



Research Article

Students' Attitude towards Academic Misconduct Scenarios: A Review and Pilot Study

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Abstract. To determine the prevalence of academic misconduct among medical students in a predominantly Catholic EU country. Medical students at the University of Malta (UM) responded to an online questionnaire about academic misconduct scenarios. Results were analysed by the Chi-squared and unpaired t-tests. The response rate was 10% ($n = 75$; 57% female; 8% locals; 89% under 25). Significantly more females considered threats upon students, abuse of alcohol/drugs, and inappropriate language as serious offenses. Fewer than 20% agreed that writing a piece of work for another student or lending own work to be copied, were serious offenses; 30% would not inform faculty of serious misconduct and 41% were unsure whether they should. Forging signatures, cheating during exams, damaging property, lying about their CV and threatening others topped the list of offenses considered wrong. 38% of all students and 15% of Year 5 students reported that it was not wrong to inform others about a just completed OSCE ($p = 0.0004$); 10% admitted having done it ($p = 0.001$). Significantly more Year 2 students agreed that failure to inform the University of a previous conviction for theft was wrong ($p = 0.04$); 8–10% of students admitted copying during exams, copying others word-for-word or writing work for other students; 18% had/would forge signatures on official records. Medical students at UM behave similarly to those elsewhere in terms of academic dishonesty. Utilizing only assessment of knowledge to determine academic progression may not adequately equip students with those characteristics that would be expected of them as junior doctors.

1 Introduction

Although honesty and integrity are key characteristics expected of a doctor, academic misconduct among students is not new. Bowers reported that 75% of more than 5,400 students from 99 U.S. colleges and universities had cheated in one or more ways (Bowers, 1964). The study was replicated 30 years later among over 6000 students in 31 U.S. colleges and universities and the two data sets compared (McCabe, 1994). Self-reported cheating was significantly less in universities with honour codes (McCabe, 2002) (McCabe et al., 2001). Although only a small increase in overall cheating was reported, significant increases were found in the most explicit forms of exam cheating (McCabe, 2002). Sierles et al. (1980) reported that almost 90% of 448 medical students in all years at two US medical schools had cheated in their undergraduate course and just under 60% cheated at medical school. Similar findings have also been described among graduate and undergraduate business students in the US (Nonis, 2001).

McCabe (1993) surveyed a random sample of 100 faculty members at each of 16 colleges and universities throughout the United States, some of which had established a student honour code. With a response rate of just under 50%, only 43% of faculty members would report incidents of student cheating to the appropriate authority, most likely because of the time and effort it would have taken in the pre-Turnitin era to investigate such cases. However, faculty in institutions with honour codes were almost twice as likely to report cheating incidents than those without such an honour code (McCabe, 1993, 2002). Although McCabe and Trevino's study of just over 4000 students at nine universities in the US showed that age, gender, and grade-point average influ-

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ence the likelihood of cheating, cheating was reportedly more likely when peer disapproval is low (McCabe, 1993, 1997).

Two thirds of Year 2 students in 31 medical schools across the US reported witnessing cheating among their student colleagues (Baldwin et al., 1996). Dans (1996) compared cheating among students upon entering ($n = 358$) and leaving ($n = 302$) medical school, with a response rate of 97% and 87% respectively. Approximately 20% of students reported having cheated during their undergraduate degree and almost 25% admitted cheating at medical school, most commonly by copying from another student or using unauthorized notes during examinations. Almost a quarter of the respondents admitted to cheating during activities related directly to patient care (Dans, 1996) Lim and Sean investigated attitudes toward cheating among 518 students from three academic institutions in Singapore. The majority admitted lending their own work to another student (94%), plagiarising information without acknowledging the original author (90%), either altering data or entering non-existent results into a database (80%) or communicating with other students about the answers during an examination (53%) (Vivien et al., 2001). In 2001, Rennie and Crosby examined the attitude towards academic misconduct among 676 medical students in all years in Dundee. With a 68% response rate, students admitting that they had or would consider engaging in academic misconduct varied from 2% for copying answers in a degree examination to 56% for copying directly from a publication and only listing it as a reference. About a third of medical students admitted that they had engaged in or would consider discussing an Objective Structured Clinical Examination (OSCE) with other students, writing "nervous system examination normal" when this had not been performed, lending work to others to copy, and plagiarism (Rennie et al., 2001). In the same group of students in the UK, Rennie and Rudland reported no significant difference in attitudes towards academic misconduct across all five years of the course. However, a larger proportion of Year 1 students, compared to other years, regarded scenarios such as forging signatures, resubmitting work already completed for another part of the course, and falsifying patient information⁷ as wrong, claiming they would not engage in such behaviors (Rennie et al., 2003). Hrabak (2004) investigated the prevalence of academic dishonesty among 827 Year 2 to 6 medical students at Zagreb University, of whom 70% completed an anonymous questionnaire. Ninety-four percent admitted to cheating at least once, most commonly signing for an absent student in the class attendance (89%). Remarkably, almost half the students admitted that they would never report any form of cheating

