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Students come to medical schools prepared to cheat: a multi-campus investigation

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ABSTRACT

Objectives To investigate high school cheating experiences and attitudes towards academic misconduct of freshmen at all four medical schools in Croatia, as a post-communist country in transition, with intention of raising awareness of academic (dis)honesty.

Design and method Students were given an anonymous questionnaire containing 22 questions on the atmosphere of integrity at their high school, self-reported educational dishonesty, their evaluation of cheating behaviour, and on their expectations about the atmosphere of integrity at their university.

Setting All schools of medicine of Croatian universities (Zagreb, Rijeka, Split and Osijek).

Main measures Descriptive statistics and differences in students' self-reported educational dishonesty, perception of cheating behaviour, and perception of the high school integrity atmosphere.

Results Of the 761 freshmen attending the four medical schools, 508 (67%) completed the questionnaire: 481 Croatian and 27 international students. Of the Croatian respondents, almost all (>99%) self-reported engaging in at least one behaviour of educational dishonesty, and 78% of respondents admitted to having frequently cheated in at least one form of assessed academic misconduct. Only three students admitted to having reported another student for cheating. For most of the questions, there was no significant difference in the responses among Croatian students. However, significant differences were found in most responses between Croatian students and their international counterparts, who were significantly less likely to engage in dishonest behaviours. No individual factor was found to correlate with the incidence of self-admitted dishonest behaviour. Frequent cheaters evaluated academic dishonesty significantly more leniently than those who did not cheat.

Conclusion Academic dishonesty of university students does not begin in higher education; students come to medical schools ready to cheat.

INTRODUCTION

Academic integrity exists when students and faculties seek knowledge honestly and fairly, with mutual respect and trust, and accept responsibility for their actions and the consequences of those actions.¹ On the other hand, cheating means to deprive of something valuable by the use of deceit or fraud, and/or to violate rules dishonestly.² When speaking about medical education, academic integrity is fundamental to the role of aspiring doctors, and other healthcare students, and good medical practice requires that doctors ensure that their behaviour always justifies the trust that patients and the public place in the medical profession.³

Individual factors and situational circumstances influence academic dishonesty, with situational factors being the most powerful influence.⁴ Earlier research on academic misconduct at two Croatian medical schools revealed that almost all respondents (94%) admitted to cheating at least once during medical school, and that only 9% of students did not plagiarise while writing essays.⁵⁻⁶ The explanation for the high frequency of a positive attitude towards cheating may be found in the cultural values specific to post-communist countries, of which Croatia is one. The paradigm of 'post-communism' is related to the period of political and economic 'transition' in former communist states where new governments aimed to create free-market-oriented capitalist economies.⁷ It has been suggested that, if students are dishonest in high school, they will continue to engage in dishonest behaviour as graduates and postgraduates and may be more likely to violate workplace ethics later in their professional life: with patients, colleagues, scientific research, insurers and government.⁸

The goal of the present study was to investigate high school cheating experiences and attitudes towards academic misconduct of freshmen at all four medical schools in Croatia, including foreign students, and to test whether medical students' unethical academic behaviour begins before their enrolment in medical school. We presume that earlier documented academic dishonesty of Croatian medical students can be traced back to high school.

SUBJECTS AND METHODS

Subjects

The participants in our study were first-year students from all schools of medicine in Croatia: University of Zagreb School of Medicine, medical studies in Croatian (n=197) and in English (n=27); University of Osijek School of Medicine, medical studies (n=67); University of Rijeka School of Medicine, medical studies (n=86); University of Split School of Medicine, medical (n=68), dental (n=33) and physiotherapy (n=30) studies. Of 761 students enrolled, 508 (67%) completed the questionnaire.

Data collection

Data were collected by means of an anonymous questionnaire distributed by the faculty to first-year students after regular lectures or seminars during the winter semester 2008–2009. The questionnaire, containing 22 questions, was developed on the basis of questions used in previous successful surveys that assessed students' attitudes towards

cheating.⁹ For some of our research goals, we analysed individual behaviours, whereas for others we aggregated responses across behaviours.

The first part consisted of demographic information on gender, type of high school, religious orientation, place of growing up, grade point average, and parent's educational attainment. Only personal data that would not endanger the anonymity of the students were collected. Students enrolled in medical studies in English were also asked about their citizenship (Croatian, former Yugoslavian, or other).

