A study of academic dishonesty among students at two pharmacy schools

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AIM • To assess students' attitude, self reported behaviour and belief of prevalence towards common incidents of academic dishonesty occurring within an MPharm degree programme. To investigate if all incidents of "dishonesty" are considered serious by academic staff.

DESIGN • Academic focus groups conducted to identify incidents of academic dishonesty. This was used to develop a questionnaire consisting of twelve scenarios of a fictitious students engaging in academically dishonest behaviour.

SUBJECTS AND SETTING • Students at two schools of pharmacy in England in a captive situation. A modified version of the questionnaire was sent to all academic staff at the two schools asking them to rank each scenario individually for severity.

RESULTS • 50.7% of questionnaires were returned from both schools of pharmacy. 80% of students admitted to at least one incident of academic dishonesty with males more likely to admit to academic dishonesty at both schools. Students at both schools were more likely to participate in scenarios considered by academic staff to be of "lower" severity.

CONCLUSIONS • Preliminary data suggests that academic dishonesty is as prevalent among pharmacy students as it is in other disciplines. Students have a "hierarchy of values" where examination dishonesty is seen as most serious with low prevalence, whereas coursework dishonesty is considered much less serious and occurs with higher prevalence. Existing definitions of academic dishonesty do not take into account many of the teaching activities that students experience in current undergraduate curricula. More fundamentally, academic staff need to revise their assessment and teaching procedures to ensure that students do not view the undergraduate degree as a barrier to be crossed in any way possible.

Professionals are expected to display traits of honesty, respectability and integrity — qualities acquired during the process of "professional socialisation".[1] This can occur in two settings, either during formal education for the qualifying degree or during the working life of a professional.[2] Wigger and Mrtek[3] claim that the survival of any profession requires the matching of the profession's goals and mission statements with the attitudes of the students studying the discipline. Therefore, the moral, ethical and professional values espoused by the profession must be relayed appropriately to students. It is then their responsibility to attain and maintain these values.

Research in the United States has consistently shown that about half of university students engage in some sort of dishonest behaviour.[4] In the United Kingdom, Franklyn-Stokes and Newstead[5] replicated these findings in their study of 128 science students. Studies involving medical students have also shown that dishonest behaviour occurs[6–8] and a recent study of 461 medical students suggested that up to 56 per cent would engage in behaviour deemed unethical or dishonest by the university.[9] These studies indicate that failure to take academic dishonesty seriously may cast doubt on the validity of the final award made.

Pharmacy undergraduate curricula are changing from a traditional didactic, lecture-based approach towards an increase in assessed coursework assignments, collaborative learning and peer assessment. However, the use of such assignments for both secondary schooling and final degree classification has caused concern regarding the authenticity of students' work, particularly when the impact of information technology is considered.[10]

Pharmacy is a health profession, with members trusted by the public and with clear standards of governance, accountability and professionalism, similar to those of the medical profession. Currently it is not known if academic dishonesty occurs among pharmacy students, what activities are considered dishonest by academic staff and students or what is the reported incidence of such activities.

The aims of this study were threefold:

- To identify common incidents of academic dishonesty occurring within an MPharm degree programme
- To assess students' attitude to these incidents, their self-reported behaviour and what they believe the prevalence of these incidents to be at their schools
- To investigate if all incidents of "dishonesty" are considered serious by academic staff

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METHOD

The study was conducted among pharmacy students in all years at two schools of pharmacy in England. Separate focus groups were conducted with academic staff and pharmacy students to identify incidents of academic dishonesty. Focus groups were not audio-taped to prevent any feeling of intimidation or inhibition; instead, two independent note-takers were present to ensure credibility and veracity of the evidence collected. All participants were assured that evidence from the focus group would remain anonymous and confidential.

From this, a questionnaire was constructed with 12 scenarios of a fictitious student engaging in academically dishonest behaviour. Each scenario was followed by three closed questions to investigate student attitude, behaviour and perceived prevalence of such activities. The questionnaire was piloted for clarity. The questionnaire only asked for specific student demographics to maintain student confidentiality. These were age, year of study and gender.

