



## CHAPTER IV

### RESULTS

The survey was conducted between August and October 2008. One thousand two hundred and seventeen of 1,494 medical students (81.5%) completed the questionnaire. Demographic data of these students are shown in Table 4.1. The missing data in gender (5.3%) might be due to the students' forgetfulness since we observed that those who did not declare their gender also left all demographic data blank. There were no missing data in academic year and campus because we could recollect this information from the questionnaire running number. The response rate was highest among the students of academic year 3 (96.2%). The missing data in GPAX were even higher than gender (15.2%). Any item that was left blank was excluded from data analysis.

**Table 4.1** Demographic data of medical students responding to the questionnaire

Variables	Number (%)
<b>Gender<sup>s</sup></b>	
Male	484(42.0%)
Female	668 (58.0%)
<b>Year</b>	
1	247 (84.9%)
2	191 (70.2%)
3	250 (96.2%)
4	176 (75.9%)
5	229 (89.8%)
6	124 (67.4%)
<b>GPAX*</b>	
≤ 2.00	4 (0.4%)
2.01 – 2.50	27 (2.6%)
2.51 – 3.00	91 (8.8%)
3.01 – 3.25	143 (13.9%)
3.26 – 3.50	214 (20.7%)
> 3.50	553 (53.6%)
<b>Campus</b>	
1	1081 (88.9%)
2	44 (3.6%)
3	44 (3.6%)
4	48 (3.9%)

<sup>s</sup> missing data = 65

\* missing data = 185

### Self reported attitudes to the scenarios

In this study, the answer "yes" 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.

The majority of medical students felt that most scenarios were wrong (Table 4.2). Apart from the scenarios that were not academic misconduct or controversial issues (items 20 - 24), the 5 scenario behaviors that the students were most uncertain whether they were wrong or not were; item 19: seeing friend copies answers from another student in an examination, but does not inform the examiner (50.5%), item 3: finding out about test questions file in the computer in the classroom and tells friends (55.6%), item 4: copying directly from textbooks or published papers without acknowledging the source (58.2%), item 7: lending friend work to copy (59.2%), and item 16: modifying friends' works and submitting it (60.8%).

Regarding the scenarios that were not academic misconduct or controversial issues (items 20 - 24), only few students answered that item 23 (advising friend how to write a piece of work) and item 24 (not attending the class due to food poisoning) were wrong (5.9% and 8.6%, respectively). That meant most of them realized that these scenarios were falsified ones. The respondents might be confused about item 22 (lending friend work to look at, and she copies it without telling you) because more than half of them (59.9%) responded that this was wrong. The majority of medical students (88.1%) thought that exchanging information with friend who had just completed the OSCE last 10 weeks which they were about to go into next week was not wrong. Many of them (79%) also thought that copying from textbooks or published papers and just listing them as references was the right thing to do. This, in fact, is partially correct therefore they may need to be instructed more about "Plagiarism".

**Table 4.2** Attitudes of medical students: Answering “yes”<sup>§</sup> to the question “Do you feel that Somchai is wrong?”.

Scenario	N	%
1. Forging staff's signature on a piece of work.	1151/1211	95.0
2. Copying answers from friend in an examination.	1154/1212	95.2
3. Finding out about test questions file in the computer in the classroom and tells friends.	674/1212	55.6
4. Copying directly from textbooks or published papers without acknowledging the source.	704/1210	58.2
5. Copying friend's work.	982/1208	81.3
6. Writing a piece of work for friend.	837/1208	69.3
7. Lending friend work to copy.	718/1212	59.2
8. Not attending the class but ask friend to sign a class attendance list.	1064/1212	87.8
9. Signing friend's name in a class attendance list for friend who does not attend the class.	982/1208	81.3
10. Not ready for an examination so you ask a doctor who is your relatives to write the medical certificate stating that you get sick and cannot attend the examination.	1132/1210	93.6
11. Presenting the expensive gift to the Head of Department on New Year occasion and asks to take an oral examination with a staff who is very kind.	1106/1211	91.3
*12. Writing "Nervous system examination – normal" in the patient presentation but not performing the procedure.	392/523	75.0
*13. Performing the dilatation & curettage in the real patient without practicing in the manikin as assigned.	396/519	76.3
14. Resubmitting work already submitted for a different course for the present course.	802/1211	66.2
15. Submitting work submitted the previous year by the senior.	1024/1209	84.7
16. Modifying friends' works and submitting it.	736/1211	60.8
17. Submitting the same work with friend.	919/1210	76.0
18. Not attending the class due to friend's birthday party.	755/1211	62.3
19. Seeing friend copies answers from another student in an examination, but does not inform the examiner.	612/1213	50.5
20. Copying from textbooks or published papers and lists them as references.	254/1212	21.0
*21. Chatting to friend about the OSCE she has just completed last 10 weeks and you are about to go into next week.	62/523	11.9
22. Lending friend work to look at, and she copies it without telling you.	725/1210	59.9
23. Advising friend how to write a piece of work.	72/1211	5.9
24. Not attending the class due to food poisoning.	101/1211	8.6
25. Informing faculty of another student's serious academic misconduct?	663/1206	55.0