In the second section, students were asked to rate the frequency of plagiarism and cheating in examinations at their high school on a five-point scale (never=1; very seldom=2; seldom=3; often=4; very often=5). This measure had a Cronbach's α of 0.70. In addition, five questions were asked about the atmosphere of educational integrity at their high school: teachers' efforts to discourage cheating; frequency of cheating disclosure; appropriateness of penalty for cheating; cheaters' embarrassment and whether cheating was an overall serious problem. Students responded by indicating the degree of agreement using a four-point scale (strongly disagree=1; disagree=2; agree=3; strongly agree=4). The composite measure (aggregated integrity atmosphere score) could range from 5 to 20, where higher scores show a more positive academic integrity atmosphere (Cronbach's α =0.74).

In the third part, the dependent variable measure asked students about nine types of self-admitted educational dishonesty: turning in a paper copied from another student; using false excuses to obtain an extension on a due date; helping someone else cheat in a test; copying from another student during a test *with/without* his or her knowledge; using unpermitted crib notes during a test; taking a test or a part of a test for someone else; getting questions and answers from someone who had already taken the test; copying or translating material almost word-for-word from the internet and turning it in as their own work. Students were asked to self-report the frequency with which they had engaged in these forms of educational dishonesty on a three-point scale (never=1; a few times=2; often=3). The aggregated dishonesty score could range from 9 to 27, with 9 representing no self-reported academic dishonesty and 27 meaning frequent cheating in all assessed forms of educational dishonesty (Cronbach's α =0.79).

In addition, students were asked to rate the severity level of academic dishonesty of the nine behaviours on a four-point scale (not cheating=1; trivial cheating=2; moderate cheating=3; serious cheating=4). The aggregated severity level rating score could range from 9 to 36, with 9 meaning that none of the nine behaviours was rated as cheating and 36 representing serious cheating (Cronbach's α =0.79).

The final survey section asked five questions (no=1; yes=2) about students' future academic expectations about academic integrity atmosphere at their new university: frequency of cheating, likelihood of cheaters being caught and given appropriate penalties, embarrassment of cheaters, and teachers' efforts to discourage cheating. The composite measure (aggregated expectation score), could range from 5 to 10. Higher scores indicated higher expectations about the future academic integrity atmosphere (Cronbach's α =0.74).

Statistical analysis

The internal consistency reliability of scales was estimated by Cronbach's α test. Categorical variables were compared using the Fisher exact test, Student t test, one-way analysis of variance, and Pearson's correlation test ($p<0.05$ was considered significant).

RESULTS

Demographic characteristics

The sample consisted of 163 men (32%) and 344 women (68%) with a median age of 19 years (range 18–30). There was no difference in median ages between men and women. Most respondents (94%) came from state-funded secondary schools. Regarding religious orientation, 85% ($n=502$) of freshmen declared themselves to be believers. For 22% of participants, a village was the place where they grew up. The grade point average (scale 1–5) was 4.67 ± 0.65 . Regarding parent's educational attainment, more than 50% had graduated from college.

For most of the demographic information, there was no significant difference in the response between Croatian students from different Croatian schools. However, except for gender distribution, statistically significant differences of all other demographic characteristics were found between Croatian students and international students whose citizenship was other than Croatian (table 1). In general, none of the individual factors could be related to the incidence of self-admitted dishonest behaviour.

Self-reported behaviours related to high school educational dishonesty

Of 472 Croatian respondents, only three had never engaged in any of the dishonest scenarios, while >99% of the sample claimed to have participated in one or more. In addition, 366 (78%) Croatian respondents admitted to having cheated often in at least one form of assessed academic misconduct. Table 2 presents summary statistics of students' self-admitted engagement in dishonest behaviour.

When results were analysed as aggregated responses across behaviours, statistically significant correlations were found among students' self-reported frequency of cheating (aggregated dishonesty score) and all other aggregated responses (table 3).

Significant differences in the extent of dishonest behaviours were disclosed between Croatian students and their international counterparts. International students were significantly less likely to engage in dishonest behaviours than Croatian students regardless of the university (figure 1).