The questionnaire was distributed and completed in a captive situation (before or after timetabled lectures) and collected by a student researcher (IK). To prevent bias and preconceptions, the survey was not publicised to the student body before being conducted. All respondents were assured that

data would be used solely for research purposes.

Academic staff at both schools were sent a modified version of the questionnaire and asked to rank each of the scenarios individually using a scale from 5 (most serious) to 1 (mild). This was used to develop a ranked schedule of scenarios to distinguish between the most serious and least serious incidents of academic dishonesty.

Data were managed using SPSS (Statistical Package for Social Scientists) version 10.

RESULTS

The questionnaire was completed by 55 per cent (n=294/532) of students at school 1 and 45 per cent (n=184/409) of students at school 2. Female students accounted for 67.4 per cent (n=194/288) for school 1 and 76.8 per cent (n=136/177) for school 2 of the sample, which reflected the gender distribution within each school of pharmacy. The age range of students was 18–33 years for school 1 and 18–40 years for school 2. Dishonest scenarios identified by focus groups included examination dishonesty (for example, taking unauthorised material into examinations or the use of mnemonics or abbreviations), borrowing and copying coursework (with or without permission), invention of data for experimental practicals, improper citation of references, website "cut and paste" and handing coursework down to lower years for their use.

Tables 1 and 2 reflect student attitudes and behaviour towards each of the scenarios involving academic misconduct. By summing each admission of participation in a scenario, a total summed score of admitted academic dishonesty was calculated for each student. This displayed a uniform distribution for both schools where 91.2 per cent (n=268/292) and 80.4 per cent (n=148/184) of students at school 1 and 2, respectively, admitted to taking part in at least one incident of the scenarios reflecting academic dishonesty. Figures 1 and 2 show that median score of admitted academic dishonesty is significantly higher for students at school 1

TABLE 1: STUDENTS' ATTITUDES TOWARDS SCENARIOS INVOLVING ACADEMIC DISHONESTY (YES=WRONG)

Scenarios and responses		Students' attitudes			
		School 1 (n=294)		School 2 (n=184)	
		%	n	%	n
Using hidden notes in written examination	Yes	96.9	285	96.2	177
	No	1.7	5	2.7	5
	Unsure	1.4	4	1.1	2
Using notes written on arm in written examination	Yes	96.2	281	96.2	176
	No	2.1	6	2,7	5
	Unsure	1.7	5	1.1	2
Using abbreviations written on arm during written examination	Yes	76.5	224	84.8	156
	No	11.6	34	6.0	11
	Unsure	11.9	35	9.2	17
Asking a neighbour a question during a practice examination	Yes	34.0	99	35.9	66
	No	55.3	161	52.7	97
	Unsure	10.7	31	11.4	21
Lenient marking during peer assessment of course work	Yes	56.0	164	62.3	114
	No	27.0	79	16.4	30
	Unsure	17.1	50	21.3	39
Borrowing another student's coursework for ideas for own work	Yes	17.1	50	23.6	43
	No	68.3	200	48.9	89
	Unsure	14.7	43	27.5	50
Borrowing and copying another student's coursework without permission	Yes	86.6	253	90.7	166
	No	7.2	21	2.7	5
	Unsure	6.2	18	6.6	12
Borrowing and copying another student's coursework with permission	Yes	39.3	114	68.3	125
	No	42.4	123	20.8	38
	Unsure	18.3	53	10.9	20
Handing down work to students in lower years for their use	Yes	45.7	133	62.6	114
	No	39.2	114	25.8	47
	Unsure	15.1	44	11.5	21
Copying text directly from reference sources without acknowledging source	Yes	55.1	161	57.4	105
	No	24.3	71	23.0	42
	Unsure	20.5	60	19.7	36
Cutting and pasting from the internet with website acknowledgement in bibliography	Yes	32.2	94	26.6	49
	No	42.5	124	45.1	83
	Unsure	25.3	74	28.3	52
Invention of laboratory data for experimental practicals	Yes	40.0	116	65.9	120
	No	36.6	106	19.8	36
	Unsure	23.4	68	14.3	26