OSCE = Objective structured clinical examination

<sup>§</sup> Yes = wrong which included the choices: "Absolutely yes: and "Probably yes"

\* Not including pre-clinical years

### Self reported behaviors to the scenarios

In this study, the answer "yes" 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.

The medical students admitted engaging or would engage in every scenario (Table 4.3). Apart from the scenarios that were not academic misconduct or controversial issues (items 20 – 24), the 5 most frequent academic misconduct scenarios were; item 4: copying directly from textbooks or published papers without acknowledging the source (64.7%), item 12: writing "Nervous system examination – normal" in the patient presentation but not performing the procedure (59.0%), item 7: lending friend work to copy (55.5%), item 19: seeing friend copies answers from another student in an examination, but does not inform the examiner (47.3%), and item 9: signing friend's name in a class attendance list for friend who does not attend the class (41.7%). Not surprisingly, among those most frequently conducted were items 4, 7, and 19 which the students felt uncertain whether they were wrong or not.

The two scenarios that medical students rarely did were: not ready for an examination so you ask a doctor who is your relatives to write the medical certificate stating that you get sick and cannot attend the examination (1.8%) and presenting the expensive gift to the Head of Department on New Year occasion and asks to take an oral examination with a staff who is very kind (1.9%). That is quite reasonable because these were 2 of the top five scenarios that students strongly agreed to be wrong. For the clinical years, a lot of the students (59.0%) admitted writing the falsified result of neurological signs without performing it but very few (8.3%) performed the procedure they had not practiced in the manikins before.

In all, 663 (55.0%) respondents answered they should inform faculty of another student's academic misconduct. However, only 126 (10.4%) students stated that they had or would consider informing faculty in case they witnessed such events.

**Table 4.3** Behaviors of medical students: Answering “yes”<sup>§</sup> to the question “Have you or would you consider doing it?”.

Scenario	N	%
1. Forging staff's signature on a piece of work.	95/1216	7.8
2. Copying answers from friend in an examination.	158/1216	13.0
3. Finding out about test questions file in the computer in the classroom and tells friends.	136/1215	11.2
4. Copying directly from textbooks or published papers without acknowledging the source.	786/1214	64.7
5. Copying friend's work.	442/1214	36.4
6. Writing a piece of work for friend.	209/1213	17.2
7. Lending friend work to copy.	673/1213	55.5
8. Not attending the class but ask friend to sign a class attendance list.	392/1215	32.3
9. Signing friend's name in a class attendance list for friend who does not attend the class.	506/1212	41.7
10. Not ready for an examination so you ask a doctor who is your relatives to write the medical certificate stating that you get sick and cannot attend the examination.	22/1216	1.8
11. Presenting the expensive gift to the Head of Department on New Year occasion and asks to take an oral examination with a staff who is very kind.	23/1214	1.9
*12. Writing “Nervous system examination – normal” in the patient presentation but not performing the procedure.	310/525	59.0
*13. Performing the dilatation & curettage in the real patient without practicing in the manikin as assigned.	43/516	8.3
14. Resubmitting work already submitted for a different course for the present course.	114/1212	9.4
15. Submitting work submitted the previous year by the senior.	113/1211	9.3
16. Modifying friends' works and submitting it.	318/1208	26.3
17. Submitting the same work with friend.	72/1212	5.9
18. Not attending the class due to friend's birthday party.	122/1210	10.1
19. Seeing friend copies answers from another student in an examination, but does not inform the examiner.	571/1207	47.3
20. Copying from textbooks or published papers and lists them as references.	796/1208	65.9
*21. Chatting to friend about the OSCE she has just completed last 10 weeks and you are about to go into next week.	415/522	79.5
22. Lending friend work to look at, and she copies it without telling you.	612/1205	50.8
23. Advising friend how to write a piece of work.	909/1203	75.6
24. Not attending the class due to food poisoning.	261/1209	21.6
25. Informing faculty of another student's serious academic misconduct?	126/1207	10.4