Attitudes towards educational dishonesty

Of 436 respondents, only three admitted reporting another student for cheating. Students' perception of severity level of

Table 1 Summary statistics of demographic data

Characteristic	Croatian students		International students		p Value
		n*		n*	
Female	68%	480	60%	27	NS
Grew up in large town	39%	479	63%	27	0.0250†
Public high school	96%	374	58%	26	<0.0001†
Atheist	13%	476	65%	26	<0.0001†
Grade point average in high school (1–5) (mean±SD)	4.7±0.73	425	4.2±0.76	25	0.0001‡
§Parents' educational attainment (2–8) (mean±SD)	5.22±1.14	479	6.26±1.26	27	<0.0001‡

All percentages have been rounded off to the nearest whole number.

*Information on gender, place of growing up, type of high school, religious orientation, grade point average, and parent's educational attainment was not disclosed by 1, 2, 108, 6, 58 and 2 students, respectively.

†The p value was computed by Fisher exact test.

‡The p value was computed by Student t test.

§Parents' educational attainment was a composite measure of the educational level achieved by each of student's parents measured on a four-point scale (elementary school=1; high school graduate=2; college graduate=3; postgraduate degree=4). NS, not significant.

Research ethics

Table 2 Summary statistics of self-reported behaviours and attitudes towards educational dishonesty of Croatian students

Behaviour	Self-admitted engagement		Perception of severity level of cheating				n
	%	n	Not cheating (%)	Trivial cheating (%)	Moderate cheating (%)	Serious cheating (%)	
Turning in work done by someone else	18	476	5	17	32	46	463
Getting exam questions from someone who already has taken the test	94	476	28	46	21	5	475
Helping someone else cheat in a test	93	476	10	49	38	3	476
Copying from another student during a test or exam without his/her knowledge	43	475	11	38	39	12	464
Copying from another student during a test or exam with his/ her knowledge	90	476	11	44	41	4	466
Turning in work obtained in large part from the internet	68	477	17	42	34	7	468
Using unpermitted crib notes during a test	84	477	6	35	50	9	467
Taking a test for someone else	68	477	6	21	40	33	465
Using false excuse to obtain extension on due date	53	475	8	27	37	28	462

cheating of the nine types of self-admitted educational dishonesty are presented in table 2.

A significant negative correlation ($r=-0.39$) was revealed between students' self-reported frequency of cheating and their perception of severity level of cheating (table 3). Also, significant differences in the severity level ratings were observed when the Croatian group was compared with international participants. Regardless of medical school, Croatian respondents evaluated the severity level of the self-reported cheating behaviours significantly more leniently than their international counterparts (figure 1).

High school educational integrity atmosphere and perceived prevalence of educational dishonesty

When asked about prevalence of plagiarism of written assignments, 23% ($n=436$) of Croatian students, and 54% ($n=26$) of international students claimed that it occurred often or very often at their high school. The difference is considered to be significant ($p=0.002$). Almost 55% of all Croatian respondents ($n=467$) said that cheating during tests/examinations occurred often or very often at their high school. There were no statistically significant differences among Croatian students of different institutions. However, there was a significant positive correlation among students' self-reported frequency of cheating (aggregated dishonesty score) and their ratings of plagiarism frequency and frequency of cheating in tests (table 3).

Over two-thirds (67%) of Croatian respondents ($n=431$) claimed their high school teachers tried hard to discourage cheating, but only 26% agreed that students who cheated were frequently caught. More than half (53%) of those who responded in the study ($n=438$) claimed that students who were caught cheating were usually given appropriate penalties. About one-third (30%) of Croatian respondents ($n=407$) indicated that cheating was a serious problem at their high school. Except for the first question, statistically significant differences were found

between Croatian and international respondents for all statements. For example, compared with 32% of international students ($n=22$), 82% of Croatian respondents ($n=460$) agreed to the statement that students who cheated were not embarrassed to tell their friends they had done so ($p<0.0001$).

Overall, Croatian participants rated the high school integrity atmosphere to be more negative (mean \pm SD=12.05 \pm 2.42) than did international respondents (14.84 \pm 2.19). The difference was significant ($t=4.92$; $p<0.0001$).

