

RESEARCH ARTICLES

Characteristics, Prevalence, Attitudes, and Perceptions of Academic Dishonesty Among Pharmacy Students

Suzanne M. Rabi, PharmD,^a Lynn R. Patton, MS,^b Nancy Fjortoft, PhD,^a and David P. Zgarrick, PhD^a

^aMidwestern University Chicago College of Pharmacy

^bMidwestern University College of Pharmacy Glendale

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Objectives. To ascertain background factors that influence pharmacy students' willingness to cheat, describe attitudes regarding methods of cheating, assess prevalence of cheating and determine atmospheres that may aid in preventing academic dishonesty.

Methods. Third-professional year PharmD students at 4 institutions participated in a survey administered by a class representative.

Results. Of the 296 students who completed survey instruments, 16.3% admitted to cheating during pharmacy school. Approximately 74% admitted that either they or their classmates had worked on an individual assignment with a friend. Students who cheated during high school or in a prepharmacy program were more likely to cheat during pharmacy school ($p < 0.0001$). Those who possessed a bachelor of science (BS) degree prior to pharmacy school were less likely to cheat ($p < 0.0001$).

Conclusions. Academic dishonesty is prevalent among pharmacy students. While few respondents directly admitted to cheating, many admitted to activities traditionally defined as dishonest.

Keywords: academic dishonesty, cheating, honesty

INTRODUCTION

There have been many investigations into academic dishonesty, with findings indicating that up to 90% of undergraduate students cheat.^{1,2} A *US News and World Report* cover story indicated that students at every academic level, from high school to graduate school, cheat and that most believe they need to cheat in order to succeed in today's world.³ A possible theory for why this change in behavior is occurring is that more students cheat if they see their peers doing it and peer behaviors influence students to cheat.^{4,5} Other reasons for academic dishonesty include increased amounts of pressure from school, and the need to maintain a competitive edge.⁶ Today's students live in a society where there are few role models or leaders in prominent positions such as in the media, sports, business, and government who demonstrate honest behavior.⁴

Certain student prototypes exemplify the "cheating student." For example, male students are more likely to report cheating than female students.^{5,7,8} One theory is that men typically possess lower levels of self-control making them more likely to cheat, and women have higher levels of anticipated shame, making them less

likely to commit academic dishonesty.⁹ In addition to gender, cheating behaviors are affected by the type of situation.¹⁰ Students who have cheated in their past, such as in grade school, high school, and college are more likely to cheat in professional school.⁷ The correlation between grade point average (GPA) and academic dishonesty has varied. Some students cheat in order to remain academically competitive,¹¹ while other studies suggest that students with low GPAs are more likely to cheat.¹² Environmental factors, including teaching methods such as fairness and focusing on learning and understanding, may play a role in students' participation in academic dishonesty.¹³ One educator suggested that some ways to improve teaching methods and reduce academic misconduct are to emphasize learning over grades, ask for feedback, and be nonintimidating.¹³ Other recommendations come from a group of researchers who compiled their findings into "The Ten Principles of Academic Integrity".¹⁴ These principles help faculty members identify ways of increasing academic integrity in the classroom. In another research study, nursing students recommended that to decrease the amount of cheating teachers should pay attention to gestures, use multiple proctors, use new examinations, and not leave examinations in offices.¹⁵ Students are less likely to engage in academic dishonesty if proctors are used during examinations and graded examinations are not returned to the students.¹⁶

Corresponding author: Suzanne M. Rabi, PharmD. Address: 555 31st Street Downers Grove, IL 60515-1235. Tel: 630-515-6262. Fax: 630-515-6958. E-mail: srabix@midwestern.edu