OSCE = Objective structured clinical examination

<sup>§</sup> Yes = had or would consider doing which included the choices: “Often”, “Occasionally”, and “Not sure”

\* Not including pre-clinical years

### Association between reported attitudes and behaviors

Table 4.4 shows the association between reported attitudes and behaviors regarding academic misconduct. We analyzed into odd ratios (OR) in order to make it easier to interpret. For example in item 1, the students who thought that forging staff's signature was wrong would engage in this behavior 6.6 times less than those who thought it was right. The students have shown trend that if they felt it wrong they would not consider engaging in such behavior in most of the misconduct scenarios. Even the scenarios that the students were not certain whether they were wrong or not (which were item 3: finding out about test questions file in the computer in the classroom and tells friends, item 4: copying directly from textbooks or published papers without acknowledging the source, item 7: lending friend work to copy, and item 16: modifying friends' works and submitting it, and item 19: seeing friend copies answers from another student in an examination, but does not inform the examiner), there still were the significant associations between attitudes and behaviors. Only items 12 (writing "Nervous system examination – normal" in the patient presentation but not performing the procedure) and 24 (not attending the class due to food poisoning) that the relationship between reported attitudes and behaviors did not reach statistical significance.

"Not ready for an examination so you ask a doctor who is your relatives to write the medical certificate stating that you get sick and cannot attend the examination" (item 10) had the highest OR (13.7) among all scenarios. There was no any scenario that had negative relationship.

Table 4.4 Association between attitudes and behaviors of medical students

Scenario	OR (95% CI)	p value
1. Forging staff's signature on a piece of work.	6.6 (3.6, 11.8)	<0.001
2. Copying answers from friend in an examination.	3.0 (1.7, 5.4)	<0.001
3. Finding out about test questions file in the computer in the classroom and tells friends.	2.3 (1.6, 3.3)	<0.001
4. Copying directly from textbooks or published papers without acknowledging the source.	2.0 (1.6, 2.6)	<0.001
5. Copying friend's work.	1.8 (1.4, 2.5)	<0.001
6. Writing a piece of work for friend.	1.5 (1.1, 2.0)	0.011
7. Lending friend work to copy.	1.4 (1.1, 1.8)	0.004
8. Not attending the class but ask friend to sign a class attendance list.	2.8 (2.0, 4.0)	<0.001
9. Signing friend's name in a class attendance list for friend who does not attend the class.	2.5 (1.9, 3.4)	<0.001
10. Not ready for an examination so you ask a doctor who is your relatives to write the medical certificate stating that you get sick and cannot attend the examination.	13.7 (5.7, 32.9)	<0.001
11. Presenting the expensive gift to the Head of Department on New Year occasion and asks to take an oral examination with a staff who is very kind.	7.9 (3.3, 18.9)	<0.001
*12. Writing "Nervous system examination – normal" in the patient presentation but not performing the procedure.	1.3 (0.9, 2.0)	0.160
*13. Performing the dilatation & curettage in the real patient without practicing in the manikin as assigned.	3.1 (1.6, 5.8)	<0.001
14. Resubmitting work already submitted for a different course for the present course.	3.1 (2.1, 4.6)	<0.001
15. Submitting work submitted the previous year by the senior.	2.9 (1.8, 4.4)	<0.001
16. Modifying friends' works and submitting it.	2.3 (1.8, 3.0)	<0.001
17. Submitting the same work with friend.	4.4 (2.7, 7.2)	<0.001
18. Not attending the class due to friend's birthday party.	2.8 (1.9, 4.1)	<0.001
19. Seeing friend copies answers from another student in an examination, but does not inform the examiner.	1.4 (1.1, 1.8)	0.004
20. Copying from textbooks or published papers and lists them as references.	3.1 (2.3, 4.1)	<0.001
*21. Chatting to friend about the OSCE she has just completed last 10 weeks and you are about to go into next week.	6.8 (3.8, 11.9)	<0.001
22. Lending friend work to look at, and she copies it without telling you.	1.5 (1.2, 1.9)	0.001
23. Advising friend how to write a piece of work.	3.1 (1.9, 5.0)	<0.001
24. Not attending the class due to food poisoning.	0.9 (0.6, 1.5)	0.829
25. Informing faculty of another student's serious academic misconduct?	2.7 (1.8, 4.2)	<0.001