Students' expectations on future academic integrity atmosphere

In general, most respondents expected a better integrity atmosphere than experienced in high school: 86% of Croatian respondents ($n=392$) expected less cheating in tests than experienced in high schools; 73% expected that cheaters would often be caught; 79% expected appropriate penalties for cheaters, and almost 70% thought that teachers would try hard to discourage cheating. There were no statistically significant differences in expectations between Croatian and international students. However, Croatian students with a lower aggregated dishonesty score expected a better academic integrity atmosphere than respondents who self-reported frequent cheating ($r=-0.267$) (table 3).

DISCUSSION

The aim of this paper was to investigate whether medical students' unethical behaviour might begin early in their educational career. The data presented are worrying because almost all Croatian respondents self-reported engaging in high school in at least one dishonest behaviour, almost 80% of respondents admitted to having frequently cheated in at least one form of assessed academic misconduct, and over two-thirds reported that they had taken a test or a part of a test for someone else (table 2). At the same time, almost none of the respondents

Table 3 Intercorrelations of main study variables (Croatian respondents only)

Variable	Intercorrelations (r)					
	1	2	3	4	5	6
1. Aggregated dishonesty score	—					
2. Aggregated severity rating score	-0.385*	—				
3. Aggregated integrity atmosphere score	-0.173*	0.056	—			
4. Aggregated expectation score	-0.267*	-0.033	0.085	—		
5. Rating of plagiarism frequency	0.190*	0.001	-0.245*	0.053	—	
6. Rating of frequency of cheating in tests	0.376*	-0.098*	-0.241*	0.205*	0.505*	—

*All correlations greater than 0.098 are significant at 0.05.

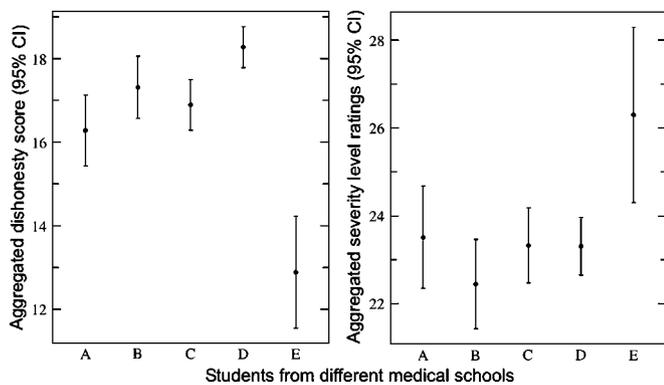


Figure 1 Relationship among students' self-reported frequency of cheating (left) and their ratings of the severity level of the self-reported cheating behaviours (right). The aggregated dishonesty score could range from 9 to 27, with 9 representing no self-reported academic dishonesty and 27 representing frequent cheating in all categories: analysis of variance, $F_{[4,497]}=16.04$; $p<0.0001$; mean with 95% CI. For the aggregated severity level score, the composite measure could range from 9 to 36, with 9 meaning not cheating at all and 36 representing serious cheating; analysis of variance, $F_{[4,448]}=2.90$; $p=0.022$; mean with 95% CI. A, School of Medicine, Osijek; B, School of Medicine, Rijeka; C, School of Medicine, Split; D, School of Medicine, Zagreb, Croatian students; E, School of Medicine, Zagreb, medical studies in English, international students.

admitted reporting another student for cheating. Even more disturbing is the fact that most students did not see their cheating actions as out of the ordinary or morally wrong. With increasing competition, today's high school students experience significant pressure to do well. Research shows that all too often these pressures lead to decisions to engage in various forms of academic dishonesty.⁴ Since the mid 1980s, academic cheating has been on the rise, and in the past decade the number of students who admit cheating has received considerable attention in the literature, and medical education is no exception.¹⁰ A 2004 study showed that academic misconduct is widespread among medical students at the largest medical school in Croatia, and its prevalence is greater than that reported for developed countries.⁵ In a big US survey of 2459 second-year medical students, 34% admitted cheating in junior high school and 40.5% in high school.¹¹ Interpreting these findings is difficult for multifactorial reasons, including individual and contextual characteristics, evolving cultural norms and socioeconomic atmosphere, and student perceptions of faculty and their (dis)honest behaviours and attitudes towards misconduct.