(Hrabak, 2004). Dyrbye et al. (2010) studied 4,400 Year 1 to 4 to medical students from seven US medical schools with a response rate of 61%, of whom almost one third had engaged in cheating or dishonest behaviour. Taradi et al. (2010) investigated the attitude towards academic misconduct among first year medical students in Croatia. With a response rate of 67%, three quarters reported having frequently cheated during assessments in high school. International students attending these four Croatian medical schools were significantly less likely to cheat (Taradi et al., 2010). With a response rate of 62%, similar findings were reported by the same group among Year 3 (preclinical) and Year 5 (clinical) students, of whom a mere 2% admitted reporting another student for cheating (Taradi et al., 2012). Hafeez (2013) surveyed 274 medical students attending three private and public medical colleges in Pakistan, of whom 55% admitted that they had cheated at least once and almost 45% of the clinical students also admitted to inventing clinical histories. Ghias (2014) compared self-reported attitudes and behaviours regarding plagiarism and cheating among 489 Year 1 to 5 medical students in a private and 205 public sector medical colleges in Pakistan, with a response rate of 53% and 41% respectively. More private students reported that cheating in an exam is wrong (87%) compared to those in a public school (66%). Copying an assignment and listing sources as references was considered wrong by 53% of private versus 35% of public medical college students (Ghias, 2014). In summary, although it is imperative that all professionals and perhaps especially doctors should be honest and trustworthy, overall, these data over a span of more than 50 years show that cheating and other aspects of academic dishonesty continue to occur in medical schools across the world. The purpose of this study was to determine the prevalence of academic misconduct among medical students in a Catholic country in the only state university in the smallest southernmost EU country.

2 Methods

This small scale, prospective, pilot study was approved by the University Research Ethics Committee (UREC).

3 Data Collection

All Year 1 to 5 medical students at the University of Malta received an online questionnaire link via e-mail. The questionnaire included the scenarios used in the study by Rennie et al. (2001) in which "John" and "Jean", two fictitious students, engaged in academic misconduct as shown in table 1. We added 10 further scenarios to the Rennie et al. (2001) questionnaire to extend its scope and distinguish between serious and less serious forms of academic misconduct. The face validity of the questionnaire was es-

tablished by expert evaluation as to whether the questions effectively capture the topic under investigation. The survey was checked for common errors like double-barreled, confusing, and leading questions and was pilot tested on a subset of participants. Students were asked whether they felt John or Jean were wrong and whether they had engaged in, or would consider engaging in the behaviour described in the scenarios. A three-point scale: "yes", "not sure" and "no", was used to record the student responses.

4 Statistical Analysis

The survey results were analysed using Microsoft Excel and differences between the years, age, gender, nationality and previous degree were analysed by the χ^2 -test. Statistical significance was calculated utilizing the unpaired *t*-test. *P* values were calculated and differences were classed as significant where $p < 0.05$.

5 Results

There were a total of 75 responses (10% response rate). [Table 1](#) summarises the descriptive statistics of the cohort.

[Tables 2a](#) to [2c](#) show the percentage of students who reported each of the scenarios as wrong and whether they had engaged in, or would consider engaging in the behaviour described in the scenarios.

Just over 61% of students agreed that they ought to inform faculty if they are aware of serious misconduct by other students and a further 36% were unsure. Thirty percent of students reported that they have not (or would not) inform faculty of serious misconduct by another student and a further 41% were unsure.

[Table 3](#) shows the rank order of seriousness of scenarios as reported by students.