A survey conducted among second-year medical students at 31 colleges reported that two thirds (66.5%) of these students claimed they heard about cheating during their first 2 years of medical school, and that 39% stated they actually witnessed cheating during that time.⁷ Another study conducted in 448 medical students at 2 institutions showed that about 60% of students admitted to cheating at least once during medical school, while another study conducted at 1 medical school showed that about 17% of the students admitted to cheating during their first 2 years and 27% admitted to cheating during their last 2 years of medical school.^{2,17} A survey instrument was distributed to the academic deans of all US colleges of dentistry with an 84% response rate, and the results indicated that academic dishonesty is occurring in most dental schools, and that there are usually 1 to 2 reported incidents per year at each institution.¹⁸ A previous investigation conducted in all 4 years of dental students at 1 institution showed that 43% of the students cheated while in dental school, and that 94% claimed their classmates had cheated.¹⁹ Researchers have assessed both medical and dental students' perceptions of academic dishonesty and the prevalence of cheating; however, few reports have reviewed pharmacy students' perceptions, and no past reports have looked at the prevalence of cheating among traditional doctor of pharmacy students.

Pharmacy school prepares students for their professional careers as pharmacists. In addition to the medical and practical knowledge obtained, students also develop professional skills to provide optimal pharmaceutical care.²⁰ These professional skills include more than just a dress code. Similar to the American Board of Internal Medicine's (ABIM) Project Professionalism, pharmacists also have professional skills embedding such values as altruism, accountability, excellence, duty, respect for others and finally honor and integrity.²⁰ Integrity can be defined as being truthful. Students then demonstrate integrity in the classroom by their honesty in performing their academic responsibilities. Hardigan's research conducted in pharmacy students showed that females, older students, and those with higher GPAs typically hold conservative attitudes towards cheating.²¹

Academic dishonesty is a concern among pharmacy students because of the career they will embark on as healthcare professionals. Researchers report that healthcare students who cheat in the classroom are more likely to fabricate clinical data as healthcare professionals.^{2, 22-24} These students may make up laboratory values, patient histories, and physical examination results, and they may report a finding as normal without obtaining a full history.^{2,22-24} Because few studies have been conducted in regard to pharmacy students and academic dishonesty,

there is a need for current information. Therefore, the objectives of this study were to ascertain background factors that influence pharmacy students' willingness to cheat, describe pharmacy students' attitudes and perceptions regarding various methods of cheating, assess the prevalence of cheating committed or witnessed by pharmacy students, and determine atmospheres that will aid in preventing academic dishonesty.

METHODS

Third-year doctor of pharmacy students at 4 universities across the United States were invited to complete a 48-question survey instrument concerning academic dishonesty. The schools were chosen based on their type (eg, private, public, religious, or nonreligious) and location (eg, rural, suburban, or inner-city). Third-year students were selected because they are most accessible on campus and have been in pharmacy school the longest. The study received full approval from the Midwestern University Institutional Review Board.

Three of the 4 colleges were private institutions, and 2 had religious affiliations. Two of the 4 institutions were located in rural environments, 1 in a suburban area, and 1 in an urban area. Survey response rates ranged from 20% to 80% of students in the third-professional year. The actual response rate may be higher since it is unknown how many students were present the day that the survey instrument was administered. Despite variations in response rates, the survey results were fairly consistent among the institutions.

The survey instrument was divided into 4 sections. The first section contained 5 academic dishonesty scenarios. For that section, the students evaluated their perceptions of these scenarios (eg, who is cheating and who is not) and also stated whether they had witnessed or participated in a similar event during pharmacy school. The second section of the survey instrument used Likert-type scale questions where students provided their opinions on 19 statements related to academic dishonesty. Responses to these questions were "strongly agree," "agree," "disagree," and "strongly disagree." The third section of the survey instrument contained 10 short statements related to participation in academic dishonesty. Students chose one of the following responses: "I have participated in this during pharmacy school," "I have knowledge of my classmates participating in this during pharmacy school," or "neither my classmates nor I have participated in this during pharmacy school." Most of the survey questions were adapted from previous literature to apply to pharmacy students, while others were based on the authors' ideas.^{7,8,19,25} Finally, the last section of the survey instrument collected demographic data. The survey instrument

was originally pilot tested on 100 fourth-professional year PharmD students, and the students' input was taken into consideration in the development of the final survey instrument.