Firstly, there are familial, religious and cultural values that are acquired long before entering medical school. Countries, cultures and subcultures exist where dishonest behaviour is almost the norm, whereas others have much higher standards of ethical conduct.¹² In addition, attitudinal differences to cheating are driven by country corruption and socioeconomic atmosphere, so students from utilitarian socioeconomic backgrounds are highly tolerant of cheating behaviour.¹³ A recent study showed that students from transitional economies had a higher probability of cheating relative to students in the USA. High school economics students from Croatia had 17.1% greater probability of cheating than their US counterparts.¹⁴ Being a country in transition emerging from war, Croatia's socioeconomic structures have dramatically changed in the past two decades. According to Transparency International, there is a high perception of corruption in Croatia, which is an obstacle to socioeconomic development.¹⁵ In a corrupt society where money is more respected than knowledge, learning loses its purpose. Thus

students in corrupt countries are more likely than their counterparts in less corrupt countries to have attitudes that reflect lower ethical standards.^{5 16} While living in such an environment, students may develop a sense that 'everyone is cheating' and this perception may influence self-reported cheating.¹⁷ The results of our survey are in compliance with these assertions, since statistically significant differences in demographic characteristics, self-admitted cheating, high school educational integrity atmosphere and perceived prevalence of educational dishonesty were observed for most of the important scenarios between Croatian students and their international counterparts. The only exception was the finding that international students reported significantly more plagiarism in written assignments than their Croatian colleagues. In addition to the sociocultural differences in perception of academic dishonesty, the language barrier is also a possible explanation: it is much easier to copy-and-paste and plagiarise in a world-wide language than in a local language spoken by a small nation. Another explanation may be differences in the high school curricula of different educational systems that may be more or less favourable for plagiarism. Or it may be a mixture of everything mentioned above.

Secondly, academic dishonesty is influenced by both individual and contextual factors, but contextual factors are the most powerful influence.⁴ Students who perceive that their peers cheat and are not penalised cheat more.¹⁸ Students who perceive teachers to be concerned about students are less likely to engage in dishonesty, and cheating is more common when students perceive the academic tasks they have been given to be overwhelming, boring or irrelevant.^{19 20} If the professor seems indifferent, students feel less moral obligation to avoid cheating.²¹ Our findings are consistent with these assertions, since almost 70% of respondents claimed that cheaters were not caught and about a half of the respondents assumed that cheaters who were caught were not given appropriate penalties. Even more disturbing was the finding that some 80% of respondents were of the view that cheaters were not embarrassed to tell their friends they had done so. Our data correspond to past research that found that cheaters are significantly more likely than non-cheaters to neutralise examples of cheating behaviour.²² In addition, cheaters are more inclined than non-cheaters to invoke situational ethics in justifying examples of academic dishonesty.¹⁰ A neutralising attitude can lead those who use the strategy to believe that dishonesty is not wrong, and even an acceptable activity, under certain circumstances.²³ Students' perception of cheating behaviour may also be related to the frequency with which they engage in cheating behaviour.²⁴ The results of research presented in this paper support these findings, since a significant negative correlation was revealed between students' self-reported frequency of cheating and their perception of severity level of cheating (table 3). In other words, respondents who admitted frequent cheating evaluated different academic dishonesty behaviours significantly more leniently than their colleagues who did not cheat often. The relation between perception of severity level and cheating behaviour can be interpreted in two ways: respondents might change their evaluations to fit with their behaviour, or their behaviour comes out of their moral evaluations.

Finally, individual factors, although considered to be less important than contextual factors, can be related to the incidence of dishonest behaviour.⁴ The significance and the relevance of these variables are ambiguous. In general, our study showed a no-difference effect for all the individual factors.

It must be mentioned that the present research has some limitations, which should be considered in the interpretation of

the results. The main problem when analysing academic cheating is that it is difficult to measure. Although student self-report is the most common method for assessing cheating and has been shown to offer reasonably accurate estimates, it is not a direct measure of cheating.²⁵ In addition, the measurement of academic dishonesty is through the perception of students' self-report. Therefore problems relating to self-report perception should be considered. Also, the relatively small sample size of international students doing medical studies in English at the University of Zagreb, with citizenship/nationality other than Croatian, may be vulnerable to selection bias.

In conclusion, this study adds to the literature on academic dishonesty in Croatia as a post-communist country in transition, and shows that the problem does not begin in higher education, but students come prepared to cheat. The results of this study show the status of academic dishonesty in Croatian high schools, and should be a wake-up call for Croatian educators.

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