There was no significant difference by age regarding which scenarios were considered serious by students, nor whether they would inform faculty if they are aware of serious misconduct. [Figure 1](#) shows the only statistically significant difference in any of the scenarios when analysed by the age of the respondents (Q18: Failure to observe the dress code/infection control policy), where significantly more 17 to 25 year olds reported that this was wrong ($p = 0.005$).

Except for recording a lecture without permission (where the situation is reversed), significantly ($p < 0.02$) more female than male students reported that scenarios 9, 10, 14, 16, 17, 18, 19, 23 and 24 constitute serious misconduct. John threatening Jean was considered serious misconduct by 46% of females and 33% of males; abuse of alcohol or drugs in a University context by 52% of females and 25% of males; and the use inappropriate language with regard to others by 30% of females and

9% of males. However, there was no significant difference by gender in whether students perceived a scenario to be wrong, have ever done or considered doing this. When analysed by year of study, significantly more Year 3 students reported that Q3 (Chatting about the OSCE) was wrong, with an almost equal proportion (15%) of Year 5 students reporting the opposite ($p = 0.0004$). Ten percent of Year 5 students admitted having done it ($p = 0.001$).

There was a statistically significant difference among students of different years agreeing that failure to inform the University of a previous conviction for theft was wrong ($p = 0.04$). The highest rate was among Year 2 students (9%), although 9% of Year 5 students were not sure if it was wrong ([figure 3](#)).

Taking overseas holidays during term time was not considered wrong by the majority of Year 5 students ($p = 0.01$), of whom over 13% had done or would consider doing so.

6 Discussion

The purpose of this study was to determine the attitudes of medical students towards a number of scenarios involving various degrees of academic misconduct. Sadly, and perhaps not unexpectedly, medical students at the University of Malta behave very similarly to those in other countries, confirming that academic misconduct, now 55 years since it was first described by Bowers (1964), remains rife among medical students across the world.

As in the study of Hrabak (2004), almost a quarter of our students admitted to having forged a colleagues' signature on an official University record. Somewhat encouragingly, almost 95% of the students in our study felt that cheating during an exam was wrong, 8% more than the figure reported by Ghias (2014) in Pakistan. This is perhaps because the Maltese education system is based almost entirely on exams, thus inculcating in students early on the risk of cheating/failing exams. Also, in keeping with the findings of Ghias (2014), almost half of our students did not feel that copying an assignment was wrong, an alarming statistic that may, in part, be due to the intense pressure they feel to pass high-stakes exams at all costs.

With respect to lending their work to others to copy, our findings are entirely consistent with the published literature (Rennie et al., 2001) in that one third of medical students have done this and a quarter feel that this is acceptable. Irrespective of the underlying causes for these unhappy results, there is undoubtedly a severe lack of education locally on this matter.

Perhaps we should be reassured that unlike the study of Anderson and Obenshain, who reported that the most

Gender		Age		Previous Degree		Nationality	
Male	32(42.7%)	17-20	32(42.7%)	Yes	14(42.7%)	Local	61(81.3%)
Female	43(57.3%)	21-25	35(46.7%)	No	61(81.3%)	Other EU	10(13.3%)
		26-30	7(9.3%)			Non EU	4(5.4%)
		31-40	1(1.3%)				

Table 1: Demographics of the respondents.

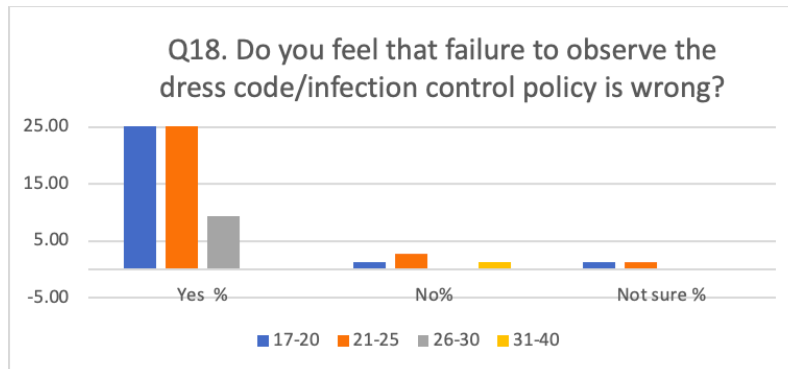


Figure 1: Percentage of students who feel that failure to observe the dress code is wrong by age group.