A "yes" answer indicates that the student believes the action to be dishonest

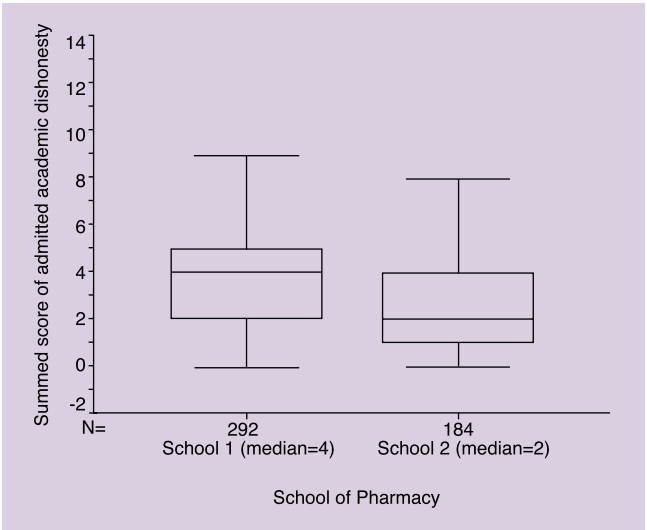

Figure 1: Box plot of distributions of summed scores of admitted academic dishonesty at both schools of pharmacy

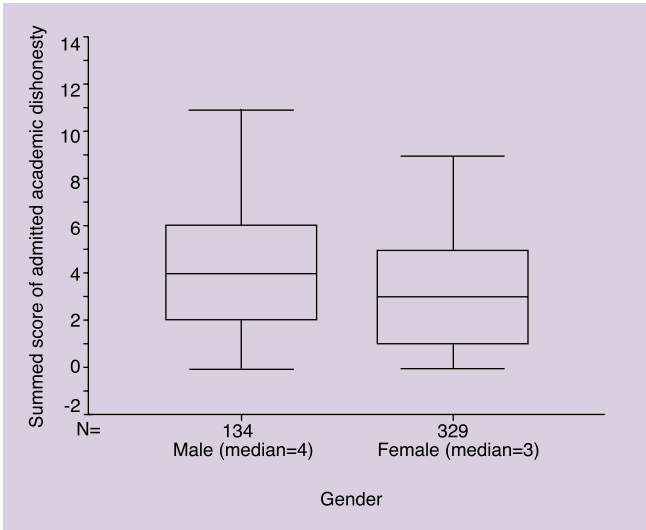

Figure 2: Box plot of distributions of summed scores of admitted academic dishonesty according to gender in whole student sample

TABLE 2: STUDENTS' ATTITUDES TOWARDS SCENARIOS INVOLVING ACADEMIC DISHONESTY (YES=WRONG)

Scenarios and responses		Students' behaviour			
		School 1 (n=294)		School 2 (n=184)	
		%	n	%	n
Using hidden notes in written examination	No	98.6	286	98.9	179
	Yes	1.4	4	1.1	2
Using notes written on arm in written examination	No	95.2	276	97.2	176
	Yes	4.5	13	2.8	5
Using abbreviations written on arm during written examination	No	93.4	271	95.6	175
	Yes	6.6	19	4.4	8
Asking a neighbour a question during a practice examination	No	66.7	192	64.6	117
	Yes	33.3	96	35.4	64
Lenient marking during peer assessment of course work	No	51.6	149	77.5	141
	Yes	48.4	140	22.5	41
Borrowing another student's coursework for ideas for own work	No	30.7	89	44.5	81
	Yes	69.3	201	55.5	101
Borrowing and copying another student's coursework without permission	No	93.4	269	95.1	174
	Yes	6.6	19	4.9	9
Borrowing and copying another student's coursework with permission	No	66.2	190	74.3	136
	Yes	33.8	97	25.7	47
Handing down work to students in lower years for their use	No	54.5	157	63.7	116
	Yes	45.5	131	36.3	66
Copying text directly from reference sources without acknowledging source	No	73.5	211	81.2	147
	Yes	26.5	76	18.8	34
Cutting and pasting from the internet with website acknowledgement in bibliography	No	68.2	195	67.0	122
	Yes	31.8	91	33.0	60
Invention of laboratory data for experimental practicals	No	29.4	84	57.7	105
	Yes	70.6	202	42.3	77