A class representative at each of the institutions, rather than a faculty member, administered the survey instrument to their classmates. All 4 representatives were contacted prior to conducting the survey and asked if they would like to assist with the study. Upon agreement, a package was mailed to the representative. The mailed package contained survey instruments, answer forms, a postage-paid return envelope, and a 1 page personally signed cover letter addressed to the representative describing the survey and what needed to be done. The students were asked to fill out the surveys anonymously, and the representative collected the answer forms and mailed them back to the investigators.

The data were entered and analyzed using *SPSS* (SPSS, Inc, Chicago, Ill).²⁶ Descriptive statistics and chi-square analysis were also used.

RESULTS

All 296 completed survey instruments were included in the analysis. If a student left any item blank on the survey instrument, then that response was not included in the data analysis. Demographic data are presented in Table 1. Students were also asked directly about their past and current cheating behaviors with the statement: "I have cheated during _____". The blank was filled in

with high school, prepharmacy education, or pharmacy school. Approximately 40% of those who completed the survey instrument admitted to cheating in high school, and 26.3% admitted to cheating during their prepharmacy education. Slightly more than 16% of those surveyed reported cheating during pharmacy school.

Table 2 describes cheating behaviors that students have participated in or have knowledge of. Students were asked to choose between (1) "I have participated", (2) "my classmates have participated" (3) "both myself and my classmates have participated", and (4) "neither myself nor my classmates have participated." The table has an additional column that combines the "I have participated" and "both myself and my classmates have participated" to show how many students admit to self-participation. More than 50% admitted they have worked on an individual assignment with a friend. Approximately 43% of the students surveyed stated that either they or classmates have used a "cheat-sheet" during an examination in pharmacy school when it was not allowed. In addition, 49.3% admitted either they or classmates have copied directly from a source without referencing it and 48.1% stated that either they or classmates have copied directly from material on the Internet without citing the source. About 5% of respondents stated either they or their classmates have altered grades in a record book in pharmacy school.

Respondents were asked to read and analyze 5 scenarios involving cheating in pharmacy school (Table 3). One scenario discussed a student who missed an examination and needed to take a makeup examination, but prior to taking this makeup examination the student called his friends and asked them to tell him what was on the examination. Twenty-four percent of the respondents stated that this incident is not cheating. More than half of pharmacy students admitted to witnessing similar behavior in pharmacy school, and 28.7% of them admitted to participating in this during pharmacy school. Twenty-four percent of the students also felt that it was not cheating to copy a calculations assignment directly from a friend's work, even if it was assigned as individual work. In that scenario, 58.1% of students have witnessed a similar event in pharmacy school, and 24.3% of them have participated in a similar event. Another finding from that scenario was that only 37.8% of the respondents felt that the student who had already completed part of the assignment and let their friend copy off their work was cheating. Another scenario described a student who stole an examination from a professor. Approximately 10% of students admitted to witnessing this during pharmacy school. Finally, there was a scenario regarding a student rewriting their friend's drug information paper. A little more than 10% of the students did not believe that this was cheating.

Table 1. Demographics of Pharmacy Students Responding to a Survey on Cheating Behaviors (N = 296)

Variable	No. (%)
Age	
≤22 yrs old	91 (31.1)
23 to 24 yrs old	124 (42.3)
25 to 29 yrs old	61 (20.8)
>30 yrs old	17 (5.8)
Gender	
Male	55 (18.8)
Female	237 (81.2)
Current GPA	
<2.60	32 (10.9)
2.60 to 3.09	94 (32.1)
3.10 to 3.59	107 (36.5)
3.60 to 4.0	60 (20.5)
Possess bachelor's degree before attending pharmacy school	
Yes	90 (30.9)
No	201 (69.1)

Table 2. Pharmacy Students' Participation in and Knowledge of Cheating Behaviors

	I Have Participated (%)	Classmates have Participated (%)	Both myself and My Classmates have Participated (%)	Neither Myself nor My Classmates have Participated (%)
Work on take home exam with a friend	8.7	20.8	44.4	26.0
Use "cheat" sheet during exam	1.0	38.8	3.4	56.7
Alter grades in record book	0.3	4.8	0.0	94.9
Steal exam from a teaching assistant	0.7	4.9	0.3	94.1
Copy directly from reference without citing	4.9	31.9	12.5	50.7
Copy directly from internet without citing	6.7	27.7	13.7	51.9