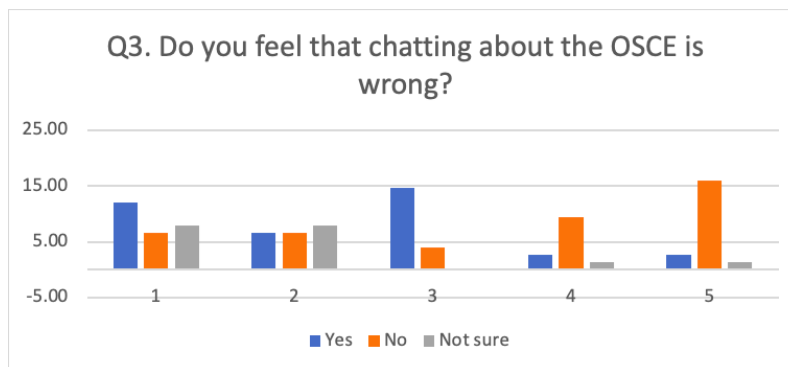


Figure 2: Percentage of students who feel that chatting about the OSCE is wrong by year of study.

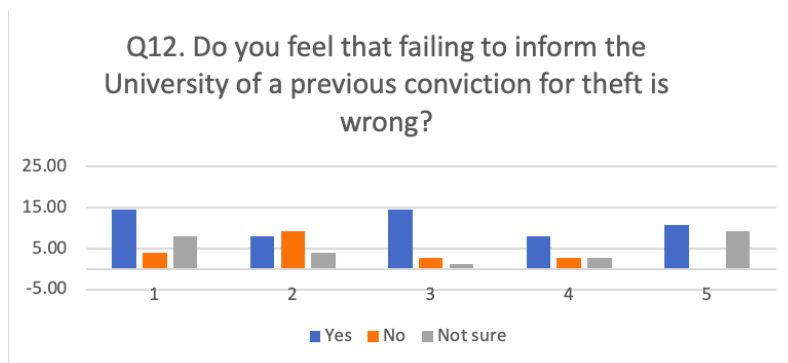


Figure 3: Percentage of students who feel that failing to inform the University of a previous theft conviction is wrong.

1. John forges Dr Cloony's signature on an official University record eg., attendance, logbook etc.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	67 (89.33%)	14 (18.67%)
No	4 (5.33%)	52 (69.33%)
Not Sure	4 (5.34%)	9 (12%)
2. Jean copies answers in a final exam from John.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	71 (94.67%)	6 (8.00%)
No	2 (2.66%)	67 (89.33%)
Not Sure	2 (2.66%)	2 (2.66%)
3. John chats to Jean about the objective structured clinical examination (OSCE) Jean has just completed and John is about to go into.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	29 (38.66%)	20 (26.67%)
No	32 (42.66%)	40 (53.34%)
Not Sure	14 (18.67%)	15 (20.00%)
4. Jean copies word-for-word from textbooks or published papers and lists them as references.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	52 (69.34%)	9 (12.00%)
No	13 (17.33%)	62 (82.67%)
Not Sure	10 (13.33%)	4 (5.33%)
5. John copies word-for-word from textbooks or published papers without acknowledging the source.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	71 (94.67%)	3 (4.00%)
No	2 (2.66%)	69 (92.00%)
Not Sure	2 (2.66%)	3 (4.00%)
6. Jean copies John's work (e.g. case presentation, anatomy/physiology project report, logbook)		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	66 (88.00%)	8 (10.67%)
No	6 (8.00%)	64 (85.33%)
Not Sure	3 (4.00%)	3 (4.00%)
7. John lends Jean his work to copy.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	37 (49.33%)	24 (32.00%)
No	19 (25.33%)	43 (57.34%)
Not Sure	19 (25.33%)	8 (10.66%)
8. Jean writes a piece of work (e.g. case presentation, anatomy/physiology project report etc.) for John.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	44 (58.67%)	6 (8.00%)
No	18 (24.00%)	61 (81.34%)
Not Sure	13 (17.34%)	8 (10.67%)