A "yes" answer indicates that the student has done something similar during the degree programme

TABLE 3: SCENARIOS OF ACADEMIC DISHONESTY RANKED ACCORDING TO SEVERITY BY ACADEMIC STAFF AT BOTH SCHOOLS OF PHARMACY (N=71)

Rank	Scenario	Severity
1.	Hidden notes in written examination	High
2.	Notes on arm in written examination	High
3.	Borrows and copies coursework without permission	High
4.	Abbreviations on arm in written examination	High
5.	Invention of laboratory results	High
6.	Borrows and copies coursework without permission	High
7.	Failure to acknowledge sources correctly	High
8.	Handing down work to lower years	Low
9.	Website "cut and paste"	Low
10.	Marking peer coursework leniently	Low
11.	Borrowing coursework for ideas	Low
12.	Asking neighbour question in practical examination	Low

(U=16,501; P=0.006) and male students were significantly more likely to admit to academic dishonesty (U=13,338.5; P<0.005). Students in higher years at school 1 admitted to greater participation in scenarios considered to be dishonest (Spearman's rho=0.291; P<0.001). This correlation did not hold true for students at school 2. There was no correlation between admission of academic dishonesty and student age.

Academic staff at both institutions were in significant agreement about the seriousness of scenarios in terms of dishonesty (coefficient of concordance=0.4, c^2=284.7; P<0.001). This allowed the scenarios to be divided into two broad groups reflecting "high" and "low" severity (Table 3). Mean summed score of admitted academic dishonesty to scenarios judged to be of "low" severity by academic staff is significantly higher for both schools of pharmacy. Students at both schools were more likely to participate in scenarios considered by academic staff to be of "lower" severity (school 1 t=9.66; P<0.001; school 2 t=9.01; P<0.001).

Both the student sample and academic staff viewed examination dishonesty to be most serious with only 1.3 per cent (n=6/471) of students admitting to taking part in such behaviour. However, both students and academic staff considered protocol within practical examinations to be different from written examinations. Over half (54 per cent; n=258/475) of the surveyed students did not consider asking a colleague a question in a practical examination to be dishonest, and 33.5 per cent (n=160/469) admitted to doing something similar. This is a considerable difference to their attitudes relating to dishonest behaviour in written examinations.

Borrowing and copying coursework "without permission" was considered dishonest by 88.2 per cent (n=419/475) of students with 5.9 per cent (n=28/471) admitting to such behaviour. However, almost half (47.5 per cent; n=224/472) of the surveyed students believed these activities commonly occurred at their school of pharmacy. Borrowing and copying coursework "with permission" was considered dishonest by 50.5 per cent (n=239/473) of students; 30.6 per cent (n=144/470) admitted to having done something similar and 66.3 per cent (n=311/469) believed such activities were common at their school of pharmacy. However, students at school 2 were more likely to agree that even borrowing and copying coursework "with permission" was dishonest than students at school 1 (c^2=25.3; df=1; P<0.001). A student handing down coursework for use by lower years was considered to be dishonest by 52.2 per cent (n=247/473) of students, yet 41.9 per cent (n=197/470) students admitted to having done something similar.