Participants were asked to respond to a series of statements regarding their perceptions of cheating behaviors, prevalence of cheating, and the influence of teachers on cheating in the classes (Table 4). Fifty-five percent of students agrees that students should be punished for cheating; however, 55% disagreed with the statement "I would turn in a classmate who cheats." In relation to prevalence and acceptance, approximately 53% of students strongly agreed or agreed that not a single examination in pharmacy school goes by without a cheater. In addition, 54.4% of the respondents strongly agreed or agreed that cheating is a part of life today.

In response to the statement "cheating is more likely to occur if a teacher has a poor teaching style," 68.3% of pharmacy students strongly agreed or agreed. About 61% of the respondents strongly agreed or agreed that cheating was less likely to occur if a teacher was approachable for questions. About 80% of the students strongly agreed or agreed that cheating was less likely to occur if proctors were available during examinations.

Students strongly disagreed or disagreed with the following statements related to behaviors and perceptions: "Students should be punished for cheating" (25.1%), and "I would turn in a classmate who cheats" (63.8%). About 60% of the students stated that they strongly disagreed or disagreed that a form of academic dishonesty is working with a classmate on a take-home assignment designated as individual work, and 37.2% of respondents stated that they strongly disagreed or disagreed that signing in on an attendance sheet and then leaving before class started was a form of academic dishonesty.

Chi-square testing was used to link past cheating behaviors in pharmacy students to current patterns. Pharmacy students who cheated during high school or a pre-pharmacy program were more likely to cheat during pharmacy school ($p < 0.0001$). Another finding was that

those who possessed a bachelor's degree prior to attending pharmacy school were less likely to cheat ($p < 0.0001$). Unlike previous literature, there was not a significant difference between male and female students in the amount of cheating that students admitted to committing ($p = 0.117$). There was also not a significant difference in the amount of cheating committed related to self-reported GPA ($p = 0.443$). Finally, there was no significant difference regarding age and amount of academic dishonesty committed ($p = 0.118$). In regard to the amount of cheating admitted by students at the 4 different institutions, the data were similar despite the various response rates. Table 5 presents the findings from the chi-square analysis in more detail.

DISCUSSION

This study is the first to look at pharmacy students' attitudes towards and the prevalence of academic dishonesty. The most interesting finding of this study is that students do not consider many behaviors as cheating. For example, over 50% of the respondents admit to committing activities traditionally defined as dishonest such as working on a take-home individual examination with a friend, but when students were asked the question if they have cheated in the past or currently cheat in pharmacy school, only 16.3% said yes. This study demonstrates pharmacy students' attitudes towards cheating and their acceptance of nontraditional behavior. In addition, more than half of pharmacy students responded that cheating is a part of life today and that not a single examination goes by without a cheater, which supports the prevalence and acceptance of cheating currently occurring in pharmacy schools.

Other interesting findings are related to professionalism and suggest professional behavior should be encouraged the first day in the pharmacy classroom. The data