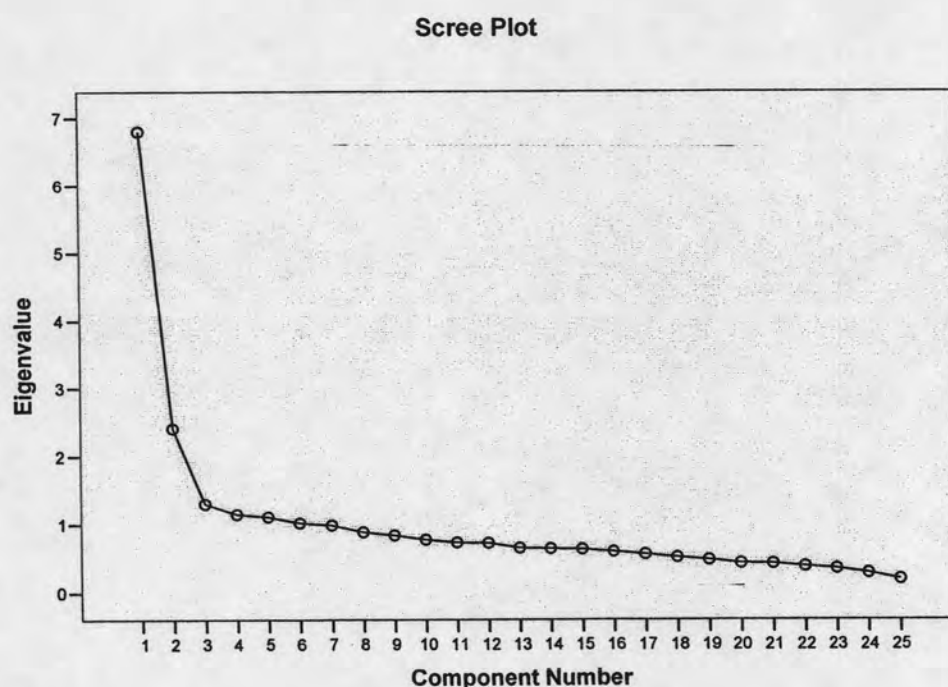
OSCE = Objective structured clinical examination

\* Not including pre-clinical years



### Factor analysis and Reliability test

As planned, after we excluded the items that pre-clinic students were not asked to complete (items 12, 13, and 21), the number of questionnaire items was subsequently 22. The scree plot (Figure 4.1) showed an abrupt break or discontinuity before factor 3, reflecting that only the first two factors were meaningful to be remained. Regarding total initial Eigenvalues, 22 items were divided into 4 dimensions with the Eigenvalue exceeded 1. These contained 2 prominent factors while Eigenvalues of factors 3 and 4 were a little more than 1. For factor 2, four items involved were previously classified as either not academic misconduct or controversial issues (items 20, 22 – 24). The common factor in this group might be from the pattern of the students' responses rather than each item's content. This meant that the designed two-factor questionnaire was in fact composed only 1 factor that should be "dishonesty". The items designed to test for "irresponsibility" might be too similar or contain part of "dishonesty" until they could not be distinguished from the students' responses. Therefore, a one-factor solution was chosen and only 18 items remained for reliability analysis.



**Figure 4.1** Scree plot showing the amount of variance accounted for by each factor.

The internal consistency of this questionnaire (one-factor with 18 items) reached a Cronbach's coefficient alpha of 0.846, which implies that the internal consistency was sufficient. None of the items had "Cronbach's alpha if item deleted" value higher than the overall alpha. Considering the corrected item-total correlation, there was no negative correlation value and all corrected item-total correlations exceeded 0.3, as shown in Table 4.5. Thus, no item was discarded because every item met the criteria of adequacy.

**Table 4.5** Item-total correlation and Cronbach's alpha if item deleted of 18-item questionnaire

Scenario	Corrected item-total correlation	Cronbach's alpha if item deleted
1. Forging staff's signature on a piece of work.	0.432	0.841
2. Copying answers from friend in an examination.	0.450	0.840
3. Finding out about test questions file in the computer in the classroom and tells friends.	0.375	0.842
4. Copying directly from textbooks or published papers without acknowledging the source.	0.385	0.842
5. Copying friend's work.	0.556	0.833
6. Writing a piece of work for friend.	0.531	0.833
7. Lending friend work to copy.	0.497	0.835
8. Not attending the class but ask friend to sign a class attendance list.	0.570	0.834
9. Signing friend's name in a class attendance list for friend who does not attend the class.	0.558	0.833
10. Not ready for an examination so you ask a doctor who is your relatives to write the medical certificate stating that you get sick and cannot attend the examination.	0.470	0.839
11. Presenting the expensive gift to the Head of Department on New Year occasion and asks to take an oral examination with a staff who is very kind.	0.416	0.840
14. Resubmitting work already submitted for a different course for the present course.	0.472	0.837
15. Submitting work submitted the previous year by the senior.	0.548	0.834
16. Modifying friends' works and submitting it.	0.489	0.836
17. Submitting the same work with friend.	0.346	0.843
18. Not attending the class due to friend's birthday party.	0.415	0.840
19. Seeing friend copies answers from another student in an examination, but does not inform the examiner.	0.419	0.840
25. Informing faculty of another student's serious academic misconduct?	0.377	0.842

### Factors related to reported attitudes and behaviors

After factor analysis and reliability test, the number of remained reliable items was 18 which were used for univariate analysis. Total scores of both groups were analyzed as described in Chapter III. Both attitudinal and behavioral scores above 75<sup>th</sup> centile were equal to 7.

