order of categories of Questionnaire part II and III were (5) Often (4) Occasionally (3) Not sure (2) seldom (1) Never, and (5)

Absolutely yes (4) Probably yes (3) Not sure (2) Probably no (1) Absolutely no, respectively. Although this kind of middle scale position might not reflect the real neutral opinion and might result from the students' ignorance or reluctance to answer, we preferred to give this option in order to avoid missing data in case a decision could not be reached. We also thought that it might decrease some response bias, such as central tendency bias, end-aversion bias, and social desirable bias. Moreover, we understood there might be some indecisiveness in such controversial and sensitive issues.

The questionnaire was pre-tested on 5 students of each Year. The purpose of this activity was to determine relevance of the questions and the extent to which there might be problems in obtaining responses. This group was asked to complete this preliminary version of the questionnaire and later criticize it in terms of readability, clarity, and sequence of the questions. Time required to complete the questionnaire will be recorded (which came out to be 4-13 minutes) and modification of the questionnaire was done as needed. The pre-test responses were discarded. Since all medical students were recruited into the study, we were not uncertain about the response rate that might affect the sample size. We also believed that feedback from a small, but representative sample of potential respondents were able to eliminate the uncertainty in question applicability and performance, thus, we considered that a field trial was not necessary.

Outcome measurement

The primary outcome measure is the percentage of medical students' attitudes and reported behaviors in each scenario.

The secondary outcome measure is the association between medical students' attitudes and reported behaviors in each scenario, and gender, academic year, GPAX, and campus.

Data collection

A cross-sectional survey was conducted using an anonymous, self-administered questionnaire. The schedule of the survey was planned in advance with the course administrator of each year. Students were asked to participate in the study between

August and October 2008. Any student who was absent on the survey day was excluded. Partially completed questionnaires were also included for the analysis.

The answers from Years 1-3 students in the 3 items that should not be obtained by pre-clinical students were excluded. The recorded data were then cleaned before analysis.

Data analysis

Data were analyzed using SPSS software (version 13.0 for Windows; copyright 2004. SPSS Inc, Rainbow Technologies, Chicago, III) using percentage frequency responses. Chi-squared and Fisher exact tests were used for categorical variables. Logistic regression modeling was used to estimate effect of a variable adjusted for others. A *p* value of less than .05 was considered statistically significant.

- *Self reported attitudes to the scenarios*

In this study, to make results easy to interpret and to lessen social desirable bias, we grouped the responses of each item into two categories. The answer "yes" or "right" or positive attitude" to the question "Do you feel that Somchai is wrong?" included the choices (5) Absolutely yes and (4) Probably yes, because we thought that medical students who chose the choice "(3) Not sure" might have the tendency to think or feel that what Somchai did was not wrong. Other categories were taken as "no". The percentages of the answer "yes" of each scenario were reported.

- *Self reported behaviors to the scenarios*

Similar to attitudinal responses, we grouped the responses of each item into two categories. The answer "yes" or "endorsement of behavior" to the question "Have you or would you consider doing it?" included the choices (5) Often, (4) Occasionally, and (3) Not sure, because we thought that medical students who had not engaged in, or would consider engaging in those misconducts, would choose either (2) seldom or (1) Never rather than (3) Not sure. Other categories were taken as "no". The percentages of the answer "yes" of each scenario were reported.

The attitudes toward the misconduct scenarios were then compared with the self-reported behaviors in order to study their association using chi-squared test.

- *Factor analysis and Reliability test*

Since we designed the questionnaire to be composed of "dishonesty" and "irresponsibility" components, we planned to do the factor analysis to see if there were really two factors, and if those factors represented the dimensions we expected. Only attitudinal data were analyzed because the behavioral data could be different from the students' behavior, not their concept. First of all, we planned to exclude the items that pre-clinic students were not asked to complete (items 12, 13, and 21) to decrease the number of missing data. We then conducted the principle component analysis from the rest 22 items. The number of meaningful factors was identified using total initial Eigenvalues and the scree plot.

To gain confidence in a measure such as attitude, we also needed to test its reliability. To assess the reliability, internal consistency and reproducibility should be analyzed. Internal consistency was investigated by using the correlation of each item with each of the others to generate Cronbach's coefficient alpha. In our study, internal consistency was considered acceptable when Cronbach's coefficient alpha exceeded 0.8 and corrected item-total correlation exceeded 0.3.[26] Reproducibility (test-retest reliability) was not assessed because the second baseline measurement was not available in this study.

- *Factors related to reported attitudes*

After factor analysis and reliability test, all reliable items were used for univariate analysis. The answers "yes" and "no" in each reported attitudes to the scenarios were transformed to scores "0" and "1", respectively. Since we believed that total scores of all students were not normally distributed, we analyzed and categorized them into percentiles. The score above 75th centile was considered to be poor attitude toward academic misconduct. The association between this group and 4 factors, which were gender, academic year, GPAX, and campus were analyzed, using chi-squared test and chi-squared for trend for nominal and ordinal data, respectively. (The data concerning campus was recorded only in clinical years.)

- *Factors related to reported behaviors*

After factor analysis and reliability test, all reliable items were used for univariate analysis. The answers "yes" and "no" in each reported behavior to the scenarios were transformed to scores "1" and "0", respectively. Like the attitudinal scores, total scores of all students were also analyzed and categorized into percentiles. The score above 75th centile was considered to be high risk group for engaging in academic misconduct. The association between this group and 4 factors, which were gender, academic year, GPAX, and campus were analyzed, using chi-squared test and chi-squared for trend for nominal and ordinal data, respectively. (The data concerning campus was recorded only in clinical years.)

- *Multivariate analysis of significant factors*

Since we had several factors that might influence students' attitudes and behaviors, we could not be sure that these factors were not dependent variables. In order to test this, the factors that showed associations with attitude and behavior *with p* value of less than 0.1 were further analyzed. We used logistic regression model to examine factors associated with medical students' attitudes and reported behaviors involving academic misconduct. This procedure was performed to determine the real main effects of all factors and whether there was any interaction among those factors.

Ethical consideration

The study was started after the approval of the Institutional Research Board committee. Since medical students might be considered as vulnerable subjects, they were emphasized that their participation were voluntary and anonymous. Their participation or not would not effect their learning process or evaluation. They were allowed to choose not to answer any question that made them feel uncomfortable to respond. The participant's consent was implied if the questionnaire was returned completed.

Budget

- Personnel training & meeting 1,000.00 baht
- Investigator transportation 2,000.00 baht

• Telephone	2,000.00	baht
• Postal delivery	2,000.00	baht
• Printing papers	3,000.00	baht
• Printing ink	3,000.00	baht
• Photocopy	1,000.00	baht
• Miscellaneous	1,000.00	baht
TOTAL	**15,000.00**	**baht**