Academic staff at both institutions considered invention of data for experimental practicals to be relatively serious. Fifty per cent (n=236/472) of students believed invention of data for practical experiments to be dishonest and a further 59.6 per cent (n=279/468) admitted to doing something similar. A mixture of attitude and behaviour was evident with respect to website "cut and paste", 43.5 per cent (n=207/476) of students did not consider this activity to be dishonest, 26.5 per cent (n=126/476) were unsure and 32.3 per cent (n=151/468) admitted to doing something similar. Additionally, even though 56 per cent (n=266/475) of students agreed that failure to cite reference sources is dishonest, 23.5 per cent (n=110/468) had done something similar.

DISCUSSION

The results of this study demonstrate that dishonest behaviour is frequent in pharmacy undergraduate environments. However, it is important to put these results into context. Despite a large proportion of students at each institution admitting to participating in dishonest behaviour, the majority is centred around scenarios considered to be of "low" severity. However, some students do participate in activities considered to be of "high" severity, such as coursework dishonesty, inadequate referencing and invention of experimental data. This cannot be ignored. Furthermore, self-reported behaviour needs to be interpreted carefully, particularly since individuals are more likely to underestimate the true nature of their behaviour.[11]

In common with students surveyed by Franklyn-Stokes and Newstead,[5] most students in our study did not participate in examination dishonesty. Conduct expected in formal examination is often transparent and this may be one of the reasons that students adhered to the rules at both schools of

pharmacy. However, male students in our study were significantly more likely to admit to dishonest behaviour concurring with the findings of other researchers.[8,12] The proportion of female students in this study is higher than in the profession overall (51.5 per cent, personal communication, Royal Pharmaceutical Society of Great Britain), yet male students still admit to a greater incidence of dishonesty. Dishonest behaviours at university have been associated with high achievers and a desire to get a better mark[5] and undergraduate environments can be highly competitive, particularly in vocational degrees. In medicine, female students perform consistently better in medical training and clinical assessments.[13] In a female-dominated profession such as pharmacy, male students may feel marginalised and less able to keep up with the standards being set by their female colleagues and resort to dishonest activities to cope with the demands of the undergraduate curriculum. Alternatively, Baird[14] has suggested that male students, being easily influenced by their peer group, may participate in such behaviour due to "social image", unlike female students who are more independently minded. However, other studies have suggested that gender has no influence on such behaviour.[15,16]

Students in higher years at school 1 were more likely to admit to taking part in dishonest activities, which may reflect the increased proportion of coursework requirements and higher workload pressures in later years. The first year is a foundation year which is more didactic and does not contribute to final degree classification. Therefore, students in this year may not necessarily have the same opportunities as those in higher years to participate in some of the dishonest activities described in the scenarios. Alternatively, students in lower years may view their colleagues in higher years who take part in such activities as a "culture" and when given the opportunity themselves, mimic this behaviour.

Pharmacy undergraduate curricula are encouraging more collaborative learning and sharing of experiences. However, the line between collaboration and collusion can be difficult to draw. Clearly, students do not consider borrowing and copying course work "with permission" to be dishonest. For students, it is not the act of copying coursework that makes this activity dishonest, rather it is if permission has been sought. Academic staff have a different viewpoint, even though they consider borrowing and copying coursework "without permission" to be more serious than "with permission", the latter is still considered dishonest. Academic staff view their ideas and beliefs as intellectual property and copying as breach of copyright and in some cases illegal. Perhaps, students do not necessarily view themselves as part of the academic process and place less value on their own work than academics as suggested by Franklyn-Stokes and Newstead.[5] At school 2, a formal policy on collusion and collaboration exists in the student handbook which may account for the higher proportion of students believing even borrowing and copying coursework "with permission" to be dishonest. However, though such a policy may encourage some students not to take part in such activities, others will still continue to participate in dishonest behaviour. Multiple strategies are necessary to ensure that students are aware of the conduct expected from them and the likely consequences if they do not adhere.[17]