Table 2a: Scenarios and responses

9. John writes “Nervous system examination—normal” in his patient presentation when he has not performed the procedure.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	73 (97.33%)	4 (5.33%)
No	1 (1.33%)	67 (89.33%)
Not Sure	1 (1.33%)	4 (5.33%)
10. Jean submits a thesis from a previous degree for her anatomy/physiology project report.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	42 (56.00%)	4 (5.34%)
No	18 (24.00%)	63 (84.00%)
Not Sure	15 (20.00%)	8 (10.67%)
11. John adds three papers to his CV that he has not authored.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	70 (93.33%)	1 (1.33%)
No	3 (4.00%)	72 (96.00%)
Not Sure	2 (2.66%)	2 (2.67%)
12. John fails to inform the University that he has a previous conviction for theft.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	42 (56.00%)	2 (2.67%)
No	14 (18.67%)	67 (89.33%)
Not Sure	19 (25.33%)	6 (8.00%)
13. Jean takes overseas holidays during term time without authorisation.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	34 (45.33%)	25 (33.33%)
No	29 (38.67%)	42 (56.00%)
Not Sure	12 (16.00%)	8 (10.66%)
14. John fails to inform the University that he has a physical or mental condition that may interfere with his ability to practice safely.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	65 (86.67%)	5 (6.67%)
No	5 (6.66%)	66 (88.00%)
Not Sure	5 (6.66%)	4 (5.34%)
15. Jean is consistently late for lectures, tutorials, clinical attachments etc.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	56 (74.66%)	19 (25.33%)
No	5 (6.67%)	49 (65.33%)
Not Sure	14 (18.66%)	7 (9.33%)
16. John uses inappropriate language with regard to a staff member, a University employee or another student.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	65 (86.67%)	9 (12.00%)
No	3 (4.00%)	59 (78.66%)
Not Sure	7 (9.33%)	7 (9.34%)

Table 2b: Scenarios and responses (continued)

17. Jean behaves inappropriately on the wards e.g. sitting on the floor, giggling, inappropriate attire.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	69 (92.00%)	5 (6.67%)
No	2 (2.66%)	64 (85.34%)
Not Sure	4 (5.33%)	6 (8.00%)
18. John fails to observe the dress code/infection control policy.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	39 (92.00%)	5 (6.67%)
No	4 (5.33%)	64 (85.34%)
Not Sure	2 (2.66%)	6 (8.00%)
19. Jean attends fewer than 50% of tutorials.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	64 (85.34%)	6 (8.00%)
No	8 (10.67%)	68 (90.67%)
Not Sure	3 (4.00%)	1 (1.33%)
20. John attends fewer than 50% of clinical attachments.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	65 (86.67%)	3 (4.00%)
No	6 (8.00%)	70 (93.33%)
Not Sure	4 (5.34%)	2 (2.67%)
21. Jean records lectures without the explicit permission of the lecturer.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	21 (28.00%)	43 (57.34%)
No	29 (38.67%)	24 (32.00%)
Not Sure	25 (33.33%)	8 (10.66%)
22. John damages University property.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	72 (96.00%)	1 (1.33%)
No	0 (0.00%)	70 (93.34%)
Not Sure	5 (6.67%)	2 (2.66%)
23. Jean abuses alcohol or drugs in a University context.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	70 (93.34%)	3 (4.00%)
No	0 (0.00%)	70 (93.34%)
Not Sure	5 (6.67%)	2 (2.66%)
24. John threatens Jean.		
	Do you feel that John/Jean is wrong?	Have you ever done (or would you ever consider doing) this?
Yes	72 (96.00%)	1 (1.33%)
No	2 (2.66%)	72 (96.00%)
Not Sure	1 (1.33%)	2 (2.67%)

Table 2c: Scenarios and responses (continued)

Scenario	% Students Considering Scenario Serious
22 and 24	78
11	76
9	72
14	68
5	66
1	60
22	56
2	54
20	48
17	45
6 and 16	41
12	40
10, 18 and 19	36
4 and 5	20
8	16
3	13
7 and 13	8
12	6

Table 3: Percentage of Students Considering Scenario Serious

common unethical behaviour was cheating on an examination, arriving late for lectures was the most common "misconduct", reported by a quarter of students in our study (Anderson et al., 1994). Similarly reassuring is the small proportion of students (5%) in our study who admitted to falsely taking a patient history/performing a clinical examination compared to 44% of students in Pakistan (Hafeez, 2013) and up to a quarter of medical students at John Hopkins University School of Medicine (Dans, 1996).