Table 3. Pharmacy Students' Responses to Scenarios Involving Academic Dishonesty

Scenario	No. (%)
1. "Mike" rewrites a DI paper for "Laura" and "Laura" turns it in	
Mike cheated	211 (71.5)
Laura cheated	242 (82.0)
This is not cheating	30 (10.2)
Have witnessed this in pharmacy school	48 (16.3)
Have participated in this in pharmacy school	6 (2.0)
2. "Tony" looks at "Karen's" exam answers without "Karen" knowing	
Tony cheated	291 (98.3)
This is not cheating	1 (0.3)
Have witnessed this in pharmacy school	102 (34.5)
Have participated in this in pharmacy school	6 (2.0)
2a. "Karen" was aware of what Tony did. Did she cheat?	
Yes	269 (91.5)
No	25 (8.5)
3. "Bryan" missed an exam and took the makeup. Before the makeup, he called his friends so they could tell him what was on the exam	
Bryan cheated	197 (66.6)
His friends cheated	167 (56.4)
This is not cheating	71 (24.0)
Have witnessed this in pharmacy school	141 (54.7)
Have participated in this in pharmacy school	85 (28.7)
4. "Jeff" forgot about his individually assigned calculations assignment. "Jeff" copies the first 10 problems off of "Ellen" and then they work on the next 20 together	
Jeff cheated	208 (70.3)
Ellen cheated	112 (37.8)
This is not cheating	71 (24.0)
Have witnessed this in pharmacy school	172 (58.1)
Have participated in this in pharmacy school	72 (24.3)
5. "Robin" stole an exam off of the professor's desk while "Homer" looked out to make sure no one was coming; they then made copies for their friends	
Robin cheated	282 (95.3)
Homer cheated	272 (91.9)
Friends cheated	257 (86.8)
This is not cheating	4 (1.4)
Have witnessed this in pharmacy school	30 (10.3)
Have participated in this in pharmacy school	7 (2.4)

DI = drug information

show that about 65% of students stated that they would not turn in a classmate who cheats, and about 25% of them stated they either strongly disagreed or disagreed that students should be punished for cheating. These results illustrate either the lack of professionalism in the classroom or that students may not see academic honesty as a part of professionalism. Students who are not able to turn in dishonest classmates may be those who, in the future, behave unprofessionally. These students may become the pharmacists who are unable to report colleagues

who are participating in negative behaviors such as drug abuse or diversion. The data further support the need to begin discussing professionalism during the first year of study and not waiting until students begin experiential learning or near graduation. The students' opinions may also be a result of peer pressure. Many students feel loyalty to their peers rather than to the profession. They would not choose to turn in a peer because of their friendship. Other reasons may be that students believe that if it is learned that they are the one who turned a classmate in

Table 4. Perceptions, Prevalence, and Teaching Influence on Academic Dishonesty

Category	Strongly Disagree (%)	Disagree (%)	Agree (%)	Strongly Agree (%)
Cheating Perceptions and Behaviors				
Cheating is okay as long as no one knows	86.4	12.9	0.7	0.0
Cheaters hurt themselves in the long run	1.7	6.4	36.8	55.1
Certain amount of cheating is okay to get through pharmacy school	44.4	47.6	7.6	0.3
I would not turn in friend who cheats because I would be worried they would find out	10.9	42.9	36.1	10.2
It is okay to copy 2 lines from a reference as long as no one knows	25.6	60.1	11.3	3.1
A form of academic dishonesty:				
• is working with classmate on a take home assignment assigned to be individual work	8.8	49.0	37.5	4.7
• is signing in on an attendance sheet and then leaving before class starts	6.8	30.4	47.6	15.2
• is signing in a friend on attendance sheet	3.4	21.8	59.9	15.0
Prevalence and Acceptance				
Cheating is a part of life today	9.8	35.8	41.6	12.8
Cheating is very common in pharmacy school	6.8	50.0	35.8	7.4
Not a single exam goes by without a cheater	5.8	41.5	38.8	13.9
Teaching Influence				
It is easier to cheat in smaller classes	32.6	62.2	4.5	0.7
Cheating is more likely with a poor teacher or lecturer	7.8	23.9	50.2	18.1
Cheating is less likely if proctors are available	3.4	18.7	54.4	23.5
Cheating is less likely if teacher is approachable for questions	4.1	35.1	50.5	10.3

they may be named the outcast by others in their class and this would end up doing more harm than good. Faculty members can help to remind students that their classmates will be healthcare professionals and that academic dishonesty in the classroom has been linked to improper professional and clinical behavior.^{2,22-24}

The results support previous literature⁷ that past cheating behavior is associated with increased cheating in pharmacy school. Another major finding from this study is that students who possessed a bachelor's degree prior to entering pharmacy school were less likely to commit academic dishonesty in pharmacy school. This may be due to either maturity of the baccalaureate student or that they have a better understanding of their personal career goals and subsequently are better prepared for professional school. This finding is interesting because these results show that these students are more likely to act in a professional manner and less likely to cheat.