Significantly, female students reported less lenient attitudes and lower prevalence than males regarding academic misconduct ( $p$  value  $< 0.001$  and  $p$  value = 0.006, respectively). There was no significant difference in attitudinal responses between the years ( $p$  value = 0.523). But the first year medical students reported that they had or would engage in the behavior described in the scenarios with higher percentages than later years while the fourth year students were the lowest ( $p$  value  $< 0.001$ ).

As shown in Table 4.1, the number of students who got lower GPAXs was small, especially those whose GPAXs were  $\leq 2.00$ . Thus, we regrouped those 4 lower levels ( $\leq 2.00 - 3.25$ ) into the same group and then analyzed. Analysis of the results revealed significant differences only in the behavioral responses between GPAXs. Interestingly, the students with lower GPAXs ( $\leq 2.00 - 3.25$ ) tended to have poorer attitude than those with higher GPAXs ( $3.26 - >3.50$ ), although this difference did not reach statistical significance ( $p$  value = 0.069). However, the students with highest GPAXs were disappointingly more likely to engage in cheating behavior ( $p$  value = 0.013) than those with lower GPAXs.

The medical students in Campus 3 tended to have poorest attitudes (30.2%) while the students in Campus 4 had the best attitudes (11.4%) concerning academic misconduct. Those in Campuses 1 and 2 tended to have better attitudes than Campus 3 (although poorer than Campus 4) but reported the higher prevalence in engaging in misconduct behavior than the other 2 campuses ( $p$  value = 0.006).

Since univariate analysis revealed only 2 factors, which were gender and GPAX, that were associated with the students' attitudes regarding academic misconduct (with  $p$  value  $< 0.1$ ), we performed multivariate analysis of these 2 factors. From logistic regression modeling; after adjusting for influence from other variables on attitude toward misconduct, only gender was the independent factor predicting negative attitude. That is

being female was less likely to have negative attitude than being male (Odds ratio; OR = 0.52, 95% CI = 0.38, 0.71,  $p < 0.001$ ). Without the effect from gender, GPAX seemed to have poorer association with attitudes ( $p$  value = 0.160). Regarding the student's behavior, being female had lower risk of engaging in misconduct behavior than being male (OR=0.68, 95% CI=0.50, 0.94,  $p=0.019$ ); students in academic year 1 were more likely to engage in behavioral misconduct than the rest (OR=3.50, 95% CI=2.49, 4.92,  $p<0.001$ ); and campus was also an independent risk for engaging misconduct behavior ( $p=0.003$ ). Using Campus 2 as a reference group, Campus 1 and Campuses 3, 4 were less likely to engage in misconduct behavior (OR=0.48, 95% CI=0.23, 1.01,  $p=0.053$ ; OR=0.14, 95% CI=0.04, 0.49,  $p=0.002$ , respectively).

**Table 4.6** The percentages of students' poor reported attitudes and behaviors and their associations with various factors (gender, academic year, GPAX, and campus)

Variables	Attitude		Behavior	
	Percentage	$p$ value	Percentage	$p$ value
Gender		$< 0.001^{\S}$		$0.028^{\S}$
Male	27.0%		20.9%	
Female	15.9%		15.8%	
Year		$0.523^*$		$< 0.001^*$
1	21.7%		35.2%	
2	16.5%		12.9%	
3	19.0%		14.8%	
4	24.4%		7.6%	
5	21.6%		17.9%	
6	19.8%		10.8%	
GPAX		$0.069^*$		$0.013^*$
$\leq 2.00 - 3.25$	24.7%		8.6%	
$3.26 - 3.50$	16.3%		14.9%	
$> 3.50$	19.6%		19.1%	
Campus		$0.180^{\S}$		$0.006^{\S}$
1	20.4%		18.6%	
2	22.7%		23.3%	
3	30.2%		4.5%	
4	11.4%		4.3%	

<sup>§</sup> Chi-squared test

\* Chi-square for trend