In the study of Vivien et al. (2001) 94% of students reported lending their work to others, a figure which is three times greater than our data (32% of students reported ever having done this). This is perhaps because the relatively small size of the only state medical school in the smallest EU country, means that our students are highly competitive and perhaps less likely to be willing to help each other.

A surprising 8% of medical students in our study admitted to copying answers in a final exam, although the vast majority (95%) agreed that this was wrong. It is quite possible that when exam questions are ambiguous (which according to students, is unfortunately not rare), the perceived unfairness of the exams may trigger students' dishonest behaviour. It is also possible that the seating arrangements of the exams makes it relatively easy for students to copy answers from each other.

With regards to plagiarism and collusion, an acceptably small proportion (4%) of our subjects reported copying word-for-word without referencing, which is significantly less than the 90% reported by Vivien et al. (2001). It might seem that the University's strong message with respect to referencing may be reaching its target. However, copying another students work word-for-word was reportedly acceptable to 8% of our medical students, with 10% admitting to having done this. These data are significantly lower than the approximately 30% of students who reported lending their work for others to copy in the study of Rennie et al. (2001). Although the vast majority of students were certain that not acknowledging sources was wrong, a troubling 10% who reported that they had copied word-for-word from a textbook while listing the references, claimed that they were not sure whether this was right or wrong, thus confirming that there is room for a great deal more education about what constitutes collusion and plagiarism among medical students in Malta.

While over 75% of students in this study reported that threatening others, damaging university property and adding non-authored papers to their CV were serious offenses, it is troubling to note that 20% or less considered that providing information about a just completed OSCE to a fellow student about to take the exam, writing a piece of work for another student or failing to inform the Uni-

versity about a previous conviction for theft, were serious offenses.

Overseas trips during term time are not allowed at the University of Malta medical school and there is a strict 80% attendance rule, below which students are barred from taking exams. Not surprisingly, almost 40% of students felt there was nothing wrong with travel during term time and one third confirmed that they had indeed done this themselves. This suggests that students feel they should be trusted to make decisions regarding their learning.

Considering that theft is a crime, only just over half of participants felt it was wrong not to inform the faculty of a previous conviction, perhaps due to concern that admitting previous misconduct might jeopardise their chances of being accepted into medical school.

Students may be concerned about the possible lack of anonymity living on a small island studying in a small medical school with only one main hospital. This may explain why approximately 7% of participants reportedly had not informed the faculty of a physical or mental condition that might interfere with their ability to practice safely and a similar number did not feel this was not wrong.

It could be argued that students, especially in a largely Catholic country, should have learned to distinguish right from wrong by the time they reach medical school, but our data does not support this. For example, about one third of respondents stated that they have not (or would not) inform faculty of serious misconduct by another student and another third were unsure whether they should do so. About 5% of the students did not consider that forging a colleagues signature on an official University record was wrong; one third were unsure whether recording a lecture without explicit permission from the lecturer was wrong and almost 40% actually claimed this was not wrong. There is certainly room for improvement.

McCabe (1997) proposed that social learning theory Bandura (1986) which posits that we model our behaviour on that of trustworthy individuals, is the best framework for handling academic dishonesty. Apart from greater education regarding what constitutes academic misconduct, we echo the recommendations of Anderson et al. (1994) that the introduction of academic honour codes including encouraging students to report incidents of academic misconduct which they may observe among their peers, improving teaching methods and emphasizing learning over grades, as well as teaching and modelling honesty and integrity should be embraced by any University committed to minimizing academic misconduct among their students.

7 Limitations

The largest limitation of this study is the relatively low response rate when taken across the whole five-year cohort. Several reminders were sent to students to complete the questionnaire online to no avail. Because the sample size was small, statistical analysis was largely inconclusive. Another major limitation is that we have no way of knowing the extent to which students were being truthful in their responses. A follow up qualitative focus group study will test whether participants find the quantitative findings to be consistent with their own views.

8 Conclusions

Medical students at the University of Malta behave very similarly to those in other countries in terms of academic dishonesty. Traditional courses that utilize only assessment of knowledge to determine academic progression and graduation may not adequately equip medical students with those characteristics that would be expected of them as junior professionals in the workplace.

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