The results of this study also suggest that classroom atmosphere affects cheating behaviors. Faculty members may have the power to create an environment that decreases

cheating.^{13,15,16} Some ways to do this are to avoid giving the same examination as a make-up examination, to use proctors during examinations, and to be more approachable and less intimidating. Colleges of pharmacy can encourage this teaching style when possible. These results can help faculty members attempt to decrease the amount of academic dishonesty committed in pharmacy school.

The characteristics of the schools were compared with the full target samples to determine how comparable the sample was to the overall student body surveyed and no bias was shown. In addition, the schools were analyzed for differences in response rate due to different characteristics and no bias was shown. Gender ratios were similar in all of the schools, with female enrollment ranging from 75% to 83.9%. However, one limitation was the difference among schools in the number of students who possessed a bachelor's degree prior to matriculation into pharmacy school. At 1 institution (N = 156), 48% of respondents have a bachelor's degree and at the other schools, which represented the other half of responses (N = 140), only 10% to 15% of respondents had bachelor's degrees.

Table 5. Predictors of Cheating During Pharmacy School

Predictor	Admitted to Cheating During Pharmacy School (n = 47), No. (%)	P
Cheated during high school		
Yes (N = 108)	33 (30.6)	<0.0001
No (N = 179)	14 (7.8)	
Cheated during prepharmacy education		
Yes (N = 76)	34 (44.7)	<0.0001
No (N = 211)	12 (5.7)	
Possess BS degree prior to attending pharmacy school		
Yes (N = 90)	7 (7.8)	<0.0001
No (N = 197)	40 (20.3)	
Gender		
Male (N = 54)	5 (9.3)	0.117
Female (N = 233)	42 (89.4)	
GPA		
<2.60 (N = 29)	7 (24.1)	0.443
2.60-3.09 (N = 91)	12 (13.2)	
3.10-3.59 (N = 107)	16 (15.0)	
3.60-4.00 (N = 60)	12 (20.0)	
Age		
<22 years (N = 91)	16 (17.6)	0.118
23 – 24 years (N = 120)	25 (20.8)	
25 – 29 years (N = 60)	5 (8.3)	
30 and older (N = 16)	1 (6.3)	

There are several other limitations to this study that should be mentioned. All 4 of the colleges of pharmacy were located in either the Midwest or the east. No west coast institutions were included in the analysis. Also, it would have been interesting to determine what students' perception of faculty concern about academic dishonesty was and whether this played a role in their decision to commit an act of academic dishonesty. Another limitation is that although 16% of students admitted to committing acts of academic dishonesty, this percentage may be falsely low because we are not sure how many students were absent on the day the survey instrument was passed out. An additional limitation is that response rates varied at the different institutions; however, upon analysis of each individual school, similar patterns of behavior and attitudes were found. A final limitation is the nature of self-reporting. Although a class representative administered the survey instrument and students should have as-

sumed that faculty members would not know their responses, honesty could be the reason why more students stated that their classmates participated in cheating rather than that they themselves participated in acts of academic dishonesty.

CONCLUSIONS

These data indicate that academic dishonesty is occurring among pharmacy students and that students' do not perceive many behaviors as cheating; therefore, there is a need for colleges and schools of pharmacy to address these issues. Academic dishonesty is a concern because pharmacy school is where students train to be ethical health care professionals. In addition, the data illustrate other ideas that can be addressed such as promoting professionalism in the classroom. They also suggest that cheating is less prevalent among students who earn a bachelor's degree prior to entering pharmacy school. Admissions offices may take this into consideration when looking at incoming doctor of pharmacy candidates. Teaching style can also affect students' participation in academic dishonesty. Faculty members and preceptors should consider this when determining their style of teaching, both in and out of the classroom. Finally, this study shows that academic dishonesty is a major concern for the future of pharmacy schools and the profession of pharmacy.

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