Academic staff view invention of laboratory data to be of high severity which is understandable as many academics are measured on publication output.[18] Traditionally, a pharmacy degree combined pharmaceutical and clinical science with considerable time spent conducting bench practicals. However, recent developments and change in policy relating to the role of the pharmacist[19] has resulted in a reduction in the amount of "wet" practicals that students conduct at undergraduate level. Currently, almost 70 per cent of the profession are engaged in hospital or community practice (personal communication, Royal Pharmaceutical Society) and students will perceive this as their career path. Perhaps students view experimental practicals as a "hurdle" to be negotiated with little vocational relevance and are therefore more likely to participate in "dishonest behaviour" as suggested by MacDonald.[20]

Clearly, academic staff need to consider the purpose of experimental practicals. Are they an elaboration on understanding on a specific scientific area or a technical report of activities? If students perceive activities to be mundane and academic staff set the same assignments year on year, they feel justified in participating in dishonest behaviour.[21] Nevertheless, some students may choose to become researchers one day, so there is a responsibility to ensure that undergraduate students receive optimum training to prevent any question on their research integrity and credibility. Additionally, publication bias can occur when only positive results are reported in the literature.[22] It is possible that students inventing data at undergraduate level for experimental practicals to obtain the "right" results are less likely to view "negative" results with researcher objectivity and publish them regardless.

Pharmacy undergraduate curricula are gradually evolving from the use of orthodox learning methods to the use of coursework assignments and collaborative learning to encourage self-directed learning and self-management of time. This will ideally produce graduates capable of critical thinking, problem solving and making professional judgements in the face of clinical uncertainty.[19] However, with increasing student numbers, academic staff can struggle to provide timely feedback, guidance and interaction. This may force students to resort to "dishonest" activities which may be an accurate reflection of the mechanisms used to cope with the perceived academic demands placed upon them and therefore may be a labile, changeable behaviour, as suggested by Baldwin *et al*.[8]

Pharmacy undergraduates are increasingly asked to conduct literature reviews and use reference sources, and have a wider breadth of knowledge with less direction from their lecturers. Taylor and Harding[18] posit that "self directed learning is the epitome of efficient teaching . . . students 'do the work themselves' interacting with literature sources and computers rather than their lecturers". The internet is revolutionising information gathering and it is possible to insert paragraphs without detection using word processing "cut and paste" functions. Indeed, one publication has claimed that it "has been a paradise for those with a creative attitude to facts".[23] Our study shows confusion among students about use of the internet. Students may use this medium to a greater extent because it may be easier to copy "wholesale" from a "virtual" rather than a paper source. We cannot blame students for not having appropriate paraphrasing and attribution skills unless we have taught them academic convention.

Existing definitions of academic dishonesty do not take into account many of the teaching activities that students experience in current undergraduate curricula. More fundamentally, academic staff need to revise their assessment and teaching procedures to ensure that students do not view the undergraduate degree as a barrier to be crossed in any way possible. As has been claimed by Ashworth *et al*[24] and Franklyn-Stokes and Newstead,[5] inculcation of academic values, creating a culture of honesty and instilling ideals of morality are crucial to stem dishonest behaviour from higher education environments.

Our preliminary data suggest that academic dishonesty is as prevalent among pharmacy students as it is in other disciplines. We confirm that students have a "hierarchy of values"[10] where examination dishonesty is seen as most serious with low prevalence whereas coursework dishonesty is considered much less serious and consequently occurs with higher prevalence. It may be that such dishonest behaviour is a "norm" in higher education institutions that ceases when students face less educational pressure. However, the profession is changing. There is increasing emphasis on continuing professional development, revalidation examinations and proof of competence. If pharmacists begin to face similar pressures in terms of examinations and proving competence and development, is there a chance they could resort to dishonest behaviour habituated during their undergraduate education? The academic environment and the profession must maintain their role in promoting excellence in education and practice. Further studies are under way to examine reasons for such dishonest behaviour and provide appropriate support for students and academic staff to prevent it becoming habitual.

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